

Analysis of television food advertising on children's programming on "free-to-air" broadcast stations in Brazil

Análise dos alimentos anunciados durante a programação infantil em emissoras de canal aberto no Brasil

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Abstract

Objective: To analyze the content of television food advertising on Brazilian 'free-to-air' broadcast stations during children's programming. **Methods:** This is a descriptive study which evaluated the content of food advertising between 08:00 a.m. and 06:00 p.m. on three Brazilian 'free-to-air' broadcast stations (A, B and C). Data collection was performed during 10 week days and weekends. Food advertising was organized according to the food group classification from the *Food Guide for the Brazilian Population*. The annual exposure to food advertising was obtained considering the national children average exposure to television of five daily hours. The χ^2 and Fisher's exact test were conducted in order to identify differences in the content of television advertising in the morning and in the afternoon and between broadcast stations. **Results:** One hundred and twenty six hours of programming were recorded, totalizing 1,369 commercials – 13.8% of food. There was major participation of 'sugars and sweets' (48.1%) and 'oils and fats' (29.1%) among food advertising and much food publicity in the afternoon (15.7%; morning: 12.2%, $p = 0.037$). Moreover, the broadcast with more audience was the one that advertised more food (A: 63.5%; B: 12.2%; C: 24.3%), especially 'sugar and sweets' (A: 59.2%; B: 43.5%; C: 21.7%). Finally, an annual average exposure to 2,735.5 commercials was obtained for Brazilian children, totalizing 2,106.3 of food rich in sugar and fat publicity. **Conclusion:** Food advertising is focused on poor nutritionally food, emphasizing the need for specific intervention strategies.

Keywords: Food. Feeding behavior. Child. Obesity. Food publicity. Television.

Objetivo: Analisar os tipos de alimentos veiculados em propagandas da televisão aberta brasileira durante a programação infantil. **Métodos:** Estudo descritivo com avaliação do conteúdo das propagandas veiculadas entre 08h00 min e 18h00 min em três emissoras brasileiras de televisão de canal aberto (A, B e C). A coleta de dados foi realizada durante 10 dias de semana e finais de semana. As propagandas de alimentos foram classificadas segundo os grupos alimentares do *Guia Alimentar para a População Brasileira* e obteve-se a exposição anual às propagandas de alimentos, considerando a média nacional de exposição de crianças a cinco horas diárias à televisão. Os testes χ^2 ou Exato de Fisher foram conduzidos no intuito de identificar as diferenças do conteúdo das propagandas televisivas nos turnos manhã e tarde e entre as emissoras. **Resultados:** Foram gravadas 126 horas de programação, totalizando 1.369 propagandas, sendo 13,8% de alimentos. Verificou-se predominância de anúncio de produtos pertencentes aos grupos dos “açúcares e doces” (48,1%) e “óleos, gorduras e sementes oleaginosas” (29,1%). Observou-se maior publicidade dos alimentos no período da tarde (15,7%; manhã: 12,2%; $p = 0,037$). Ademais, a emissora de maior audiência foi a que mais veiculou propagandas de alimentos (A: 63,5%; B: 12,2%; C: 24,3%), sobretudo alimentos ricos em açúcares e doces (A: 59,2%; B: 43,5%; C: 21,7%). Por fim, obteve-se média de exposição anual de crianças brasileiras a 2.737,5 propagandas de alimentos, sendo 2.106,3 ricos em açúcares e gorduras. **Conclusão:** A publicidade de alimentos se concentra em produtos pobres nutricionalmente, denotando a necessidade de estratégias de intervenção específicas.

Palavras-chave: Alimentos. Comportamento alimentar. Criança. Obesidade. Publicidade de alimentos. Televisão.

The epidemiology of obesity in childhood is similar to that verified in the adult population, characterized by the process of nutritional transition¹. In Brazil, in the last three decades, there has been a decreased national prevalence of child malnourishment, from 37.1 to 7.1%². At the same time, the increment in the occurrence of excessive weight and obesity has been observed, which currently affect, respectively, 33.4 and 14.4% of the Brazilian children aged 5 to 9 years old³.

The current obesity epidemic in childhood is multifactorial, and is influenced by biological, psychological, socioeconomic and environmental factors⁴. Among the latter, the excessive exposure to television has been stood out⁴⁻⁶. Results of several studies indicate the direct association between the time dedicated for television and body weight, which can possibly be explained by the lack of physical activities established by this practice, as well as by the excessive exposure of children to the publicity of food that is rich in calories and poor in nutrients⁶. Therefore, statistical projections indicate that if the exposure of children to food television publicity could be reduced from 80.5 minutes a week (mean observed in the United States) to zero, the prevalence of obesity among boys would decrease from 17.8 to 15.2%, and among girls, from 15.9 to 13.5%⁷.

