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Ultra-processed foods consumed by children attended by Public Health Care System in the city of Rio de Janeiro: analysis of labels adequacy to required allergen legislation

Alimentos ultraprocessados consumidos por crianças atendidas pelo Sistema Único de Saúde na cidade do Rio de Janeiro: análise da adequação dos rótulos à legislação obrigatória para alergênicos

Abstract

Objective: To analyze the labels of ultra-processed foods (UPF) consumed by children under five years of age, in order to comply with Resolution No. 26 of July 2, 2015, identifying information on allergenic foods. *Methods:* The database came from a research conducted with a representative sample of the population of pre-school attended at the Public Health Care System in the city of Rio de Janeiro. (n=536). In this research, the ultra-processed foods were identified from the food listed in the 24-hour dietary recall. A photographic record of the labels of these foods was made during a market research. The presence of allergenic foods and their derivatives was verified in the list of ingredients of the 303 UPF consumed, as well as the orientations as to the information that should be present on the label, in light of RDC No. 26/2015. *Results*: Most of the food labels (58.7%) of the ultra-processed food groups studied had at least one allergenic ingredient. Twelve different allergenic ingredients were found in the cookie group. Of the labels analyzed, only 33.1% presented the mandatory message showing

all the allergenic ingredients present. Derivatives of allergenic ingredients were found in 15 groups of foods consumed by children. The information "may contain" and "contains traces" were present on 93 labels, approximately 30%. *Conclusion:* The findings of this study show that, at the time of transition of RDC No. 26/2015, most of the labels still did not meet the legislation.

Keywords: Food hypersensitivity. Food. Food labelling. Legislation on food.

Resumo

Objetivo: Analisar os rótulos de alimentos ultraprocessados (AUP) consumidos por crianças menores de cinco anos, quanto à adequação à Resolução n° 26, de 2 de julho de 2015, identificando informações sobre alimentos alergênicos. *Métodos:* Utilizou-se banco de dados proveniente de pesquisa realizada com amostra representativa da população de pré-escolares usuários da rede básica de saúde no município do Rio de Janeiro (n=536). Nesta pesquisa, foram identificados os alimentos ultraprocessados citados nos Recordatórios de 24 horas. Realizou-se o registro fotográfico dos rótulos destes alimentos em pesquisa de mercado. Verificou-se a presença dos alimentos alergênicos e seus derivados na lista de ingredientes dos 303 AUP consumidos, assim como as orientações das informações que deveriam estar presentes no rótulo, à luz da RDC nº 26/2015. *Resultados:* A maior parte (58,7%) dos rótulos de alimentos dos grupos de ultraprocessados estudados possuía pelo menos um ingrediente alergênico. Foram encontrados 12 ingredientes alergênicos diferentes no grupo dos biscoitos. Dos rótulos analisados, apenas 33,1% apresentaram mensagem obrigatória para todos os ingredientes alergênicos presentes. Os derivados dos ingredientes alergênicos foram encontrados em 15 grupos de alimentos consumidos pelas crianças. As informações “pode conter” e “contém traços” estavam presentes em 93 rótulos, aproximadamente 30%. *Conclusão:* Os achados deste estudo mostram que, no momento da transição da RDC nº 26/2015, a maior parte dos rótulos ainda não atendia à legislação.

Palavras-chave: Hipersensibilidade alimentar. Alimentos. Rotulagem de alimentos. Legislação sobre alimentos.

INTRODUCTION

Food allergy (FA) is the term used for adverse immune reactions to food or food additives. These reactions affect up to 10% of the general population, being more common in children than in adults. International studies suggest a possible increase in the prevalence of food allergies over the past 30 years.[1] Clinical manifestations result from ingestion, inhalation or contact with a certain food, which results in immunological reactions.[2] It is documented that 90% of FA cases are caused by eight foods: eggs, cow's milk, fish, crustaceans, nuts, peanuts, wheat and soybeans.[3]

The offer of solid food before four months of age, when the newborn presents immaturity of the intestinal barrier, seems to increase the risk of developing FA. On the other hand, the introduction of complementary feeding at six months of age is a protective factor for the child regarding the risk of developing FA.[4]

