



Evaluation of the food advertisements broadcast in the Boing children's television channel in Spain, 2016

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Abstract

Introduction: given the link between marketing of unhealthy foods and childhood obesity, the aim of our study was to assess the use of persuasive and nutritional marketing strategies; the level of compliance in the use of these strategies the new PAOS code for self-regulation of food advertising targeting children aged less than 12 years; and the nutrient profile of the foods and beverages advertised on Boing TV.

Material and methods: descriptive study of a sample of food and drink advertisements broadcast in 2016 by Boing, the leading children's commercial TV channel in Spain. We obtained information on the nutritional composition of products from their labelling, based on which we classified them as healthy or unhealthy applying the WHO nutrient profile model. We analysed the use of persuasive and nutritional marketing strategies and their compliance with the standards set by the new PAOS code.

Results: the 13.5 hours of broadcasting analysed included 111 advertisements, at a rate of 8.2 commercials per hour. All of the products were advertised with some of the marketing strategies included in the analysis, and all were classified as unhealthy based on the WHO nutrient profile model. Also, 73.9% of the advertisements were contravened 1 or more PAOS code standards.

Conclusions: the advertised foods and beverages were unhealthy, and their marketing involved the generalised use of nutritional and persuasive strategies. Three out of four commercials violated the PAOS code currently active in Spain, which proved ineffective and should therefore be replaced by regulation that can effectively protect children from the marketing of unhealthy foods and beverages.

Key words:

- Food publicity
- Legislation, food
- Nutritional facts
- Nutritive value
- Products publicity control

Evaluación de la publicidad alimentaria del canal de televisión infantil Boing en España en 2016

Resumen

Introducción: dada la relación entre el marketing de alimentos poco saludables y la obesidad infantil, el propósito de este estudio fue evaluar el uso de técnicas de marketing (persuasivo y nutricional), su nivel de cumplimiento del nuevo Código PAOS y el perfil nutricional de los alimentos y bebidas anunciados en Boing.

Material y métodos: estudio descriptivo de una muestra de anuncios de alimentos y bebidas emitidos en 2016 por Boing, el canal de televisión infantil con publicidad de mayor audiencia en España. La información nutricional de los productos se obtuvo del etiquetado de estos y se clasificaron en más o menos saludables, según el perfil nutricional de la Organización Mundial de la Salud. Se analizó la presencia de las técnicas de marketing persuasivo y nutricional y su adecuación a las normas del nuevo Código PAOS.

Resultados: durante las 13,5 horas de emisión se emitieron 111 anuncios, correspondientes a 20 productos, 17 alimentos y 3 bebidas, con una tasa de 8,2 anuncios por hora. El 100% de los productos utilizaron alguna de las técnicas de marketing analizadas y resultaron no saludables, según el modelo de la Organización Mundial de la Salud. El 73,9% de los anuncios incumplieron alguna norma del código PAOS.

Conclusiones: los alimentos y bebidas anunciados fueron no saludables e hicieron un uso generalizado de técnicas de marketing nutricional y persuasivo. Tres de cada cuatro infringieron el código PAOS vigente en España, que se revela ineficaz, recomendándose sustituirlo por una regulación que proteja eficazmente a los menores de la publicidad de alimentos y bebidas no saludables.

Palabras clave:

- Control de la publicidad de productos
- Información nutricional
- Legislación alimentaria
- Publicidad de alimentos
- Valor nutritivo

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INTRODUCTION

Childhood obesity constitutes an enormous challenge for public health, as it contributes to the growing social and economic burden of non-communicable diseases.¹ The marketing of unhealthy foods and beverages influences the preferences of children, what they ask to be bought for them and their intake patterns, promoting the early development of obesity.^{2,3} In 2010, the World Health Organization (WHO) set as one of its priorities to reduce the exposure of children to the marketing of unhealthy foods due to the association of the latter with childhood obesity, urging the member states to take measures toward this goal.⁴