Costa et al.⁸ assessed the effect of television food publicity on the acquisition of food products by 116 children of a private school in Brazil. The authors observed that from the total of interviewees, 46.9% reported buying the food announced in television commercials. Besides, 54.9% of the students reported feeling attracted to a new product when it was announced on television; and 25% reported acquiring the product after such exposure.

The purchase of food products publicized on television is possible due to the influence children have on the family's purchases. Since 1997, this influence increased 57%, and food is one of the main products influenced by children. Currently, 80% of the family expenses with food is influenced by the children⁹.

By being excessively exposed to commercials of less healthy food and by acquiring these products, the children change their eating habits to less healthy standards, which are related to weight gain⁶. This is a result of changes in the perceptions of the children concerning what is a healthy diet and what are adequate consumption portions, going through the so called normalizing publicity effect, given their limited capacity of cognitive processing⁵.

Therefore, the conduction of studies that investigate the type of food publicized in television commercials is important, especially during the breaks of programs addressed to the child audience, in order to identify the characteristics of such publicity and to guide future interventions and public regulation policies¹⁰.

With that, this study aimed at analyzing the types of food publicized in Brazilian 'free-to-air' commercials during the children schedule.

Materials and Methods

It is a descriptive study conducted in 2009, which consisted of the recording and analysis of food advertising publicized for 10 consecutive days in the daytime schedule (8 a.m. to 6 p.m.) of the three free-to-air television broadcasts with more audience in Brazil. The objective was to approach the publicity that is present in most of the shows addressed to the children audience in the country. Data collection included week days and weekends, contemplating only the school year. A SHARP 12-inch television and a Sony VCR were used. Two students of Nutrition at *Universidade Federal de Minas Gerais* (UFMG) were in charge for quantification and analysis of the commercials.

The assessed television broadcasts, herein called A, B and C, diverged as to their audience in 2009. Broadcast A presented with more audience (17.4 points), followed by broadcast C (7.3 points). Broadcast B, in turn, presented annual mean of 5.6 audience points¹¹.

The adopted concept of advertisement was based on Fontenelle¹², which defines it as any paid commercial ad publicized through a mean of mass communication. Ads referring to the promotion of the broadcast were excluded, and the sponsorship of children's shows was only considered as publicity when this support was explicit.

The recorded commercials were credited and organized according to similarities in the following categories, as suggested by Almeida et al.¹³: food, alcoholic beverages, medicines, toiletries, beauty products, cleaning products, household items, clothing, stores, supermarkets, cars, toys, newspapers and magazines, and others (governmental publicity, courses and universities etc.).

Afterwards, the commercials were divided by considering the food groups of the Food Guide for the Brazilian Population¹⁴: "cereals, tubers, roots and derivatives" (examples: bread, cakes, cookies and cakes with no filling); "fruits and fruit juices" (examples: *in natura* fruits, pulp juices); "vegetables and greens" (Examples: *in natura* vegetables and greens, little processed vegetables and greens); "meats and eggs" (examples: non-processed meat); "milk and derivatives" (examples: milk, cheese, yogurts, dairy drinks); "beans" (examples: legumes); "sugars and candies" (examples: sweets, cookies and stuffed cakes, icecream); and "oils, fat and oleaginous seeds" (examples: butters, margarine, olive oil, vegetal oil fried products and/or with high fat content, such as chips, processed food and battering food).

Besides, the total mean of food commercials and publicity publicized per hour in the television schedule was calculated. At first, the mean of daily exposure of Brazilian children (4 – 11 years old) to television was estimated in 5 hours, according to literature¹⁵. Afterwards, this value was multiplied by the number of commercials publicized in the schedule analyzed in this study, in order to obtain values related to the annual exposure of Brazilian children to general publicity, to food publicity and to publicity of products belonging to the following food groups:

“oils, fat and oleaginous seeds” and “sugars and candies”.

Data analysis was conducted by descriptive statistics, with the obtainment of frequencies and the application of the χ^2 and Fisher's exact test. These were performed with the objective of verifying the differences of commercial publicizing between the morning and afternoon periods in the broadcasts. The software Statistical Package for the Social Sciences for Windows, Student Version (SPSS), version 19.0, was used, and 5% was adopted as significance level ($p < 0.05$).