Some ultra-processed foods (UPF), such as instant noodles, yogurts, sandwich cookies, sugary drinks and instant chocolate mix, are commonly present in the complementary diet of children.[5,6] Data from the National Demographic and Health Survey for 2006 and the National Health Survey for 2013 show that, respectively, 40.5% of children under the age of five frequently consume soft drinks and that 60.8% of children under the age of two eat sandwich cookies or crackers.[7,8]

Ultra-processed foods pose a risk to the health of children with FA by including a set of allergenic foods in the list of ingredients. In addition, they have an unbalanced nutritional composition, since they are usually rich in sugars and/or fats, sodium, tend to be poor in dietary fibers and have chemical additives.[9]

Caregivers of children who have FA look for information about the foods that will be offered, since the most effective way to avoid adverse reactions is to restrict foods that cause allergies. Therefore, it is essential that food labels provide clear and legible information to consumers.[10]

Food control and regulation seek to protect the population by helping them choose foods that meet their needs.[11] In July 2015, the Collegiate Board Resolution (RDC) No. 26 was created, which addresses the main foods that cause food allergies. According to this resolution, the labels of foods packaged in the absence of the consumer must contain information on the allergenic nature of the ingredients of these products.[12]

In order to ensure the warning statement, in addition to mandatory messages regarding the intentional presence of allergens and allergen derivatives, the resolution also regulates statements about the possibility of cross-contamination, using the phrases: "may contain" or "contains traces". The National Health Surveillance Agency (ANVISA) granted the industry a period of 12 months to adapt the labels to RDC No. 26/2015. This study aims to analyze the labels of UPF consumed by children under five years of age, as to the compliance with Resolution No. 26 of July 2, 2015, identifying information on allergenic foods.

METHODS

Data collected on the feeding practices of children participating in a sectional study from June to December 2014 in Rio de Janeiro were used. The sample of the largest study was probabilistic, with selection in two stages (stratification of the Basic Health Units - UBS by size and drawing of children in the UBS registration lists) and was composed of children aged between six and 59 months, assisted in 33 UBS of the Public Health Care System (SUS), distributed in neighborhoods in different areas of the city. The sample size was calculated in order to allow stratified analyses by age group (6 to 23.9; ≥24 months) for the main outcomes of the larger study (prevalence of anemia and vitamin A deficiency). Children with sickle cell disease or other hemoglobinopathies were not included.

From the food consumption data obtained through a 24-hour dietary recall, the ultra-processed foods consumed were identified. A market survey was conducted to record photographically the labels of these foods. The information collected on food labels or on the manufacturers' website (when the products were not found on the market) was: brand, ingredients, generic names and claims of the reported foods. The collected data were typed in Microsoft® Excel Software (2010 version).

A total of 303 UPF were found, which were grouped according to their sensory characteristics and dietary uses, and divided into groups (n=19).[13]

The labels of the photographed UPF were compared with RDC No. 26/2015, specific legislation for allergen control. Foods in which it was not possible to access the list of ingredients, as well as infant formulas and food supplements, were not included in the analysis because they had specific purposes and were indicated for situations that require clinical interventions. It is important to say that the study portrays a moment of transition from the implementation of the new rules, since the data collection was carried out between November and December 2015, and the ANVISA deadline for the adequacy of labels was July 2016.

Articles 6 and 7 of RDC No 26/2015 provide for the mandatory labelling of foods that cause food allergies in accordance with the established requirements (Chart 1).

Chart 1. Inscriptions that must appear on the labels of food products with allergenic ingredients in accordance with Resolution RDC No. 26 of 2015.

