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Food advertising in cooking shows on Brazilian free-to-air tv channels: the predominance of ultra-processed foods

Propaganda de alimentos em programas de culinária de canais abertos da televisão brasileira: alimentos ultraprocessados são protagonistas

Abstract

Introduction: Cooking at home is linked to better diet quality. Cooking shows are a popular source for learning about home cooking. These programs usually feature food advertising. *Objective*: This cross-sectional study analyzed food advertising during cooking shows on Brazilian free-to-air TV channels. *Methods*: All the cooking shows on Brazil's four most popular free-to-air TV channels were recorded for two days in 2019. Advertisements identified during commercial breaks and within cooking shows were categorized as food-related or non-food-related ads. Food ads were classified and analyzed according to the NOVA classification. Descriptive analyses were used to identify the frequency of food-related ads, distribution throughout food groups, and advertising/sponsoring companies. A Chi-square test was used to compare UPF and non-UPF ads identified during commercial breaks and cooking shows. *Results*: Among all identified ads (*n* 828), 32% were food-related. Food ads were the fourth most prevalent in commercial breaks (11.1%) and the second during cooking shows (18.7%). UPF was the most advertised food (57.8%), especially soft drinks, mayonnaise, and other sauces. The difference between the frequency of UPF and non-UPF advertisements was statistically significant. Approximately a quarter of all food ads were from seven companies, five were sponsors of cooking shows, and six were promoting UPF. *Conclusion*: Foods advertised on cooking shows on Brazilian free-to-air TV channels were mainly UPF. Actions to promote home cooking should consider UPF ads' influence on home environments and culinary practices.

Keywords: Cooking. Television. Advertising. Ultra-processed foods.

Resumo

Introdução:Cozinhar em casa tem sido associado a uma melhor qualidade da dieta. Programas de culinária são uma fonte popular para aprender sobre culinária doméstica. Esses programas costumam apresentar propaganda de alimentos. *Objetivo*: Este estudo transversal analisou a publicidade de alimentos durante programas de culinária exibidos em canais de TV abertos

brasileiros. *Métodos*: Todos os programas de culinária dos quatro canais de TV aberta mais populares do Brasil foram gravados por dois dias em 2019. Os anúncios identificados durante os intervalos comerciais e dentro dos programas de culinária foram categorizados como anúncios relacionados a alimentos ou não relacionados a alimentos. Os anúncios de alimentos foram classificados e analisados segundo a classificação NOVA. Análises descritivas foram usadas para identificar a frequência de anúncios relacionados a alimentos, distribuição em grupos de alimentos e empresas de publicidade/patrocinadores. O teste qui-quadrado foi realizado para comparar anúncios de alimentos ultraprocessados (AUP) e não ultraprocessados identificados durante os intervalos comerciais e programas de culinária. *Resultados*: Entre todos os anúncios identificados (n = 828), 32% eram relacionados a alimentos. Os anúncios de alimentos foram o quarto mais prevalente nos intervalos comerciais (11,1%) e o segundo durante os programas de culinária (18,7%). Os AUP foram os alimentos mais anunciados (57,8%), especialmente refrigerantes, maionese e outros molhos. A diferença entre a frequência de anúncios AUP e não-AUP foi estatisticamente significativa. Aproximadamente um quarto de todos os anúncios de alimentos eram de sete empresas, cinco das quais eram patrocinadoras de programas de culinária, e seis estavam promovendo AUP. *Conclusão*: Os alimentos anunciados em programas de culinária em canais de TV abertos brasileiros eram principalmente AUP. Ações para promover a culinária doméstica devem considerar a influência que os anúncios de AUP podem ter nos ambientes domésticos e nas práticas culinárias.

Palavras-chave: Culinária. Televisão. Publicidade. Alimentos ultraprocessados.

