

Original

Conflicts of interest among scientific foundations and societies in the field of childhood nutrition



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ABSTRACT

Objective: To describe food–industry sponsorships of associations active in the field of childhood nutrition and obesity prevention in Spain in 2017–2018.

Method: The associations were located at <https://www.google.es/> using the words “society”, “foundation” or “federation” in combination with the terms “nutrition”, “obesity”, “childhood”, “paediatrics” and “diabetes”. Sponsorship was defined as the declaration of funding received or the appearance of a food company logo on an association’s website or in the programmes of its congresses or courses. The percentage of sponsored societies and its association with the existence of ethical codes was calculated using MS Excel.

Results: 64% of the associations displayed some type of sponsorship, with this being most frequent among paediatric and nutrition societies, 83% and 80% respectively, and non-existent among public health societies. No association was found between the existence of an ethical code and sponsorship (odds ratio: 0.75; 95% confidence interval: 0.14–3.94). The leading corporate sponsors were Nestlé, Coca-Cola and Danone. Whereas the initiatives of sponsored societies were targeted at changing eating individual behaviours, those of unsponsored societies sought to promote changes in the food system and eating environments.

Conclusions: Food industry sponsorship of foundations and scientific societies is very widespread in Spain, except among public health associations. Unlike sponsored associations, those unsponsored propose policies opposed by the food industry, which are aimed at improving the system and food and eating environments.

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Conflictos de intereses de las fundaciones y sociedades científicas del ámbito de la nutrición infantil

RESUMEN

Objetivo: Describir el patrocinio de compañías que comercializan alimentos y bebidas no saludables a sociedades científicas y fundaciones relacionadas con la nutrición y la prevención de la obesidad infantil en España durante 2017–2018.

Método: Las sociedades y fundaciones fueron localizadas en www.google.es/ usando las palabras clave «sociedad», «fundación» y «federación», combinadas con «nutrición», «obesidad», «infantil», «pediatría» y «diabetes». Se consideró como patrocinio la declaración de financiación o la presencia del logo de la compañía alimentaria en la página web de la asociación o de los programas de congresos o cursos. Se calculó el porcentaje de asociaciones patrocinadas y su asociación con la existencia de código ético usando MS Excel.

Resultados: El 64% de las asociaciones recibieron algún patrocinio de compañías alimentarias, más frecuente en las sociedades de pediatría (83%) y nutrición (80%) e inexistente en las de salud pública. No se encontró asociación entre la existencia de código ético y patrocinio (odds ratio: 0,75; intervalo de confianza del 95%: 0,14–3,94). Las principales compañías patrocinadoras fueron Nestlé, Coca-Cola y Danone. Las iniciativas de las asociaciones patrocinadas se dirigían exclusivamente a cambiar los hábitos individuales, mientras que las sociedades no patrocinadas promovieron cambios en el sistema y el entorno alimentarios.

Palabras clave:

Conflictos de intereses

Sociedades científicas

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Conclusiones: El patrocinio de las compañías alimentarias a asociaciones relacionadas con la nutrición y la prevención de la obesidad infantil es común en España, excepto entre las sociedades de salud pública. A diferencia de las sociedades patrocinadas, las no patrocinadas promueven políticas alimentarias dirigidas a modificar el sistema y el entorno alimentarios, a las que se opone la industria alimentaria.

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Introduction

About one third of all Spanish children and adolescents suffer from overweight, and approximately one out of ten suffers from obesity.¹ Although the data indicate that the figures have stabilised in recent years,² Spain, with an estimated prevalence of severe obesity of 2.4% to 4% in children aged 6–9 years, has one of the highest rates in Europe, along with other Mediterranean Basin countries such as Greece and Italy.³ The main causes of childhood obesity are the Western diet, rich in red and processed meat, refined grains, and saturated fat, the consumption of sugar-sweetened beverages, and sedentarism.⁴ Sedentarism, especially the time devoted to watching television, is associated with a higher consumption of sugar-sweetened beverages and energy-dense snacks.⁵ Television exerts its principal effect through advertising, which negatively influences children's food preferences, eating behaviours and caloric intake.⁶

Scientific societies and foundations active in the field of childhood nutrition and obesity prevention play a crucial role in promoting healthy eating habits and preventing childhood obesity through generating and disseminating scientific knowledge, training professionals in health promotion, nutrition and obesity prevention, establishing population food guidelines, actively fostering and lobbying in favour of healthy food policies, and monitoring them.⁷ There is the possibility, however, that this activity may be unduly affected by potential conflicts of interest deriving from these societies and foundations being funded by companies which market unhealthy products, such as ultra-processed foods and sugar-sweetened beverages.⁸ It has been shown that these conflicts can introduce biases into scientific research, and influence the independence of experts when it comes to drawing up recommendations and guidelines.^{9–12} Some Spanish scientific societies even collaborate in food industry advertising, by lending their endorsement to unhealthy products.¹³