In 2005, a code for the self-regulation of marketing of foods and beverages targeting children was enacted in Spain, known as code PAOS (which stands for *Publicidad, Alimentación, Obesidad y Sanidad*, or Marketing, Nutrition, Obesity and Public Health).⁵ Several studies have found low compliance with the PAOS code and that most of the foods and beverages advertised to children in Spain are unhealthy, including those whose marketing makes health claims.⁶ After the WHO published its recommendations for the marketing of foods,⁴ the PAOS code was revised to be defined as a co-regulation system, although without any substantial changes in its actual contents,⁷ while the WHO published a regional nutrient profile model for use in member states of the European Region in the development of policies regulating food marketing to children.⁸

The aim of our study was to assess the level of compliance with the regulations on persuasive marketing of the new PAOS code and the use of the most common marketing strategies (persuasive and nutritional) in the broadcasts of the Boing®, the children's television channel with advertisements that has the largest audience in Spain,⁹ in addition to analysing the nutrient profile of the advertised products according to the regional model for the European Region of the WHO.

MATERIALS AND METHODS

We conducted a cross-sectional descriptive study of a sample of the commercials for foods and beverages broadcast in 2016 by Boing, the children's commercial television channel with the largest audience in Spain.⁹ We recorded the broadcasts of this channel during the 2 prime time intervals for the population aged 4 to 12 years on Saturday April 23 (5 PM to 8:30 PM and 8:30 PM to 12:00 AM) and Thursday April 28 (2 PM to 5 PM and 8:30 PM to 12:00 AM), which amounted to a total of 13.5 hours of television content. We reviewed the food and beverage commercials broadcast during these periods and recorded and purchased the products advertised in these commercials.

We obtained the nutrient profile data from the nutrient fact label of the products, the website of the product manufacturer or the website of the product distributor. We analysed the nutrient profile of each product based on the regional model proposed by the WHO for the European Region, which classifies these products into 16 categories. This system determines whether a product is healthy or not and consequently whether its marketing should be allowed based on the category it belongs to and its nutrient composition. In some categories, such as "Chocolate and sugar confectionery" (category 1) or "Sweet biscuits and pastries" (category 2), none of the products are considered healthy and thus none should be advertised, whereas in others, such as "Savoury snacks" (Category 3) or "Breakfast cereals" (Category 6), products are only considered healthy when they do not exceed established thresholds for the sugar, fat, saturated fat, salt, sweetener or energy contents.⁸ As specified by the WHO model, we categorised powdered cocoa mixes with added sugar as a beverage and determined their nutrient contents based on the values corresponding to one serving of the product reconstituted with milk calculated with the information provided by the label. In the case of fast food meal sets (HappyMeal-McDonalds®), we took into account the foods included in the advertisement of the set (nuggets, potato

chips, apple and water) and applied the WHO nutrient profile model to each of its individual components.⁸ Since one of the components (the potato chips) was categorised as unhealthy, we considered the meal set unhealthy.

We classified the marketing strategies used in the commercials or the labelling into 2 categories, using the scheme applied in previous studies^{10,11}:

- Nutritional marketing techniques: 1) health- and nutrition-related claims; 2) images or graphics suggestive of healthy characteristics, and 3) endorsements from scientific or health care institutions or professionals.
- Persuasive marketing techniques: 1) promotional characters that are familiar or attractive to children (especially cartoon characters or brand mascots); 2) gifts and special offers (toys, discounts or promotions), and 3) other strategies: referring to the characteristics, properties or benefits of acquiring the advertised product; using fantasy elements, cartoons or animations; using the special bond between children and parents or using the trust of children in adults or parental figures.