Results

The study contemplated 126 hours of schedule and 1,369 commercials, being 13.8% ($n = 189$) related to food. Considering the other products, 17.9% of the commercials were addressed to stores and 14.7% to newspapers and magazines (Graph 1).

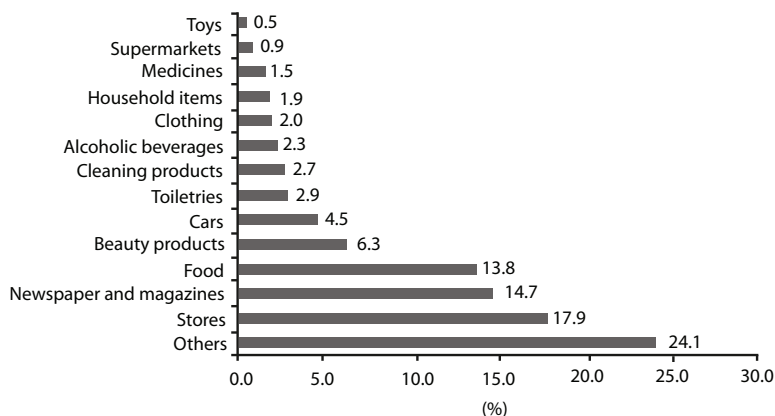
Among the food commercials, the predominance of ads of products belonging to the group of “sugars and candies” was observed (48.1%), as well as “oils, fat and oleaginous seeds” (29.1%). The frequency of the other groups is detailed in Graph 2. It is worth to mention that only 1.1% of the commercials referred to the group of “vegetables and greens”, and these were related to non-profit

organizations defending the adoption of healthy eating habits.

Considering the time of the commercials, food publicity was mostly observed in the afternoon period (15.7%, $n = 96$; morning: 12.2%, $n = 93$; $p = 0.037$). Besides, products in the food groups of “cereals, tubers, roots and derivatives” were more publicized in the morning (8.6%; afternoon: 2.1%; $p = 0.045$), while “milk and derivatives” were mostly publicized in the afternoon (21.9%; morning: 10.8%; $p = 0.030$) (Table 1).

The comparative analysis of the content of food commercials between broadcasts showed that broadcast A publicized more food commercials (63.5%, $n = 120$) in relation to broadcast B (12.2%, $n = 23$; $p < 0.05$). In broadcast C, it was observed that food represented 24.3% ($n = 46$) of the total of commercials, without a statistically significant difference in relation to the other broadcasts. Food belonging to groups of “sugars and candies” were more publicized in broadcast A (59.2%) in relation to the others ($B = 43.5\%$; $C = 21.7\%$; $p < 0.05$), while the food group “milk and derivatives” was more publicized in broadcast C (43.5%; $A: 9.2\%$; $B: 0.0\%$; $p < 0.05$) (Table 2).

Finally, the obtained mean annual exposure of Brazilian children to publicity was to 19,837,75 commercials, being

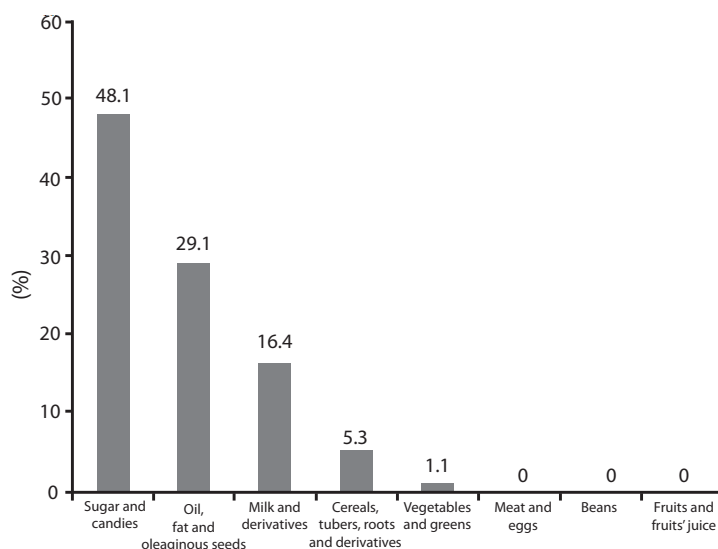


Graphic 1 - Frequency in percentage of television advertising on three “free-to-air” broadcast stations in Brazil, 2009.

Gráfico 1 - Frequência percentual dos tipos de propagandas veiculadas em três emissoras brasileiras de televisão de canal aberto, 2009.