A study was recently published about Spanish health-related organisations which received funding from Coca-Cola across the period 2010–2016.¹⁴ It was based on information drawn from the transparency list published by Coca-Cola itself, since scientific societies and foundations are often in the habit of not furnishing information about their funding sources on their websites.¹² To our knowledge, however, there is no information on the funding of Spanish organisations active in the field of childhood nutrition and obesity prevention by other companies that market unhealthy food and drinks.

Accordingly, the aim of this study was to describe sponsorships of Spanish-based scientific societies and foundations active in the field of childhood nutrition and obesity prevention by companies that market unhealthy food and drinks, across the period 2017–2018. Similarly, the relationship between these societies' food-policy initiatives and the existence of sponsorships was also analysed.

Method

Study design and population

Cross-sectional descriptive study of sponsorships granted across the period 2017–2018 by companies that marketed unhealthy food

or drinks as defined by the WHO regional nutrient profile model,¹⁵ to any Spanish scientific society and foundation which met the following requirements, namely:

It listed childhood nutrition and obesity among its priority action areas, i.e., any society or foundation active in paediatrics, obesity, diabetes, epidemiology, public health and nutrition (except clinical enteral and parenteral nutrition):

- It was nation-wide in scope, including any state federation of regional societies or foundations;
- It was a non-profit organisation;
- It included health promotion among its designated objectives;
- It hosted a website; and,
- It participated in congresses or training courses relating to nutrition and obesity.

We excluded societies and foundations of clinical nutrition and metabolism, oral health, or enteral and parenteral nutrition. We also excluded Spanish federations of societies or foundations already included individually in this study. To identify the societies and foundations studied, we carried out a search on <https://www.google.es/> using the words “society”, “foundation” or “federation” in combination with the terms, “nutrition”, “obesity”, “childhood”, “paediatrics” and “diabetes”. We also checked the directory of scientific foundations at the Ministry of Justice, using the words “nutrition”, “obesity”, “paediatrics” and “diabetes”, and that of scientific societies of the Ministry of Health under the headings of endocrinology and nutrition, paediatrics, and preventive medicine and public health. Of the total of 33 organisations initially located, we excluded three scientific societies active in the field of clinical nutrition and oral health, one state-wide federation of societies, and four regional organisations, thereby leaving a total of 25 organisations.

Data-collection

Information about the existence of sponsorships was obtained from the websites of the societies, foundations and federations included in the study. Congress and course programmes from 2017 and 2018 which were not accessible from the website, were sought on <https://www.google.es/> using the words “congress” or “course” combined with the name of the association. A society was deemed to be sponsored by a company which marketed unhealthy foods, in any case where that company was stated to be the source of funding or its logo appeared on the association's website or in the programme of one or more of the society's congresses or courses. We likewise identified the presence on the website of an ethical code or conflict of interest declaration system pertaining to the members of the societies and foundations studied. Lastly, data were also gathered from the websites on advocacy initiatives to promote healthy public food policies, which were classified in line with the *Nourishing* framework of the World Cancer Research Fund, into the following three pillars or domains of action: food system; change in eating behaviours; and food and eating environment.¹⁶ This framework generates recommendations at a global level, with a series of food policies that countries can select according to their local populations and contexts. It thus affords a framework for monitoring

food policies around the world, systematically categorising, updating, interpreting and communicating the evidence for policy to policymakers. All data were uniformly collected by the first author (G.G.C.) by extensive review of the websites and revised by the last one (M.A.R.B.) in case of doubt.

Statistical analysis

We calculated the percentage of sponsored associations and foundations, both overall and by thematic area, e.g., paediatrics, nutrition, obesity and diabetes, epidemiology and public health. To analyse the association between the existence of an ethical code and sponsorship, the probability of sponsorship was compared as between societies having and not having evidence of an ethical code or a conflict of interest declaration system, using the odds ratio and its 95% confidence intervals. Similarly, we quantified the number and percentage of associations funded by the leading corporate sponsors. All analyses were performed using the

MS Excel computer software programme (Redmond, Washington, USA).