The PAOS code comprises 32 ethical standards, of which 23 refer to television marketing. Every food or beverage commercial targeting children is subject to these standards, whether individual broadcast networks have pledged adherence or not, as the Unión de Televisiones Comerciales Asociadas (Union of Private Television Networks) has signed its agreement to uphold the code.⁷ In this study, we analysed the 11 standards of those mentioned above that pertain to persuasive marketing: clause 14 and its subclauses 14.1 and 14.2 (exploitation of the particular trust in parents or other adults and promotional characters); clauses 18, 19, 20 and 21 (promotional offers and gifts); clauses 4, 5, 6, 7 and 12 (misleading information about the characteristics, properties or benefits of the product, or exploiting the imagination, inexperience or gullibility of children) and clause 10 (refraining from encouraging children to persuade their parents or other individuals to purchase the product). Two of the authors independently assessed com-

pliance with the PAOS as pertains to these strategies, classifying each commercial into 1 of 3 possible categories: compliance, noncompliance and arguable compliance. The arguable compliance category was created owing to the difficulty of objectively evaluating compliance with any of the standards in some cases. In case of disagreement between raters, a third author was consulted to reach a consensus. Cases where disagreement between raters remained were also categorised as arguable compliance. We considered that a commercial was not in compliance with the PAOS code if it did not adhere to 1 or more of its clauses, and otherwise considered the commercial to be in compliance.

Statistical analysis

Based on the total number of broadcast food commercials, we calculated the rate of commercials per hour of broadcasting and the proportion that advertised unhealthy foods based on the WHO Regional Office for Europe nutrient profile model. Furthermore, we calculated the frequency of the use of nutritional and persuasive marketing strategies and the level of compliance with the PAOS standards. We performed all the calculations with the Microsoft Excel® software.

RESULTS

In the 13.5 hours of programming recorded, the total number of advertisements corresponding to the food sector was 111, corresponding to 20 different products—17 foods (85%) and 3 beverages (15%)—and a rate of 8.2 commercials by hour of broadcasting. All of the advertised products turned out to be unhealthy based on WHO Regional Office for Europe nutrient profile model.

All of the advertisements used some of the analysed marketing techniques. In our sample, 84.7% of commercials used nutritional strategies, most frequently involving nutrition- or health-related (48.6%). Also, 91% of commercials employed persuasive marketing strategies, most frequently

through the use of promotional characters (73.9%). We found noncompliance with one or more of the analysed standards of the PAOS code in 73.9% of commercials. Noncompliance was more frequent in commercials that used persuasive marketing strategies (81.2%) compared to those that used nutritional marketing strategies (73.4%). When we analysed each strategy separately, we found the highest proportion of noncompliance in advertisements that used promotional characters (95.1%) and the lowest in those that used nutrition- or health-related claims (72.2%) (Table 1).

Table 2 lists the products whose advertising contravened at least one of the standards of the PAOS code included in the analysis, accompanied by a brief description of the content that did not adhere to the provisions of the PAOS code that the advertisement did not comply with. Of the 20 advertised products, the marketing of 14 (70%) contravened at least 1 standard, while the marketing of 10 (71.4%) contravened 2 or more standards. Written, sound and visual contents provided misleading information about the characteristics of the advertised product in half of these instances, which made clause 4 the standard violated most often. For instance, the commercial for the TostaRica StarWars® biscuits featured a voice-over that encouraged consumption “for breakfasts full of adventure and fun”, urging the viewer to “feel

the power!” and “feed [their] imagination!”, suggesting that the biscuits have properties that they actually lack. In addition, the simultaneous visualization of images from the Star Wars movie and the depiction of one of the Star Wars characters on the biscuit and the product packaging contravenes subclause 14.1, which regulates the use of real figures or fictional movie characters. Another product of the same brand, the TostaRica Oceanix®, also contravened clause 5, which prohibits misleading the audience about the benefits derived of using a product, with the inclusion of a voice-over stating: “It’s so easy to learn English with TostaRica Oceanix!”, suggesting that the biscuits can improve the intelligence or skills, in this case for language learning, of whoever consumes them. Overall, noncompliance was greatest in commercials for TostaRica® biscuits, as they contravened up to 6 clauses of the code.