INTRODUCTION

Cooking at home has been associated with a better quality of diet.[1] However, this practice can be a challenge for many individuals, as it requires knowledge of food and ingredients, mastery of culinary techniques, in addition to planning and managing activities related to preparing meals in the home environment.[2,3] Cooking shows are one of the chosen sources for learning about home cooking and improving the skills needed to put it into practice.[2,4-7]

In general, cooking shows are designed to demystify "sophisticated" culinary preparations and convey to their viewers "new ways of looking at cooking and eating". They include presenters and guests, interspersing the making of the recipes with the sponsors' message.[8,9] As they continue to attract viewers, cooking shows have also become the basis of important commercial strategies.[9] Therefore, advertising continues to be highlighted in these programs, focusing on informing and disseminating knowledge about products and brands, in addition to persuading consumers to purchase, use and consume the advertised products.[10]

In Latin America, television advertising is a marketing strategy widely used to boost food sales, including those considered unhealthy.[11] For public health, television advertising unhealthy foods is a warning, as it can influence consumers' behavior in relation to their food choices.[12-17] The Brazilian Food Guides, while encouraging the improvement of the skills necessary to put home cooking into practice, also highlight the concern regarding aggressive advertising of foods, especially those characterized as unhealthy.[18,19]

In the recent Brazilian scenario, where television continues to play an important role in almost all (96.4%) of the 67 million permanent private households,[20] cooking shows managed to diversify[9] and remain part of the programming of the country's leading TV stations.[21] However, until now, few studies have focused on analyzing the advertising of foods on Brazilian free-to-air channels.[11,22–28] Of these, none has evaluated the advertising specifically during cooking shows.

As advertising has been incorporated into cooking shows since the emergence of this type of program,[8,9] and because there is growing evidence that watching programs that involve culinary preparations can influence adult food choices,[13,29] this study analyzed all food advertisements aired during commercial breaks and within cooking shows on the main free-to-air TV channels in Brazil.

METHODS

Study design

Cross-sectional study developed to analyze food advertising in cooking shows on Brazilian free-to-air TV channels, the most common type of access to television programming in Brazil.[20]

Study sampling

Sampling was conducted in two stages. Firstly, we selected the channels/programs, and then randomly selected the days for data collection. We identified the five main Brazilian free-to-air TV channels (E1, E2, E3, E4, E5) by consulting the prime-time daily audience ranking published by the Brazilian Institute of Public Opinion and Statistics (data collected from February 4th to March 10th, 2019).[30] We included all programs whose online and public descriptions, provided by TV channels in the description of their program schedule, were related to cooking. This included any description related to food preparation, including the preparation of recipes and cooking competitions. This yielded two cooking shows on channels E1, E2 and E3 (P1 and P2,

P3 and P4, P5 and P6, respectively), and one cooking show on channel E4 (P7). We excluded channel E5 from the sample because it did not broadcast any cooking shows during the data collection period. By stratified random sampling, two non-consecutive days of programming were selected to collect data from programs that were broadcast daily (from Monday to Friday; n=5), and two days of recording, consecutive or not, for programming with fixed days (two weekend programs, one program on Wednesday).

Data collection

Data collection was carried out from May to June 2019, focusing on the television programming in the city of São Paulo, Brazil. Public holidays were avoided as recommended by the International Network for Food and Obesity/Non-communicable Diseases (NCDs) Research, Monitoring and Action Support (INFORMAS).[31] Data extraction worksheet included elements recommended by INFORMAS[31,32] and elements taken from previous studies that analyzed television advertising.[23,27,32] This worksheet was tested in a pilot study conducted in March 2019, with a simple random sample, without repetition, of four days of culinary programming from the different TV channels included in the sample.

Two days of each program were recorded, totalling 1,660 minutes of recording. The recordings, operated with a digital converter, started five minutes before the beginning of the program and ended five minutes after the end, to include any advertisements that immediately preceded or followed the programs of interest. The recordings were watched in full. The extraction, checking and coding of advertising identified in cooking shows and commercial breaks was completed using Microsoft Excel® spreadsheets. Information was extracted on duration (beginning and end of programs/commercial breaks) and period of recording (morning/afternoon/night), day of the week, time when advertising occurred (during the program or breaks), type of advertising (advertising, sponsorship/support, merchandising), advertised products/services (types of products/services; description of products/services: trade name, brand, company/manufacturer). Based on the programming reported by the broadcasters, we considered programs aired in the morning to be those that start between 6:00 am and 12:00 pm, in the afternoon between 12:00 pm and 6:00 pm, and at night from 6:00 pm onwards.