Results

Table 1 shows the distribution of the different modalities of food industry sponsorship of scientific societies and foundations active in the field of childhood nutrition and obesity in Spain. Collaboration in congresses was the most frequent form of sponsorship, with nine associations (36%), followed by the presence of the corporate logo on the website, with six associations (24%). In the case of the Spanish Society of Community Nutrition (*Sociedad Española de Nutrición Comunitaria*) and Spanish Diabetes Federation (*Federación Española de Diabetes*) sponsorship was displayed on congress websites and programmes. Of the nine associations in which the existence of an ethical code or declaration of interests could be established, five (56%) enjoyed some type of sponsorship:

Table 1
Existence of ethical guidelines among scientific foundations and societies active in the field of childhood nutrition and obesity prevention in Spain and food industry sponsorship modalities, 2017–18.

	Sponsorship			Existence of ethical code or conflict of interest declarations
	Website	Congresses	Courses	
<i>Nutrition societies</i>				
Spanish Nutrition Society (<i>Sociedad Española de Nutrición</i>)				
Spanish Society of Endocrinology and Nutrition (<i>Sociedad Española de Endocrinología y Nutrición</i>)		x		
Spanish Society of Community Nutrition (<i>Sociedad Española de Nutrición Comunitaria</i>)	x	x		
Association of Nutrition and Dietetics Nurses (<i>Asociación de Enfermeras de Nutrición y Dietética</i>)		x		x
Spanish Academy of Dietetics and Food Sciences (<i>Sociedad Española de Dietética y Ciencias de la Alimentación</i>)		x		
<i>Obesity and diabetes societies</i>				
Spanish Society for the Study of Obesity (<i>Sociedad Española para el Estudio de la Obesidad</i>)		x		
Spanish Diabetes Society (<i>Sociedad Española de Diabetes</i>)				
Spanish Diabetes Federation (<i>Federación Española de Diabetes</i>)	x	x		
<i>Nutrition, obesity and diabetes foundations</i>				
Spanish Nutrition Foundation (<i>Fundación Española de Nutrición</i>)				
Spanish Academy of Nutrition and Dietetics (<i>Academia Española de Nutrición y Dietética</i>)	x			x
Foundation for Nutrition and Growth (<i>Fundación Nutrición y Crecimiento</i>)	x			
Foundation for Mediterranean Diet (<i>Fundación Dieta Mediterránea</i>)	x			
Spanish Foundation of Experts in Obesity (<i>Fundación Española de Expertos en Obesidad</i>)				
Diabetes Foundation (<i>Fundación para la Diabetes</i>)	x			
Network of Diabetes Study Groups in Primary Health Care (<i>Red de Grupos de Estudio de Diabetes en Atención Primaria de la Salud</i>)				
<i>Paediatric societies</i>				
Spanish Paediatric Association (<i>Asociación Española de Pediatría</i>)		x		x
Spanish Primary Care Paediatric Association (<i>Asociación Española de Pediatría de Atención Primaria</i>)			x	x
Spanish Society for Paediatric Endocrinology (<i>Sociedad Española de Endocrinología Pediátrica</i>)				x
Spanish Society for Gastroenterology, Hepatology and Paediatric Nutrition (<i>Sociedad Española de Gastroenterología, Hepatología y Nutrición Pediátrica</i>)			x	
Society for Outpatient Paediatric and Primary Care (<i>Sociedad de Pediatría Extrahospitalaria y de Atención Primaria</i>)		x		
Spanish Social Paediatric Society (<i>Sociedad Española de Pediatría Social</i>)		x		x
<i>Epidemiology and public health societies</i>				
Spanish Society of Preventive Medicine, Public Health and Hygiene (<i>Sociedad Española de Medicina Preventiva, Salud Pública e Higiene</i>)				
Spanish Society of Public Health and Health Administration (<i>Sociedad Española de Salud Pública y Administración Sanitaria</i>)				x
Spanish Society of Epidemiology (<i>Sociedad Española de Epidemiología</i>)				x
Association of Preventive Medicine and Public Health Residents (<i>Asociación de Residentes de Medicina Preventiva y Salud Pública</i>)				x
Total (%)	6 (24%)	9 (36%)	2 (8%)	9 (36%)

Table 2

Number and percentage of scientific foundations and societies active in the field of childhood nutrition and obesity prevention, sponsored by the food industry in Spain, 2017–2018.

Societies or foundations	N	Sponsorship (%)
Nutrition societies	5	4 (80%)
Obesity and diabetes societies	3	2 (66.6%)
Nutrition, obesity and diabetes foundations	7	5 (57.14%)
Paediatric societies	6	5 (83.3%)
Epidemiology and public health societies	4	0 (0%)
Total	25	16 (64.0%)

in the case of the remaining 16, 10 (62.5%) enjoyed some type of sponsorship (odds ratio: 0.75; 95% confidence interval: 0.14–3.94).