DISCUSSION

Our study found that all the foods and beverages advertised in the leading children’s commercial television channel in Spain were unhealthy based on the criteria of the WHO Regional Office for Europe nutrient profile model, developed to guide regulation of advertising targeted to children, and

Tabla 1. Frequency of the use of marketing strategies (nutritional and persuasive) and noncompliance with the PAOS code in the advertisements broadcast by Boing in Spain, 2016^a

Strategy	Advertisements		PAOS noncompliance	
	<i>n</i>	%	<i>n</i>	% ^b
Nutritional marketing (at least one strategy)	94	84.7	69	73.4
Nutrition- or health-related claims	54	48.6	39	72.2
Healthy images	52	46.8	39	75
Scientific or health care endorsements	15	13.5	12	80
Persuasive marketing (at least one strategy)	101	91.0	82	81.2
Promotional characters	82	73.9	78	95.1
Gifts and offers	75	67.6	63	84
Other strategies ^c	89	80.2	78	87.6
Total (at least 1 strategy)	111	100	82	73.9

^a We evaluated compliance with the PAOS code based on the 11 standards relative to persuasive marketing strategies.

^b Percentage of noncompliance based on the use of each type of strategy.

^c Include: referring to the characteristics, properties or benefits of acquiring the advertised product; using fantasy elements, animations or cartoons; exploiting the special relationship between children and their parents and exploiting the trust of children in parents or other adults.

Tabla 2. Examples of violations of the PAOS code in the advertisements broadcast by the Boing children's television channel in 2016

Brand name	Example of violated standard ^a	Description of content violating the standards of the PAOS code	Other violated standards
Nocilla®	19	Promotion involving a collection of Minion glasses with terms and conditions not clearly legible or understandable for children	
Phoskitos®	19	Promotion involving a collection of Emotilocos with terms and conditions not clearly legible or understandable for children	
TostaRica Oceanix Blanditos®	5	A voice-over states, "It's so easy to learn English with TostaRica Oceanix!", which is misleading about the benefits derived from the use of the product, including the development of strength, social status, popularity, growth, skills or intellectual ability	4, 7 and 12
TostaRica StarWars®	4	A voice-over states, "For breakfasts full of adventure and fun! [...], feel the power! [...], feed your imagination!", which is misleading about the characteristics of the product	5, 7, 10 and 14.1
TostaRica Chocoguay®	14.1	While a voice-over states, "Now you can find StarWars in your TostaRica Chocoguay! The coolest afternoon snack!", the advertisement features images from the StarWars movie, and a character is featured in the biscuits and in the labelling of the product in the same scenes of the movie	4
Dinosaurus Huevos®	7	A child opens the door to a character shaped like a dinosaur that tells him, "You look like a dinosaur egg", and the child responds, "No, ¡this is a dinosaur egg!" (referring to a biscuit), which is followed by a voice-over with the voice of a female adult that remarks, "With the new Dinosaurus Huevos, they're sure to eat their breakfast", which exploits the imagination and naivete of the child when it comes to distinguishing fantasy from reality	4 and 10
Bollycao Zero®	10	A child tells his mother, "Mom, my Bollycao Zero!", and the latter immediately proceeds to tell another woman 3 reasons why they should give the product to the child, culminating with a voice-over that states, "Delicious afternoon snacks with cocoa and iron", which incites minors to ask or persuade their parents or other individuals to purchase the advertised product	4 and 14
Palitos La Vaca Que Ríe®	5	A voice-over states, "Do you dare try the country-flavoured cheese sticks?", followed by a character singing "An intense taste, they are thrilling, the Karate Bull likes them, and he's a black belt, and so do the coolest people and those that win the prizes. Now I challenge you!", which is misleading about the benefits derived from the use of the product, including the development of strength, social status, popularity, growth, skills or intellectual ability	4, 7, 10 and 12
Gusanitos®	19	Promotion of a collection of temporary tattoos and tickets to an amusement park with terms and conditions not clearly legible or understandable for children	
Large ColaCao®	18	A voice-over states: "Our latest signing is not Cristiano, nor Messi [...]. ColaCao gives you the ball with all of your idols. Free with the large-size ColaCao", but the advertised product is not clearly shown	19
Mini Babybel®	6	A character declares, Hey, I'm a superhero, with 98% milk and my super wax suit! I'm Supercheese!", which is followed by a voice-over that states, "Mini Babybel, a super cheese for a super recess!", which is misleading in suggesting that the product has especial characteristics, when all similar products have the same characteristics	4 and 7