<table>
<tr><td rowspan="8">For foods, ingredients, food additives and technological adjuvants containing or derived from allergenic ingredients</td><td colspan="2">Contains</td><td>Contains derivatives</td><td>May contain</td></tr>
<tr><td>common names of foods that cause food allergies</td><td>common names of foods that cause food allergies and their derivatives</td><td>common names of foods that cause food allergies</td><td>common names of foods that cause food allergies</td></tr>
<tr><td colspan="4">Upper case</td></tr>
<tr><td colspan="4">Bold</td></tr>
<tr><td colspan="4">Color contrasting with the background of the label</td></tr>
<tr><td colspan="4">Minimum size of 2 mm (the size shall not be smaller than the size of the letter used in the list of ingredients)</td></tr>
<tr><td colspan="4">Information in a visible place even after the packaging has been opened</td></tr>
<tr><td colspan="4">Packages with textual panel equal to or less than 100 cm^2; the minimum character height is 1 mm</td></tr>
</table>

For data analysis, all allergenic foods and their derivatives mentioned in RDC No. 26/2015 were considered, as well as the guidelines of the information that should be present on the label, according to this regulation.

The study that originated the analyzed database was approved by the Ethics Committee on Research with Human Beings of the Municipal Health Secretariat of Rio de Janeiro (No. 93/2013). Those responsible for the children studied who agreed to participate have signed a Free and Informed Consent Form (TCLE).

RESULTS

The 303 ultra-processed foods studied, of different brands and flavors, were divided into 19 groups: sugary drinks (n=77), cookies (n=53), sweets and treats (n=47), ultra-processed yogurts and dairy beverages (n=34), thickening flours (n=14), snacks and chips (n=14), ready-made diced and powdered spices (n=11), processed cakes (n=7), soft cheese and ultra-processed cheeses (n=7), concentrated juice (n=7), industrialized and cold meats (n=6), bread (n=6), instant chocolate mix and strawberry-based flavoring (n=4), morning cereal (n=4),

industrialized sauces (n=4), margarines (n=3), instant noodles (n=2), industrialized popcorn (n=2) and industrialized seasoned cassava flour (n=1) (table 1).

Table 1. Frequency of allergenic ingredients present in the list of ingredients and frequency of the presence of the message provided for in the legislation on the labels of ultra-processed food consumed by children, between six months and five years, attended by SUS in the municipality of Rio de Janeiro, 2015.

Group of ultra-processed foods (number of products analyzed)	Frequency of allergenic ingredients present on labels			Frequency of the presence of the message provided for in the legislation	
		n	%	n	%
Sugary drinks (n=77)	Milk	1	1.29	1	100.00
	Soy	13	16.88	4	30.76
Cookies (n=53)	Milk	33	62.20	21	63.63
	Soy	14	26.41	10	71.42
	Peanuts	5	9.43	5	100.00
	Eggs	2	3.77	2	100.00
	Rye	3	5.66	3	100.00
	Almond	2	3.77	2	100.00
	Walnuts	3	5.66	3	100.00
	Hazelnut	2	3.77	2	100.00
	Oats	2	3.77	2	100.00
	Barley	7	13.20	6	85.71
	Wheat	52	98.10	9	17.30
	Chestnut	3	5.60	3	100.00
Sweets and treats (n=47)	Milk	15	31.91	4	26.66
	Soy	21	44.68	10	21.27
	Almond	3	6.38	3	100.00
	Hazelnut	4	8.51	4	100.00
	Walnuts	2	4.52	2	100.00
	Peanuts	6	12.76	3	50.00
	Chestnut	4	8.50	4	100.00
	Soy	2	4.25	2	100.00
Ultra-processed yogurts and dairy drinks (n=34)	Milk	34	100.00	7	20.58
	Soy	1	2.94	1	100.00
	Oats	1	2.94	0	0
	Peanuts	1	2.94	1	100.00
	Rye	1	2.94	1	100.00
	Wheat	2	5.88	0	0
	Chestnut	1	2.94	1	100.00
Thickening flours (n=14)	Milk	10	71.42	9	90.00
	Oats	3	21.42	0	0
	Soy	2	14.28	2	100.00
	Wheat	3	21.42	0	0
Snacks and chips (n=14)	Milk	6	42.85	2	16.60
	Wheat	4	28.57	0	0
	Soy	6	42.85	6	100.00

Table 1. Frequency of allergenic ingredients present in the list of ingredients and frequency of the presence of the message provided for in the legislation on the labels of ultra-processed food consumed by children, between six months and five years, attended by SUS in the municipality of Rio de Janeiro, 2015. (Continues.)