Data processing

All identified advertising was classified as "commercial break advertising – classified as an advertisement,[33] or as advertising aired "during the program"– classified as advertisement, sponsorship, support, or merchandising.The appearance of the brand name identified[10,33] support and merchandising, either declared/explicitly (support) or non- declared/implicitly (merchandising).

Advertisements were divided into ten general advertising categories based on the literature,[27] and adapted to the objectives of this study: nine food-related advertising categories (food and beverages; cooking equipment and utensils; food services; markets; cookbooks; in-house culinary programming, and brands: of food and beverages, of markets, and of cooking equipment and utensils); and one category that included all other non-food-related products and services, which were computed but disregarded in the analyses of this study.

The occurrence of food-related advertising was identified in isolated form, in other words, when food-related products were advertised as products or services exclusive to the advertisement; and in secondary form, when food-related advertising was identified within another advertisement whose main subject matter

was not food-related (for example pharmacy advertisements with food advertised as one of the items sold by the establishment).

When only one type of food or drink was being advertised, only the first product shown was described and rated. When products of different types were being advertised, one product of each type was described and rated. Advertising that promoted only the brand name was described in the same way, and the manufacturer was identified. The classification of vitamin and mineral supplements as "foods" or "medicines" was based on the product's registration with the National Health Monitoring Agency.[34]

The study sample did not include: (a) foods and beverages that appeared within the programs, but did not produce a clear image, making it impossible to identify them; (b) foods and beverages that were used in culinary preparations made by participants in the cooking competition shows, because the disclosure of the supporting/sponsoring brands within the program had already been accounted for, and the same items had already been included as intentional advertising within the program; and (c) foods and beverages that appeared unintentionally in news stories from the variety programs, such as those made at street fairs and food festivals, or from sponsors of reported events.

Finally, the foods and beverages identified in advertising were classified and analyzed according to the four food groups of the NOVA classification system[35]: Group 1 - unprocessed or minimally processed foods; Group 2 - processed culinary ingredients; Group 3 - processed foods; and Group 4 - ultra-processed foods (UPFs). The official websites of the advertised food product brands were consulted to confirm manufacturer data and access the product ingredient list, thus ensuring their correct classification within the NOVA groups.

Data analysis

All identified advertising was described as frequencies (absolute and relative) and 95% confidence intervals. Food and beverage advertising was presented according to where the advertising appeared (commercial breaks or within cooking shows) and NOVA classification groups. Participation frequencies of the advertised food and beverage companies were computed, and those with the highest percentage of participation were presented. Finally, the frequencies of UPFs and non-UPFs (unprocessed or minimally processed, processed culinary ingredients, and processed foods) advertised in commercial breaks and within cooking shows were compared using the chi-square test. All analyses were performed using Stata v. 14 software (Stata Corp. LP College Station), adopting p-value <0.05 as the level of statistical significance.

RESULTS

Of the 1,660 minutes of recording, 225 minutes were commercial break advertisements. The average length of the programs was 90 minutes, with 16 minutes for commercial breaks. No commercial breaks were observed before or after the programs; the internal programming of the TV channels evaluated followed each other, on some occasions introduced or concluded by the sponsor's advertisement.

Of the total general advertising identified (n=828), 65.1% was broadcast during commercial breaks (Table 1).

Table 1. General advertising identified in commercial breaks and during cooking shows on Brazilian free-to-air TV channels, according to days of the week, period of the day, and cooking shows' characteristics. São Paulo-SP, 2019.

Day of the week	Period of the day	Cooking show	Program`s characteristics	General advertising identified					
				Commercial breaks			During cooking shows		
				n	%	95 % CI	*n*	%	95 % CI
Monday to Friday	Morning	P1[a]	Variety TV program with a feature on home cooking	71	8.6	6.8; 10.7	39	4.7	3.4; 6.4
	Morning	P7	TV program exclusively focused on home cooking	44	5.3	3.9; 7.1	37	4.5	3.2; 6.1
	Afternoon	P4	Variety TV program with two segments on home cooking	130	15.7	13.3; 18.4	30	3.6	2.5; 5.1
	Afternoon	P6	Variety TV program with two segments on home cooking	55	6.6	5.0; 8.6	22	2.7	1.6; 4.0
	Night	P3	Cooking competition program	64	7.7	6.0; 9.8	19	2.3	1.4; 3.6
Saturday	Morning	P2	Variety TV program with two segments on home cooking	80	9.7	7.7; 11.9	13	1.6	0.1; 2.7
Sunday	Night	P5	Cooking competition program	95	11.5	9.4; 13.8	129	15.5	13.1; 18.1
Total	-	-	-	**539**	**65.1**	**61.7; 68.3**	**289**	**34.9**	**33.7; 38.3**