Continue

Tabla 2. Examples of violations of the PAOS code in the advertisements broadcast by the Boing children's television channel in 2016 (cont.)

La Vaca Que Rie Light®	6	A male character says, "Well look at you, you're taking good care of yourselves", to which a female character replies, "Well sure, with a cheese that is oh so yummy", followed by a voice-over that states, "Delicious, creamy, your tasty break", which is misleading in suggesting that the product has especial characteristics, when all similar products have the same characteristics	4, 5 and 7
Cheestrings®	4	After a voice-over announces, "the new string cheese", the commercial features scenes of children with the product playing or in an amusement park, and concludes with a voice-over stating, "Ideal for recess!" which could mislead viewers about the characteristics of the product	
HappyMeal -McDonalds®	19	Promotion offering a set of Nerf toys (balls, frisbees), the conditions of which are not legibly printed or understand for minors	4

ªBrief description of the evaluated standards: 4 (guaranteeing that written, spoken and visual contents will not mislead the audience about the characteristics of the advertised product), 5 (the advertisement will not mislead the audience about the benefits derived from the use of the product), 6 (not misleading the audience by suggesting that the advertised product has especial characteristics when all similar products have those characteristics), 7 (not exploiting the imagination of minors. Marketing must avoid creating unrealistic expectations or exploiting the gullibility of younger children who may not distinguish fantasy from reality), 10 (avoiding directly persuading minors to purchase the advertised product taking advantage of their inexperience or naivete or to incite them to ask or persuade their parents or other individuals to purchase the advertised products), 12 (the benefits attributed to the food or beverage should be intrinsic to its consumption. Marketing should not suggest that consumption will increase acceptance by peers or lack of consumption increased rejection. It should not be suggested that the product will give the consumer the prestige, skills or special qualities of the characters featured in the commercial), 14 (not exploiting the special trust of children in their parents, teachers, or other figures [professionals featured in children's programmes], or characters in films or TV series): [14.1 (figures familiar to children in the audience, such as hosts of children's programmes or real or fictional characters in films or series, should not be featured in food or beverage advertisements targeting children unless they are part of a current promotional campaign, although, when such scenes are broadcast, a direct or indirect allusion to the product cannot be made, and the product cannot appear onscreen), 14.2 (not showing famous figures or celebrities known by the general public that are highly popular among children)], 18 (clearly show, in case promotional incentives are offered, the advertise product), 19 (the terms and conditions of promotional offers must be clearly legible and understandable to children), 20 (not fostering unrealistic expectations about the possibility of winning or the prize that may be won) and 21 (in case of referring to children's clubs, the latter must be interactive, continuous and exclusive).⁷

generally employed nutritional and persuasive marketing strategies. Furthermore, nearly 3 out of 4 commercials contravened at least 1 standard of the PAOS code. If the guidelines of the WHO had been applied, none of these products could have been advertised.