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Group of ultra-processed foods (number of products analyzed)	Frequency of allergenic ingredients present on labels			Frequency of the presence of the message provided for in the legislation	
		n	%	n	%
Cube and powder ready-to-use seasonings (n=11)	Soy	2	18.18	2	100
Industrialized cakes (n=7)	Milk	2	28.57	2	100.00
	Soy	3	42.85	3	100.00
	Peanuts	1	14.28	1	100.00
	Eggs	5	71.42	1	20.00
	Wheat	7	100.00	2	28.57
	Almond	1	14.28	1	100.00
	Hazelnut	1	14.28	1	100.00
	Barley	1	14.28	1	100.00
	Chestnut	1	14.28	1	100.00
Ultra-processed soft cheese and cheese (n=7)	Milk	7	100.00	5	71.42
	Soy	2	28.57	2	100.00
	Eggs	1	14.28	1	100.00
Concentrated juices (n=7)	-	-	-	-	-
Processed and cold meats (n=6)	Milk	1	16.60	0	0
	Soy	4	66.60	0	0
	Wheat	4	66.60	0	0
Bread (n=6)	Milk	4	66.60	0	0
	Eggs	1	16.66	0	0
	Wheat	6	100.00	0	0
Instant chocolate mix and strawberry-based flavorings (n=4)	Milk	2	50.00	1	50.00
	Barley	2	50.00	0	0
	Oats	1	25.00	0	0
	Soy	4	100.00	1	25.00
	Wheat	2	50.00	1	50.00
Breakfast cereal (n=4)	Milk	3	75.00	3	100.00
	Almond	2	50.00	2	100.00
	Soy	1	25.00	1	100.00
Industrialized sauces (n=4)	-	-	-	-	-
Margarines (n=3)	Milk	2	66.60	2	100.00
	Soy	2	66.60	2	100.00
Instant noodles (n=2)	Milk	1	50.00	1	100.00
	Soy	2	100.00	2	100.00
	Eggs	1	50.00	1	100.00
	Wheat	1	50.00	1	100.00
Industrialized popcorn (n=2)	Milk	1	50.00	1	100.00
	Soy	1	50.00	1	100.00

Table 1. Frequency of allergenic ingredients present in the list of ingredients and frequency of the presence of the message provided for in the legislation on the labels of ultra-processed food consumed by children, between six months and five years, attended by SUS in the municipality of Rio de Janeiro, 2015. (Continues.)

Group of ultra-processed foods (number of products analyzed)	Frequency of allergenic ingredients present on labels			Frequency of the presence of the message provided for in the legislation	
		n	%	n	%
Industrialized seasoned cassava flour (n=1)	Soy	1	100.00	1	100.00
Total (n=303)	-	357	-	179	-

(-) No allergenic ingredients present.

Table 1 shows the number of allergenic ingredients per food group. The groups of cookies, industrialized cakes, sweets and treats, processed yogurts and dairy drinks, and instant chocolate mix and strawberry-based flavorings were the ones that presented the highest number of allergenic ingredients with relevance for public health. The quantity of different types of allergenic ingredients found by group was: in cookies, 12; in industrialized cakes, 9; in sweets and treats, 8; in ultra-processed yogurts and dairy beverages, 7; and in chocolate mixes and strawberry-based flavorings, 5.

Of the total number of allergenic foods mentioned in RDC No. 26/2015, 12 allergenic ingredients were found in the UPF studied. Two groups of UPF did not present any food with allergenic ingredients: the group of concentrated juices and the group of industrialized sauces. The remaining 17 UPF groups had one or more foods with allergenic ingredients. Soybeans and derivatives were present in foods from 17 groups; milk and derivatives in the list of 16 groups; wheat and derivatives in the list of seven groups; eggs in the list of five groups; peanuts, nuts, almonds, barley and oats in the list of four groups; hazelnut in the list of three groups; walnuts in the list of two groups and rye in the list of one group.