Note: P1 to P7 = cooking programs 1 to 7. 95 % CI = 95% confidence intervals.
[a]In the period of data collection this cooking show featured a cooking competition segment.

Of the total percentage of advertising identified in commercial breaks (including the sum of percentages related to morning, afternoon, and evening advertising), 43.9% (95% CI 40.4; 47.3) occurred during commercial breaks of programs broadcast on weekdays. The proportion of advertising during programs (including the sum of percentages related to morning, afternoon, and evening advertising) was comparable for weekday (17.8%, 95% CI 15.2; 20.5) and weekend (17.1%, 95% CI 14.6; 19.9) broadcasts. In the programs that had the lowest (P7) and highest (P5) overall amount of advertising (9.8% and 27%, respectively), there was no difference between advertising identified in commercial breaks and during the program.

Table 2 shows the frequencies of the general advertising categories identified.

Table 2. Food-related and non-food-related advertising identified in commercial breaks and within cooking shows on Brazilian free-to-air TV channels. São Paulo-SP, 2019.

Categories	General advertising identified						
	total	%	95% CI	Commercial breaks		During cooking shows	
	n			*n*	%	*n*	%
Food-related							
Food and beverages	114	13.8	11.5; 16.3	60	11.1	54	18.7
Equipment and utensils for culinary use	90	10.9	8.9; 13.2	7	1.3	83	28.7
Food and beverage brands	23	2.8	1.8; 4.1	6	1.1	17	5.8
Food services	19	2.3	1.4; 3.6	9	1.7	10	3.5
Supermarket brands	11	1.3	0.6; 2.4	1	0.2	10	3.5
Supermarkets	6	0.7	0.2; 1.6	6	1.1	0	0.0
In-house culinary programming	6	0.7	0.2; 1.6	4	0.7	2	0.7
Brands of culinary equipment and utensils	2	0.2	0.02; 0.,8	0	0.0	2	0.7
Cookery books	2	0.2	0.02; 0.8	0	0.0	2	0.7
Non-food related							
Other products and services [a]	555	67.0	63.7; 70.2	462	82.8	109	37.7
Total	**828**	100	-	**539**	100	**289**	100

Note:
95 % CI = 95 % confidence intervals.
[a] Includes: in-house programming - other (n=123), medicines, private health services and appliances/prosthetics (n=94), retail shops, furniture and electronics (n=93), cosmetics and hygiene products (n=53), telecommunication service and apps (n=33), banks, lotteries, sweepstakes and financial products (n=27), cleaning materials (n=26), events and cultural dissemination (n=20), clothing and accessories brands (n=17), public entities and government programs (n=16), tourism and travel agencies (n=13), automobiles and insurance companies (n=10), moving and construction services (n=10), private educational services (n=7), cosmetics and hygiene brands (n=5), religious entities (n=4), literature - other (n=4).

Among all identified advertising, food-related categories together accounted for approximately one-third (n=273; 33%, 95% CI 29.8; 36.3), with food and beverages being the most frequent (41.7%, 95% CI 35.8; 47.9). Among the advertising identified in commercial breaks, those related to food totalled 17.2% (95% CI 14.6: 19.9), again with food and beverages as the most frequent category. Within cooking shows, food-related advertising accounted for 62.4% (95% CI 59.0; 65) of the total advertising identified, but the most frequent category was culinary equipment and utensils (such as stoves, refrigerators, ovens, and pans), followed by food and beverages.

Foods and beverages identified in advertising (n=227), categorized according to the NOVA classification system,[35] are presented in Table 3.