Our data reveal a low level of compliance with the standards of the PAOS code, with nearly 3 out of every 4 commercials being in noncompliance, a figure that was slightly lower compared to the proportion found in a recently published study of 88.3%.¹² This difference could be attributed to our study analysing compliance with only 11 out of the 23 clauses of the code that apply to television advertising, corresponding to the guidelines related to the use of persuasive marketing strategies. The results of that study have been questioned by the proponents of the PAOS code in the Agencia Espa-

ñola de Seguridad Alimentaria y Nutrición (Spanish Agency of Food Safety and Nutrition), who, among other arguments, appealed to the implicit subjectivity in evaluating the standards, and questioned whether all the analysed commercials did in fact target children.¹³ Although the authors of the article disputed these criticisms,¹⁴ they acknowledged that a degree of subjectivity was inevitable in the evaluation of some of the standards. In our study, to demonstrate that this potential subjectivity is the exception rather than the rule, we provide the content of the advertisement that was the basis for our evaluation. As for the target audience of the advertisements, given that they were broadcast in a children's channel, we considered that all commercials targeted children by default. This would also explain the increased use of persuasive marketing strategies compared to previous studies that

included general interest channels,¹⁰ as many of these techniques are specifically designed with children in mind.

Independently of the marketing strategies used, the main goal of regulation, as recommended by expert groups and the WHO and established by the European Union Audiovisual Media Services Directive, is to effectively reduce the exposure of minors to the marketing of unhealthy foods and beverages.¹⁵ From this perspective, the PAOS code is inherently flawed, as it does not set nutritional quality standards for advertised products, allowing the majority to be unhealthy.¹⁶ In our sample, 100% of advertised products contravened the nutrient profile criteria established by the WHO for regulation of marketing targeting children, a proportion of noncompliance that exceeded the 77% found by a recent study that also included general interest television channels.¹⁷ Taking into account the rate of 8.2 commercials per hour of broadcast, which was consistent with the findings of previous studies,^{16,18} and the available viewership data for children in Spain,¹⁹ a Spanish child aged 4 to 12 years watches a mean of 20 unhealthy food or beverage commercials a day, adding up to approximately 7000 per year. Another intrinsic defect of the PAOS code is that it allows the use of health claims and endorsements from institutions or experts in science or health, regardless of the nutrition profile of the advertised products. As observed in previous studies,^{11,20} nearly half of the products bore nutrition- or health-related claims and 13.5% had endorsements from scientific or health institutions or figures, contravening the recommendations of the European Union^{15,21} and imbuing the advertised foods and beverages with a false aura of healthfulness, with the result of altering the preferences of children²² and misleading parents into purchasing those products for their children in the erroneous belief that they are healthy.²³

As noted by the WHO in its recent evaluation of the implementation of its recommendations on food marketing in Europe,²⁴ the development of effective public health policies to prevent exposure of minors to marketing of unhealthy foods by ap-

plying the nutrient profile developed for this purpose and restricting the use of persuasive and nutritional marketing strategies is urgently needed. This objective is supported by expert groups, consumers, public health authorities and the general population,²⁵ and has been included in the new European Union Audiovisual Media Services Directive.¹⁵ The “Defiéndeme” (Defend me) campaign,²⁶ promoted in Spain by scientific societies in the field of public health, community-based organizations and parent and student associations, includes a proposal for a regulation policy of demonstrated effectiveness for protection of minors from marketing of foods deleterious to health that applies the WHO nutrient profile model that we used in our study, and we therefore urge our government to implement it.

Limitations

One of the limitations of our study was the small sample size, as we only analysed advertisements in one channel, which may restrict the generalizability of our findings. However, we obtained our sample from prime-time intervals in children's programming in the children's commercial television channel with the largest audience in Spain, while there is little variability in the products advertised with children as the target in different channels. In our study, we analysed compliance with 11 of the 23 standards of the PAOS code applicable to television commercials that refer to persuasive marketing, and therefore noncompliance with the PAOS code could be greater than observed when taking into account every standard in the code. As for the potential subjectivity in assessing compliance with the code, which derived from the vagueness and ambiguity of some of its standards, we believe that requiring consensus between 2 rating researchers with a different academic background (1 in information science and 1 in public health) and resolution of disagreements by consultation with a third researcher may have minimised this problem. In any case, we present the advertisement content that we analysed so that readers can form their own opinions.