Among the UPF that had allergenic ingredients in the list of ingredients, some groups had a higher proportion of products with the presence of these allergens in their composition. The groups that presented foods containing soybeans were: instant noodles (100%), industrialized seasoned cassava flours (100%), instant chocolate mixes and strawberry-based flavorings (100%), industrialized and cold meats (66.6%), margarines (66.6%) and industrialized popcorn (50%). The highest percentages of foods containing milk were from the following groups: ultra-processed yogurts and dairy drinks (100%), ultra-processed soft cheese and cheese (100%), breakfast cereal (75%), thickening flours (71.42%), margarines (66.6%), bread (66.6), cookies

(62.2%), instant chocolate mix and strawberry-based flavorings (50%), industrialized popcorn (50%) and instant noodles (50%). The groups with the highest percentages of food with wheat were: breads (100%), industrialized cakes (100%), cookies (98.1%), industrialized and cold meats (66.6%) and instant noodles (50%). In relation to eggs, the industrialized cakes (71.2%) and instant noodles (50%) presented the highest percentages. The groups with the highest percentage of nut products were: industrialized cakes (14.28%), sweets and treats (8.5%) and cookies (5.6%). With regard to peanuts, the highest percentages were found in the groups: industrialized cakes (14.28%), sweets (12.76%) and cookies (9.43%). Regarding the presence of barley, the groups were: instant chocolate mixes and strawberry-based flavorings (50%), cookies (13.2%) and industrialized cakes (14.28%), with the highest percentages. Regarding the presence of oats, the groups were: instant chocolate mixes and strawberry-based flavorings (25%) and thickening flours (21.42%). Walnuts were listed only in foods of two groups, the highest percentage being the group of cookies (5.66%); hazelnut was present in the group of industrialized cakes (14.28%) and sweets and treats (8.51%); and almonds in the group of morning cereals (50%). Regarding rye, only the group of cookies (5.66%) presented this ingredient (Table 1).

On the labels analyzed, the presence of the mandatory message for people with allergies was found in the minority of foods in which the allergenic ingredients were present (33.1%). In the industrialized and cold meat and bread groups, no mandatory messages were found alerting the presence of any allergenic ingredient. Warnings regarding the presence of allergens were partially found on the food labels of the sugary drink groups (5 of 14, i.e., of the 14 times that the allergenic ingredients were present in the list of ingredients, only five presented the mandatory message), cookies (68 of 128), sweets and treats (32 of 57), ultra-processed yogurts and dairy beverages (11 of 41), thickening flours (11 of 18), snacks and chips (8 of 16), industrialized cakes (13 of 22), soft cheese and ultra-processed cheeses (8 of 10), instant chocolate mixes and strawberry-based flavorings (3 of 11). In the groups of ready-made cube and powder spices, morning cereal, margarine, instant noodles, industrialized popcorn and industrialized seasoned cassava flour, mandatory messages were found about the presence of allergens on all labels analyzed. The industrialized sauces and concentrated juices groups did not present ingredients with allergenic potential in their compositions (Table 1).

Derivatives of the allergenic ingredients of foods consumed by children were also identified. The groups in which the derivative ingredients appear in greater quantities are cookies, sweets and treats, ultra-processed yogurts and dairy drinks and snacks and chips. In the group of cookies, the presence of derivatives in the list of ingredients was declared 103 times,

but only in 33 foods the mandatory message was included on the labels. In sweets and treats, the presence of derivatives was declared 29 times, of which only 12 had a mandatory message on their labels. In the ultra-processed yogurt and dairy drinks group, the presence of derivatives in the list of ingredients was declared 29 times, but only nine were declared on the labels. In snacks and chips, the presence of derivatives of allergenic foods was declared 22 times, of which only two had the statement on the label (Table 2).