Table 3. Foods and beverages advertised in commercial breaks and within cooking shows on Brazilian free-to-air TV channels, according to the food groups of the NOVA classification system. São Paulo-SP, 2019.

Food groups of the NOVA classification	Food and beverage advertising								
	total n	%	95% CI*	Commercial breaks			During cooking shows		
				n	%	95% CI*	*n*	%	95% CI*
Group 1 – Unprocessed or minimally processed foods[a]	43	18.9	14.1; 24.7	20	8.8	5.5; 13.3	23	10.1	6.5; 14.8
Group 2 – Processed culinary ingredients[b]	9	3.9	1.8; 7.4	6	2.6	0.1; 5.7	3	1.3	0.02; 3.8
Group 3 - Processed foods[c]	44	19.4	14.5; 25.1	14	6.2	3.4; 10.1	30	13.2	9.1; 18.3
Group 4 – Ultra-processed foods[d]	131	57.8	51.0; 64.2	76	33.5	27.4; 40.0	55	24.3	18.8; 30.3
Total	*227*	*100*	-	*116*	*51.1*	*44.4; 57.7*	*111*	*48.9*	*42.2; 55.6*

Note:

*95 % CI = 95 % confidence intervals.

[a] Includes the subgroups: UHT milk (n=19), wheat flour (n=8), coffee (n=5), vegetables (n=3), rice (n=2), oat flakes (n=2), mineral water (n=1), UHT natural juice (n=1), seafood (n=1), pasta (n=1).

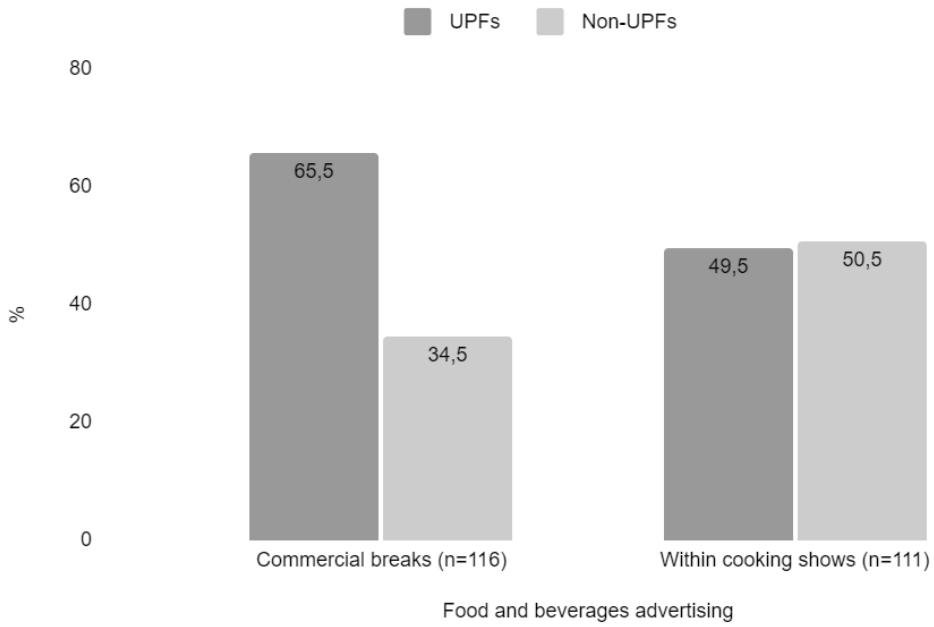
[b] Includes the subgroups: Butter (n=6), yeast (n=2), olive oil (n=1).

[c] Includes the subgroups: processed cheese (n=30), beer and wine (n=7), condensed milk (n=5), UHT coconut water (n=2).

[d] Includes the subgroups: Soft drink and other non-alcoholic beverages (n=26), mayonnaise and other sauces (n=15), UHT cream (n=14), cake mix (n=11), UHT milk drink (n=10), chocolate and chocolate powder (n=10), cottage cheese (n=10), sweet biscuits (n=8), food supplements (n=7), hamburger sandwiches, esfiha (n=7), sausage, ham and chicken empanada (n=5), ready-made seasoning (n=3), breakfast cereal (n=2), bread (n=1), infant formula (n=1), potato chips (n=1).