CONCLUSIONS

Our study found that all the foods and beverages analysed and advertised in the leading children's commercial television channel in Spain were unhealthy and that advertisements for these products generally used nutritional and persuasive marketing strategies, with 3 out of 4 not complying with the current PAOS code for coregulation in Spain. We recommend replacing the current code with laws that can effectively protect minors from marketing of unhealthy foods and beverages.

CONFLICTS OF INTEREST

The authors have no conflicts of interest to declare in relation to the preparation and publication of this article.

ABBREVIATIONS

PAOS: code for coregulation of advertising of foods and beverages targeting minors, the prevention of obesity and health promotion • **WHO:** World Health Organization.

REFERENCES

- Ebbeling CB, Pawlak DB, Ludwig DS. Childhood obesity: public-health crisis, common sense cure. *Lancet*. 2002;360:473-82.
- Boyland E, Nolan S, Kelly B, Tudur-Smith C, Jones A, Halford JC, et al. Advertising as a cue to consume: a systematic review and meta-analysis of the effects of acute exposure to unhealthy food and nonalcoholic beverage advertising on intake in children and adults. *Am J Clin Nutr*. 2016;103:519-33.
- Cairns G, Angus K, Hastings G, Caraher M. Systematic reviews of the evidence on the nature, extent and effects of food marketing to children. A retrospective summary. *Appetite*. 2013;62:209-15.
- World Health Organization. Set of recommendations on the marketing of foods and non-alcoholic beverages to children. In: World Health Organization [online] [accessed 07/10/2019]. Available at https://apps.who.int/iris/bitstream/handle/10665/44416/9789241500210_eng.pdf
- Ministerio de Sanidad y Consumo, Agencia Española de Seguridad Alimentaria. Código de Autorregulación de la publicidad de alimentos dirigida a menores, prevención de la obesidad y salud. Código PAOS. In: AECOSAN [online] [accessed 07/10/2019]. Available at www.aecosan.mssi.gob.es/AECOSAN/docs/documentos/nutricion/Codigo_PAOS_2005_espanol.pdf
- Romero Fernández MM, Royo Bordonada MA. Publicidad alimentaria. In: Royo Bordonada MA (coordinators). *Nutrición en salud pública*. Madrid: Escuela Nacional de Sanidad, Instituto de Salud Carlos III; 2017. pp. 261-84.
- Ministerio de Sanidad, Servicios Sociales e Igualdad, Agencia Española de Seguridad Alimentaria y Nutrición. Código de correulación de la publicidad de alimentos y bebidas dirigida a menores, prevención de la obesidad y salud (Código PAOS). In: Agencia Española de Seguridad Alimentaria y Nutrición [online] [accessed 07/10/2019]. Available at www.aecosan.mssi.gob.es/AECOSAN/docs/documentos/nutricion/Nuevo_Codigo_PAOS_2012_espanol.pdf
- World Health Organization. WHO Regional Office for Europe nutrient profile model. In: World Health Organization [online] [accessed 07/10/2019]. Available at www.euro.who.int/__data/assets/pdf_file/0005/270716/Nutrient-children_web-new.pdf?ua=1
- Barlovento Comunicación. Análisis Televisivo 2015. In: Barlovento Comunicación [online] [accessed 07/10/2019]. Available at www.barloventocomunicacion.es/wp-content/uploads/2018/12/analisis-televisivo-2015-Barlovento.pdf
- León-Flández K, Royo-Bordonada MA, Moya-Geromini MA, Bosqued-Estefanía MJ, López-Jurado L, Damián J. Marketing techniques in television advertisements of food and drinks directed at children in Spain, 2012. *Int J Public Health*. 2018;63:733-42.
- Royo-Bordonada M, Bosqued-Estefanía M, Damián J, López-Jurado L, Moya-Geromini MA, et al. Nutrition and health claims in products directed at children via television in Spain in 2012. *Gac Sanit*. 2016;30:221-6.
- León-Flández K, Rico-Gómez A, Moya-Geromin M, Romero-Fernández M, Bosqued-Estefanía MJ, Damián J, et al. Evaluation of compliance with the Spanish Code of self-regulation of food and drinks