2,737,5 related to food. Considering the participation of publicity of “oils, fat, and oleaginous seeds” and “sugar and candies”

in this total, the annual exposure was estimated in 789.6 and 1,316,7 commercials, respectively.



Graphic 2 - Frequency in percentage of food television advertising, in accordance to food groups, on three “free-to-air” broadcast stations in Brazil, 2009.

Gráfico 2 - Frequência percentual das propagandas de alimentos, segundo grupos alimentares, veiculados em três emissoras brasileiras de televisão de canal aberto, 2009.

Table 1 - Food television advertising, in accordance to day time, on three “free-to-air” broadcast stations in Brazil, 2009.

Tabela 1 - Veiculação de propagandas de alimentos, segundo o período do dia, em três emissoras brasileiras de televisão de canal aberto, 2009.

Variable	Morning n (%)	Afternoon n (%)	p-value	Total n (%)
Cereals, tubers, roots and derivatives	8 (8.6)	2 (2.1)	0.045	10 (5.3)
Vegetables and greens	2 (2.1)	0 (0.0)	0.241	2 (1.1)
Milk and derivatives	10 (10.8)	21 (21.9)	0.030	31 (16.4)
Oils, fat and oleaginous seeds	30 (32.3)	25 (26.0)	0.218	55 (29.1)
Sugars and candies	43 (46.2)	48 (50.0)	0.355	91 (48.1)
Total	93 (100.0)	96 (100.0)	-	189 (100.0)

Table 2 - Food television advertising in accordance to “free-to-air” broadcast stations in Brazil, 2009.

Tabela 2 - Veiculação de propagandas de alimentos, segundo emissoras brasileiras de televisão de canal aberto, 2009.

Variable	A n (%)	B n (%)	C n (%)	Total n (%)
Cereals, tubers, roots and derivatives	4 (3.3)	4 (17.4)	2 (4.3)	10 (5.3)
Vegetables and greens	0 (0)	1 (4.3)	1 (2.2)	2 (1.1)
Milk and derivatives	11 (9.2) ^A	0 (0.0) ^B	20 (43.5) ^{AB}	31 (6.4)
Oils, fat and oleaginous seeds	34 (28.3)	8 (34.8)	13 (28.3)	55 (29.1)
Sugars and candies	71 (59.2) ^{AB}	10 (43.5) ^B	10 (21.7) ^A	91 (48.1)
Total	120 (63.5)	23 (12.2)	46 (24.3)	189 (100.0)

*Similar letters on the same line indicate statistically significant difference in the χ^2 or Fisher's exact test ($p < 0.05$)

*Letras semelhantes na mesma linha indicam diferença estatisticamente significante no teste χ^2 ou Exato de Fisher ($p < 0,05$)

Discussion

This study showed the importance of food publicity on the television commercials in Brazil, especially of products belonging to the groups of “oils, fat and oleaginous seeds” and “sugars and candies”. The content of food commercials was different according to the period of the day and to the broadcast; more food publicity was observed in the afternoon and in the broadcast with more audience. Besides, the commercials about “cereals, tubers, roots and derivatives” were more publicized in the morning, while “milk and derivatives” were mostly announced in the afternoon. Products that are rich in sugars and candies were mostly publicized in the broadcast with more audience.

Studies conducted worldwide also assessed the content of television publicity during children’s schedule, however, concerning the content of food publicity. In Switzerland, for instance, between March and August 2006, 11,613 commercials publicized in the breaks of the children’s schedule were observed by the analysis of commercials of eight free-to-air channels. Out of this total, 26% were related to food, being 47% of fast food or restaurants, 24% of candies, 13% of cereals and 14% of sweet drinks. Besides, the exposure to 1,514 food commercials a year was estimated, being 1,215 commercials of unhealthy food¹⁶.

Effertz and Wilcke¹⁷ observed similar results in the analysis of 16,062 commercials publicized in 10 German free-to-air channels between 6 a.m. and 10 p.m. on 2 week days and 2 weekends. The food publicity corresponded to 19.9% of the commercials, being 73.0% of products defined as having the worst nutritional content.

This type of standard is also observed in developing countries, like Singapore. A study conducted by Huang et al.¹⁸ showed the occurrence of 33% of food commercials out of a total of 1,344 commercials publicized in the breaks of the children’s schedule in that country. Among the food commercials, 34% were candies and 26% were related to fast food and restaurants.