Of the four groups in the NOVA classification, the UPFs group was the most frequent, accounting for more than half (57.8%; 95% CI 51.0; 64.2) of the total food and beverages advertised. The least frequently advertised food group was culinary ingredients, with a frequency of less than 5% (95% CI 1.8; 7.4). Among all advertised subgroups, processed cheeses (n=30; Group 3), followed by soft drinks and other non-alcoholic beverages (n=26; Group 4) and UHT milk (n=19; Group 1) were the most frequent. A statistically significant difference was observed between the frequencies of advertising of UPFs *versus* non-UPFs advertised (p = 0.015). While UPFs were more frequently advertised during commercial breaks (65.5%, 95 % CI 56.1; 74.1) than non-UPFs (34.5%, 95 % CI 25.9; 43.9), during cooking shows, frequencies were similar (UPFs = 49.5%, 95 % CI 39.9; 59.2; non-UPFs = 50.5%, 95 % CI 40.8; 60.0) (Figure 1).

Figure 1. Association between the frequency of advertising of ultra-processed and non-ultra-processed foods (unprocessed or minimally processed, processed culinary ingredients, and processed foods) advertised in commercial breaks and within cooking shows on Brazilian free-to-air TV channels. São Paulo-SP, 2019. (n= 227)

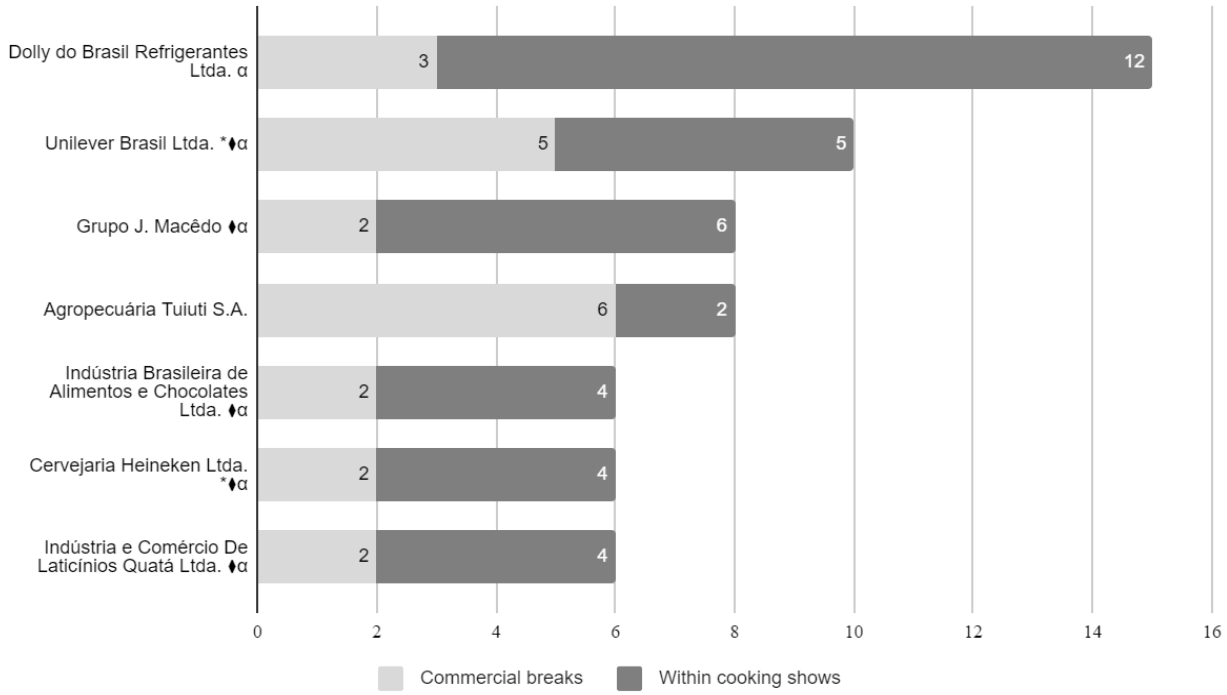


Note:

UPF = Ultra-processed foods

Finally, of the 30 food and beverage advertising companies identified in the cooking programming analyzed in this study, seven accounted for 26% of the food and beverage advertising identified. Figure 2 shows these seven companies; two of them are multinationals, five declared sponsorships of the cooking shows analyzed, and six advertised mostly UPFs, including soft drinks, mayonnaise, cake mixes, chocolates, beer and various dairy products.