- advertising directed at children under the age of 12 years in Spain, 2012. *Public Health*. 2017;150:121-9.
13. Robledo de Dios T, Dal Re Saavedra M, Pérez-Farinós N. Re: Evaluation of compliance with the Spanish Code of self-regulation of food and drinks advertising directed at children under the age of 12 years in Spain. *Public Health*. 2017;153:181-2.
 14. Royo-Bordonada M, León-Flández K, Romero-Fernández M. Re: Letter to the Editor of *Public Health* in response to "Evaluation of compliance with the Spanish Code of self-regulation of food and drinks advertising directed at children under the age of 12 years in Spain, 2012". *Public Health*. 2017;153:183-4.
 15. Directive (EU) 2018/1808 of the European Parliament and of the Council of 14 November 2018 amending Directive 2010/13/EU on the coordination of certain provisions laid down by law, regulation or administrative action in Member States concerning the provision of audiovisual media services (Audiovisual Media Services Directive) in view of changing market realities. Directive (EU) 1808/2018, November 14, 2018.
 16. Royo-Bordonada M, León-Flández K, Damián J, Bosqued-Estefanía MJ, Moya-Geromini MA, López-Jurado L. The extent and nature of food advertising to children on Spanish television in 2012 using an international food-based coding system and the UK nutrient profiling model. *Public Health*. 2016;137:88-94.
 17. Del Castillo Gaitero M. La tele engorda a los niños. *Ocusalud*. 2019;142:34-6.
 18. Campos D, Hernández-Torres J, Agil A, Comino M, López JC, Macías V, *et al.* Analysis of food advertising to children on Spanish television: probing exposure to television marketing. *Arch Med Science*. 2016;4:799-807.
 19. Perales, A. Menores y televisión. Panorámica de la audiencia en 2015. In: Asociación de Usuarios de la Comunicación [online] [accessed 07/10/2019]. Available at www.auc.es/Paginas/download.php?type=doc&year=2016&file=2016-04_Documentos AUC_Menores%20y%20television%20audiencia%202015.pdf
 20. Fernández E, Díaz-Campos J. La publicidad de alimentos en la televisión infantil en España: promoción de hábitos de vida saludables. *Observatorio*. 2014;8:133-50.
 21. Reglamento del Parlamento Europeo y del Consejo relativo a las declaraciones nutricionales y de propiedades saludables en los alimentos. Regulation (EC) 1924/2006, December 20, 2006.
 22. Soldavini J, Crawford P, Ritchie L. Nutrition claims influence health perceptions and taste preferences in fourth- and fifth-grade children. *J Nutr Educ Behav*. 2012;44:62427.
 23. Dixon H, Scully M, Wakefield M, Kelly B, Chapman K, Donovan R. Parent's responses to nutrient claims and sports celebrity endorsements on energy-dense and nutrient-poor foods: an experimental study. *Public Health Nutr*. 2011;14:1071-9.
 24. World Health Organization. Evaluating implementation of the WHO Set of Recommendations on the marketing of foods and non-alcoholic beverages to children. Progress, challenges and World Health Organization [online] [accessed 07/10/2019]. Available at www.euro.who.int/__data/assets/pdf_file/0003/384015/food-marketing-kids-eng.pdf?ua=1
 25. Davó-Blanes M, Ortiz-Moncada R, Gil-González D, Álvarez-Dardet C, Lobstein T. The impact of marketing practices and its regulation policies on childhood obesity. Opinions of stakeholders in Spain. *Appetite*. 2013;62:216-24.
 26. Defiéndeme. Campaña por la eliminación de la publicidad de alimentos malos para la salud de la población infantil [online] [accessed 07/10/2019]. Available at <https://defiendeme.org/>