In Brazil, Almeida et al.¹³ analyzed the commercials of 3 free-to-air broadcast television

channels from August 1998 to March 2000, and observed that the most publicized products (22.5%) are related to food, being 57.8% sources of sugars and candies, oils and fat. A little less present were “cereals, tubers, roots and derivatives” (21.0%) and “milk and derivatives” (11.7%). Similarly to this study, the authors did not observe publicity related to “fruits and fruit juices”.

Literature still points out to the intensive use of persuasion techniques in food publicity, which are more frequent among “less healthy” foods, by including the use of celebrities, cartoons, awards and giveaways. This contributes to the emotional response of the children, bringing their attention to the consumption of that product^{18,19}.

The findings in all of these studies indicate the need to create specific legislation to regulate food publicity in the countries. In Brazil, this process began in 2005, through the reunion of a group of experts in Nutrition, Law, Communication, among others. The first proposal was presented to the society in 2006, with the objective of collecting suggestions, which would be incorporated in order to allow the approval of resolution RDC 24/2010. It then required that any publicity concerning food with excessive sugar, sodium, saturated or trans fats should be followed by warnings concerning the damages that the intake of large amounts can cause to health²⁰.

Despite its relevance, the publication of this resolution led to a strong reaction from associations representing food industries and communication and publicity agencies. A greater commitment of the civil society, governmental and non-governmental organizations, educators and health professionals to denounce practices that aim at protecting corporate interests to the detriment of collective interests is essential so that this resolution can concretely function²⁰.

By reflecting the difficulty to fulfill the legislation of food publicity, Henriques et al.²¹ assessed the adaptation of food commercials exhibited during the Brazilian children’s schedule to the proposal of a technical regulation about the offer, advertising, publicity, information and other correlate practices

whose object is the publicizing or promotion of foods with high portions of sugar, saturated fat, trans fat, sodium and drinks with low nutritional value, and observed that from all of the 132 selected food commercials, all of them were not in accordance with at least 3 articles from the legislation.

Besides, this study showed more prevalence of food commercials in the afternoon, which corroborates the findings by Almeida et al.¹³ and Huang et al.¹⁸. The explanation is that in this part of the day, it is most likely that children will be home watching television after coming back from school¹⁸. Among the food group classifications, "cereals, tubers, roots and derivatives" were mostly publicized in the morning, probably because they represent the kinds of food mostly consumed in this period: bread, cereals, cakes and cookies¹⁴.

The observation that dairy products are mostly publicized on television in the afternoon period should be further investigated, since apparently there is no distinction as to the frequency of intake of these foods by children throughout the day. Besides, these products were mostly publicized on the broadcast of intermediate audience (C), which suggests a secondary interest of the food industry to publicize it.

On the other hand, it was observed that the broadcast with more audience was the one that mostly publicized food in its schedule. Besides, it was also noted that this same broadcast presented more food commercials from the group of "sugars and candies." Bell et al.²² observed that North-American channels addressed to children expose 76% more food commercials than channels addressed to the general audience. Besides, the publicity of food that is rich in sugar and fat, such as sweet cereals, snacks and fast food, stood out in channels addressed to children as their target-audience.

Therefore, the organization of food industries to publicize their products at times and broadcasts of more children audience is discussed, so they can reach a larger number of

children. These results show how television networks and manufacturers consider it is important to publicize food products, and they reinforce the importance of the findings in this study to the current health public scenario¹³.

Finally, it is worth to mention that the limitations of this study are related to the assessment of the publicity content in a short period of time (10 days), thus not allowing the verification of changes due to commemorative dates, holidays, vacations and other periods of the year; anyhow, Keller and Schulz¹⁶ did not observe changes in the content of food commercials in Switzerland throughout the period of six months. Besides, the study did not assess the characteristics of publicity messages, such as the use of persuasion techniques and negative messages related to the act of eating; it also did not compare the content of television commercials between the common week days and weekends, but literature indicates that commercials of unhealthy foods are mostly publicized on the weekends¹⁸. It is also worth to mention that not all of the free-to-air broadcasts in Brazil were included in the study. Despite of that, the study presented a current report of the publicity content of food commercials during the children's schedule in Brazil, and such data are scarce in national literature.

Conclusion

The results of this study show the volume of food commercials on television, to which children are exposed in Brazil, especially products with low nutritional value. Such findings reinforce the importance of governmental institutions developing and performing legal actions concerning food publicity, with the support of the society, educators and health professionals. The performance of educational actions is also essential and complements the work of legislation, while they guide children and families as to the adoption of healthy eating habits and to the conscious intake of highly processed industrialized products.

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