Table 2. Frequency of allergenic food products and frequency of the corresponding message provided for in the legislation on the labels of ultra-processed food consumed by children between six months and five years of age attended by the SUS network in the municipality of Rio de Janeiro in 2015

Group of ultra-processed foods (number of products analyzed)	Frequency of allergenic food derivatives present on labels			Frequency of presence of the message provided for in the legislation	
		n	%	n	%
Sugary drinks (n=77)	Soy lecithin	2	2.59	0	0
	Soy extract	4	5.19	0	0
	Soybeans	3	3.89	1	33.33
	Soy protein	3	3.89	0	0
Cookies (n=53)	Soy lecithin	38	71.69	15	39.47
	Whey	13	24.50	6	46.15
	Wheat flour	52	98.11	12	23.07
Sweets and treats (n=47)	Soy lecithin	21	44.68	10	47.61
	Whey	4	8.51	1	25.00
	Milk cream	1	2.12	1	100.00
	Wheat flour	2	4.25	0	0
	Soy flour	1	2.12	0	0
Ultra-processed yogurts and dairy drinks (n=34)	Soy lecithin	3	8.82	0	0
	Whey	12	35.29	4	33.33
	Soy protein	3	8.82	1	33.33
	Milk protein	2	5.58	1	2.94
	Wheat flour	2	5.58	0	0
	Milk cream	7	20.58	3	42.85
Thickening flours (n=14)	Wheat flour	7	50.00	0	0
Snacks and chips (n=14)	Soy lecithin	1	7.10	0	0
	Whey	8	57.10	1	12.50
	Hydrolyzed wheat protein	1	7.14	0	0
	Wheat flour	3	21.42	0	0
	Cheese	2	14.28	1	50.00

Table 2. Frequency of allergenic food products and frequency of the corresponding message provided for in the legislation on the labels of ultra-processed food consumed by children between six months and five years of age attended by the SUS network in the municipality of Rio de Janeiro in 2015(continues)

Group of ultra-processed foods (number of products analyzed)	Frequency of allergenic food derivatives present on labels			Frequency of presence of the message provided for in the legislation	
		n	%	n	%
Cube and powder ready-to-use seasonings (n=11)	-	-	-	-	-
Industrialized cakes (n=7)	Wheat flour	7	100.00	2	28.57
	Soy lecithin	1	14.28	0	0
	Soy flour	1	14.28	0	0
Ultra-processed soft cheese and cheese (n=7)	Whey	1	14.28	1	100.00
	Milk protein	1	14.28	0	0
	Milk cream	5	71.42	2	40.00
Concentrated juices (n=7)	-	-	-	-	-
Processed and cold meats (n=6)	Wheat flour	4	50.00	0	0
	Soy protein	6	100.00	0	0
Bread (n=6)	Whey	2	33.33	0	0
	Wheat flour	6	100.00	0	0
	Soy lecithin	4	66.66	1	25.00
Instant chocolate mixes and strawberry-based flavorings (n=4)	Soy lecithin	4	100.00	1	25.00
	Whey	2	50.00	1	50.00
	Wheat flour	1	25.00	1	100.00
Breakfast cereal (n=4)	Whey	1	25.00	1	100.00
Industrialized sauces (n=4)	-	-	-	-	-
Margarines (n=3)	Soy lecithin	2	66.60	2	100.00
	Whey	1	33.30	1	100.00
Instant noodles (n=2)	Wheat flour	1	50.00	1	100.00
Industrialized popcorn (n=2)	Soy lecithin	1	50.00	1	100.00
Industrialized seasoned cassava flour (n=1)	-	-	-	-	-
Total	-	246	-	72	-

(-) No allergenic ingredients present.

The information "contains traces" and "may contain" was present on approximately 13 and 17% of the labels, respectively. When verifying the presence of the "contains traces" message, this information was observed in sugary drinks, cookies, sweets and treats, ultra-processed yogurts and dairy drinks, thickening flours, snacks and chips, industrialized cakes, instant chocolate mixes and strawberry-based flavorings and breakfast cereal. The statement "may contain" was found on the labels of sugary drinks, cookies, sweets and treats, ultra-processed yogurts and dairy drinks, snacks and chips, ready-made diced and powdered spices, industrialized cakes, ultra-processed soft cheese and cheese, instant chocolate mixes and strawberry-based flavorings, industrialized sauces, instant noodles, industrialized popcorn and industrialized seasoned cassava flour (Table 3).

Table 3. Presence of the messages "contains traces" and "may contain", by groups of ultra-processed food consumed by children between six months and five years of age attended by the SUS network in the municipality of Rio de Janeiro, in 2015.