Figure 2. Frequency of food and beverage advertising from the seven food companies with the highest total advertising frequency aired on cooking shows of Brazilian free-to-air TV channels. São Paulo-SP, 2019.



Note:
* Multinational company.
♦ Company sponsoring the cooking show.
α Company that advertised, mostly UPFs: soft drinks, mayonnaise, cake mixes, chocolates, beer, and various dairy products.

The program with the highest number of sponsors (n=15) was the cooking competition show broadcast on Sunday evening (P5), with ten food-related sponsors: seven food companies, two manufacturers of culinary equipment and utensils, and one food distributor – a supermarket chain (data not shown).

DISCUSSION

Summary of results

To the best of our knowledge, this is the first study to analyze food advertising in cooking shows on Brazil's main free-to-air TV channels. In this study, based on 1,660 minutes of recording, we identified 828 occurrences of general advertising distributed among the culinary programming of the country's four main free-to-air TV channels. Of these, approximately one-third were food-related. Among the food and beverages advertised, those classified as ultra-processed were the most frequent, corresponding to more than half (57.8%; 95% CI 51.0; 64.2). UPFs were more frequently advertised during commercial breaks than non-UPFs (65.5%, 95 % CI 56.1; 74.1 versus 34.5%, 95 % CI 25.9; 43.9). Approximately one-quarter of all food and beverage advertising identified was sponsored by only seven food companies, and most of these declared sponsorship of the cooking programs analyzed, while advertising mostly UPFs.

Interpretation of results

Although cooking shows in Brazil currently compete for airtime with other traditional and new digital forms of media,[8,9] as has occurred in other countries,[36,37] this type of program remains common in television programming. In recent years, there has also been an increase in cooking shows in other formats – such as cooking competition reality shows – including in the prime times of Brazilian broadcast television.[21,38,39] In the studied reality – which comprised the most populous region of Brazil – during data collection, only one of the five main free-to-air TV channels analyzed did not have a cooking show in its schedule, and three of the seven programs analyzed involved cooking competitions.

In general, those who watch cooking shows want to be entertained and to acquire or improve their knowledge of cooking and meal preparation.[2,5,6,40] It is therefore clear that cooking shows are important vehicles for transmitting culinary knowledge. The problem is that another defining characteristic of this type of program is the viewer's exposure to advertising aired during that programming.[9] Our findings reveal that within the context studied, viewers of cooking shows were also being exposed to advertising, especially of foods and beverages considered unhealthy, such as UPF, and this was happening both during commercial breaks and during the airing of the cooking shows.

Although studies on advertising within Brazilian cooking shows are only in their early stages – which compromises data comparison –our findings are not isolated. It is already known that food and beverage advertising is frequent in commercial breaks during Brazilian television programming,[25,27] and that the marked presence of advertising for nutrient-poor and calorie-rich foods - among them UPFs - is a worldwide reality,[11,31,32,41-45] including Brazil.[24,26,27]

In the scenario analyzed, the predominant presence of advertisements for UPFs in cooking programs is of the utmost concern. Besides being nutritionally unbalanced, UPFs require little or no preparation prior to consumption, and are usually incorporated into meals as a substitute for natural ingredients during preparation (as in the case of ultra-processed ready-made sauces and seasonings) or as a substitute for home-cooked dishes (as in the case of ultra-processed ready-to-eat meals).[35] Add to this the fact that the aggressive marketing of UPFs ends up promoting them as if they were the same or like their homemade versions, whereas, in fact, they are not.[18,19,35,43,46]

Since one of the purposes of food and beverage advertising is to influence viewers' food choices,[12–17] and as watching cooking shows may end up influencing the cooking behaviors of those viewers,[5] it is suspected that advertising UPFs during cooking shows whose purpose is to teach and raise awareness about home cooking may have the potential to influence the practice of home cooking among the viewers. In this case, such a combination could end up justifying and/or potentiating the insertion of UPFs for the preparation of “mixed” meals at home, i.e., combined with unprocessed or minimally processed foods[47] - behavior that would hinder adherence to the healthy eating recommendations of the current Brazilian Food Guides,[18,19] which highlight the importance of avoiding the incorporation and consumption of UPFs in daily meals.