Group of ultra-processed foods (number of foods analyzed)	"Contains traces"		"May contain"	
	n	%	n	%
Sugary drinks (n=77)	2	2.59	1	1.29
Cookies (n=53)	9	16.98	12	26.41
Sweets and treats (n=47)	7	14.89	9	19.14
Ultra-processed yogurts and dairy drinks (n=34)	2	5.88	11	29.41
Thickening flours (n=14)	9	64.28	-	-
Snacks and chips (n=14)	6	42.85	2	14.28
Cube and powder ready-to-use seasonings (n=11)	-	-	3	27.27
Industrialized cakes (n=7)	1	14.28	5	71.42
Concentrated juices (n=7)	-	-	-	-
Ultra-processed soft cheese and cheese (n=7)	-	-	2	28.57
Processed and cold meats (n=6)	-	-	-	-
Bread (n=6)	-	-	-	-
Instant chocolate mixes and strawberry-based flavorings (n=4)	1	25.00	1	25.00
Breakfast cereal (n=4)	3	75.00	-	-
Industrialized sauces (n=4)	-	-	1	25.00
Margarines (n=3)	-	-	-	-
Instant noodles (n=2)	-	-	2	100
Industrialized popcorn (n=2)	-	-	2	100
Industrialized seasoned cassava flour (n=1)	-	-	1	100
Total	40	-	52	-

(-) No allergenic ingredients present.

DISCUSSION

The children assisted by SUS in the city of Rio de Janeiro consumed a wide variety of ultra-processed foods (97.9%).[14] A study conducted in Brazil, with a sample of individuals from 10

years of age or older, found that 21.5% of the daily energy consumption comes from ultra-processed foods.[15] Another Brazilian study, with children from 13 to 35 months of age, showed that 25.8% of the daily energy consumption is obtained from UPF.[16]

Most of the UPF analyzed (58.7%) had some type of allergenic ingredient. Some (33.1%) had a warning regarding the presence of all allergens in their list of ingredients. Even before there was an RDC addressing the issue, this should already be clear on the labels, as it is the consumer's right to have their life, health and safety protected from risks in the supply of products considered dangerous.[17] The industry must be responsible for the products it sells, guaranteeing information on the ingredients that are part of their composition.

It should be noted that the study portrays a moment of transition, since at least four months had elapsed from the legislation had been published and the industries were still adapting to the legislation.

The need to monitor food labelling regulations has already been pointed out in other studies. Chaud et al.,[18] in the city of São Paulo, showed that although there was legislation to regulate food labeling, many of them did not have mandatory information on their labels. This makes us question whether, after the period of adequacy provided for in RDC No. 26/2015, the irregularities found in this study would not be identified anymore.

In this study, most of the allergenic foods mentioned in RDC No. 26/2015 were found in the group of cookies. When thinking about children with FA, this finding becomes even more relevant, because cookies are part of the eating routine of children, as shown in the study by Domingues, Miranda and Santana,[19] who identified that the consumption of sandwich cookies occurs at a frequency of twice a week. The consumption of instant noodles also requires attention, since it is offered early to children, as shown in the study by Toloni et al.[20]

The study by Rodrigues et al.[21] found compliance with the legislation on the labels of yogurt, dairy drinks and fermented milk, regarding the presence of allergens. However, unlike these findings, the results of this study showed non-conformity in most labels of ultra-processed yogurt and dairy drinks in relation to RDC No. 26/2015.

Adequate nutrition is part of the list of human rights, and it is up to the State to program public policies necessary to guarantee it.[22] In relation to the legislation focused on allergenic foods, the non-conformities shown in this work are alarming, because they put a vulnerable group at risk. Such non-conformities can cause individuals with food allergies to consume these foods and have allergic reactions.