In the context studied, the problem can be aggravated by the fact that much of the food advertising, as well as the sponsorship of cooking shows, was concentrated within a small group of food companies, some of them national and international industry powerhouses, and most of them advertisers of UPFs. Moreover, the largest marketing investment was for the cooking competition show aired on Sunday night (P5) - a program that during data collection had the second largest audience among the five programs in the São Paulo region.[30]This featured the largest number of sponsors and included the highest percentage of general advertising (27%) among all the programs analyzed. Considering that in television programming advertising related to the sponsors' products ends up being highlighted,[5,9] it seems justified to state that, in the context

studied, as long as the sponsors of cooking shows are mostly producers of UPFs, this programming will continue to be an important vehicle for the promotion of these foods.

In light of the aforementioned findings, future actions and interventions aimed at promoting home cooking should consider the potential influence that the advertising of UPFs identified in cooking shows may have on the home food environment and, consequently, on the cooks' culinary practices.

Strengths and limitations

Although this study adds to national and international evidence related to food advertising on cooking shows, when analyzing its findings, it is also important to consider its possible limitations. First, this is a cross-sectional descriptive study that did not include all the Brazilian free-to-air TV channels. However, the main free-to-air TV channels in Brazil were included in thedata collection period,[21] and the total number of cooking shows available on these TV channels at that time were analyzed. It is also a possible limitation to analyze the advertising aired in only one region of Brazil (Greater São Paulo). However, the region chosen is the most populous in the country and one of the most populated in the world, and the stations analyzed have national coverage. In addition, the short period allowed for data collection for each TV station (two days), the absence of internationally standardized criteria for inclusion or exclusion of products advertised in the same advertisement, and previous studies on advertising in the internal context of the programs analyzed, made data collection and interpretation difficult, as well as the comparison with other findings. However, it should be noted that the methodology adopted in this research was based on recommendations from studies that are reference in monitoring television advertising,[27,31,42,43] both for the choice of television programs and days of data collection, as well as for the elaboration of criteria for inclusion of food and beverage advertisements within the same advertisement. As literature-based measures described extensively in the methodology were adopted to circumvent these potential limitations, it is believed that none of these issues could potentially compromise the findings of this study. Finally, as most studies on food advertising analyze advertising aired only in commercial breaks, or advertising aimed exclusively at children,[23,24,27,43,45] the scarcity of studies focusing on the same type of program, and also with methodology focused on analyses of the internal context of cooking programming, made it difficult to compare and discuss the present findings. However, the analysis of the advertising aired during cooking shows can be considered one of the main advances of this study, given that by choosing to analyze the internal context of cooking programming as well, not restricting the analysis to commercial breaks, we ended up including what represented 35% of all advertising studied. Thus, it is recommended that future studies consider that by analyzing only the context external to the programming, they would analyze only a part of what the viewer is exposed to.

CONCLUSION

In this study, which analyzed food advertising in cooking shows on free-to-air television in Brazil, we found that most of the advertising identified was for UPFs. The frequency of advertising of this type of food was higher during commercial breaks. However, advertising during the cooking shows was also significant, since most of the companies sponsoring these programs advertised UPFs during the program. By understanding that television cooking shows are potential influencers of the practice of national home cooking, and that both Brazilian Food Guides recommend avoiding the consumption of UPFs while promoting home cooking, such findings reinforce the importance of expanding the analysis of food advertising within the context of TV cooking shows.

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Contributors

Martins BG and Martins CA were responsible for the conception and design of the study, developed the data analysis and its interpretation; Martins BG wrote the original draft of the manuscript; Martins CA, Andrade GC and Souza TN contributed to writing the manuscript and revised each draft for important intellectual content; Martins CA was the study supervisor. All authors have read and agreed to the final version of the manuscript.

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