In addition to the foods mentioned in RDC No. 26/2015, there are other ingredients that need attention, such as those obtained from food derivatives capable of causing allergies. This covers foods, ingredients, food additives and technological aids.[3] One of the derivatives found in the analysis of UPF was soy lecithin, which was added to the list of ingredients as a food additive (emulsifier). As much as the use of chemical additives is allowed by legislation, there is increasing evidence that they are not harmless to health. Recent studies suggest that increased consumption of substances such as emulsifiers, surfactants, organic solvents, microbial transglutaminase and nanoparticles may be linked to the increased prevalence of autoimmune diseases in recent decades. The hypothesis is based on the fact that these substances damage the mechanisms of intestinal protection against external antigens, increasing the risk of immune diseases.[23] In addition, an experimental study observed that mice that received low concentrations of emulsifiers presented changes in the intestinal microbiota that led to inflammation, weight gain and metabolic syndrome.[24]

It is worth mentioning that, in this case, the presence of additives is intentional. Therefore, according to RDC No. 26/2015, the presence of additives should be stated as if they were any other allergenic food, even if under the claim of being used in the industry in small quantities. Allergen control has a preventive character, and the industry should be aware that small amounts of food allergens may be enough to generate adverse reactions in individuals with FA.[3]

Information on the risk of cross-contamination having occurred during food processing by industry is essential to indicate that the food is not safe for individuals with allergies. On the labels of the UPF analyzed, the information "contains traces" was present in approximately 13% of foods. These labels were in disagreement with RDC No. 26, according to which the message indicating the possibility of having some allergenic ingredient in the food, even if unintentionally, must be "may contain".[3] The "may contain" information was present in a slightly larger proportion.

The great diversity of UPF groups consumed by children assisted by the Basic Health Units (UBS) shows that their dietary pattern includes foods with excessive amounts of sugar, sodium, saturated fat, dyes and allergenic ingredients, in addition to low content of dietary fiber and vitamins.[9] High consumption of UPF has a negative impact on the health of children and implications for child development. Fresh and minimally processed foods have a higher micronutrient content than ultra-processed foods. Thus, the emergence of vitamin and mineral deficiencies is associated with increased consumption of UPF and decreased consumption of fresh and minimally processed foods.[15] Homemade preparations based on fresh and minimally processed foods provide a greater variety of foods. The presence of numerous brands and

flavors of UPF can create a false sense of variety, but in fact the variety is of chemical additives. Most of the products consumed are composed by preparations based on sugars and oils (from corn and soybeans), wheat and milk.[25]

The findings in this work demonstrate the relevance of the legislation on the requirements for mandatory labelling of the main foods causing food allergies. Reading labels alone does not guarantee that the food is free of allergenic substances. It is necessary that information on the ingredients of food is clearly specified, including information on derivatives of allergenic substances that are also capable of triggering allergic reactions.

One of the limitations of the study was that RDC No. 26 was sanctioned in July 2015, and data collection was carried out between November and December 2015. As ANVISA allowed a one-year period for label adequacy, i.e. until July 2016, the data found are from a transition period. However, a study by Miranda and Gama, which analyzed the labels of products marketed after the deadline for adequacy of the mandatory message for the presence of allergens, showed that 31.7% of the labels remained inadequate in relation to RDC No. 26/2015. These data corroborate the findings of the present study, which aimed to demonstrate the difficulty of adequacy of the industries and the need for monitoring in light of the inadequate findings, even after the implementation of specific legislation for allergenic ingredients.[26]

CONCLUSION

RDC No. 26/2015 is of great importance for helping to ensure the right to information, enabling clear and standardized information on food labels to be used as a tool to care for the food of people living with food allergies. The findings of this study suggest that, at the time of transition of this RDC, most of the labels were not regular.

The need for new studies to help monitor this legislation is highlighted. Despite the fact that RDC No. 26/2015 is a good support instrument, it is essential that it brings more accurate information to allergic people, such as which food allergen derivatives may cause allergic reactions.

The lack of clarity and standardization of this information may confuse consumers, leading to greater exposure to allergenic foods. Knowing how to read the labels helps to minimize the risks related to the consumption of ultra-processed foods by people with allergies. However, our findings also reinforce that the consumption of UPF represents a danger to the health of people living with food allergies. The safe way to avoid risks to the health of these individuals is to reduce

the consumption of ultra-processed foods and the valorization of domestic cooking, considering the preferential use of fresh and minimally processed foods.

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Contributors

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