A total of 64% of the societies and foundations studied reported receiving some type of sponsorship from food companies that market unhealthy products (Table 2). This percentage was highest for paediatric societies, with a figure of 83%, and nutrition societies, with a figure of 80%, whereas none of the epidemiology and public health societies reported receiving any sponsorships from food and drink companies. The leading food industry companies which sponsored scientific societies and foundations active in the field of childhood nutrition and obesity in Spain were Nestlé, which sponsored 36%, Coca-Cola which sponsored 32%, and Danone which sponsored 24% of the societies and foundations studied (Table 3). While Nestlé displayed a preference for paediatric societies, which accounted for 55.6% of the societies sponsored by the company,

and Danone displayed a preference for nutrition societies, with a figure of 66.7%, Coca-Cola, which displayed a certain preference for nutrition societies, with a figure of 37.5%, showed a more uniform distribution of its sponsorships.

Table 4 shows that all the initiatives with proposals to improve the 'food system' and 'food and eating environment' pillars in line with the *Nourishing* framework, were launched by societies having no type of sponsorship; in contrast, the initiatives launched by sponsored societies were targeted exclusively at the 'changing eating behaviour' pillar, with proposals for improving population information and awareness about the importance of food and nutrition.

Discussion

Almost two-thirds of scientific societies and foundations active in the field of childhood nutrition and obesity in Spain, regardless of whether or not they had an ethical code, received some type of food industry sponsorship, with this phenomenon being more widespread among nutrition and paediatric societies, a finding that is in marked contrast to the lack of sponsorship of epidemiology and public health societies. The leading corporate sponsors were Nestlé, Coca-Cola and Danone. Whereas scientific societies with no type of sponsorship launched initiatives with proposals for improving the 'food system' and 'food and eating environment' pillars of the *Nourishing* framework, those launched by societies or foundations sponsored by the food industry sought to promote educational

Table 3

Leading food industry companies sponsoring scientific foundations and societies active in the field of childhood nutrition and obesity prevention in Spain, 2017–2018.

	Food-sector companies			
	Nestlé	Coca-Cola	Danone	Others
Nutrition societies	2	3	4	4
Obesity and diabetes societies	1	2	0	1
Nutrition, obesity and diabetes foundations	1	2	1	2
Paediatric societies	5	1	1	3
Total (%) ^a	9 (36%)	8 (32%)	6 (24%)	10 (40%)

^a Percentage of societies and foundations sponsored by the company in question with respect to the total number of societies and foundations with some type of sponsorship.

Table 4

Initiatives of scientific foundations and societies active in the field of childhood nutrition and obesity prevention in Spain to promote a healthy diet, in accordance with the *Nourishing* framework (see ref. 20).

Initiative	Nourishing framework pillar	Nourishing framework area of action	Promoting society
2016 Healthy food alliance statement (<i>Manifiesto de la alianza por una alimentación saludable 2016</i>)	Food system	Fostering healthy and sustainable agriculture	SESPAS
2016 Healthy food alliance statement (<i>Manifiesto de la alianza por una alimentación saludable 2016</i>)	Food and eating environment	Regulation of advertising Interpretative labelling Pricing policies Guaranteeing the provision of healthy meals at schools	SESPAS
2016 Healthy food alliance statement (<i>Manifiesto de la alianza por una alimentación saludable 2016</i>)	Change in eating behaviours	Introducing healthy and sustainable meals into the education sector	SESPAS
Tax on sugar-sweetened beverages (2017)	Food and eating environment	Financial tools	SEE
Vending machines (2017)	Food and eating environment	Regulation of advertising	ARES MSPS, SEE
<i>Defiéndeme</i> (2018)	Food and eating environment	Provision of healthy meals at public centres	SESPAS
Promotion of the Mediterranean diet (2014)	Change in eating behaviours	Regulation of advertising	FDM, SEDCA
		Informing the population about the benefits of the Mediterranean diet	
<i>Promesa</i> – AEP (2019)	Change in eating behaviours	Informing the population and raising public awareness about food and nutrition	AEP

AEP: *Asociación Española de Pediatría* (Spanish Paediatric Association); ARES MPSP: *Asociación de Residentes de Medicina Preventiva y Salud Pública* (Association of Preventive Medicine and Public Health Residents); FDM: *Fundación Dieta Mediterránea* (Foundation for Mediterranean Diet); SEDCA: *Sociedad Española de Dietética y Ciencias de la Alimentación* (Spanish Society of Dietetics and Food Sciences); SEE: *Sociedad Española de Epidemiología* (Spanish Society of Epidemiology); SESPAS: *Sociedad Española de Salud Pública y Administración Sanitaria* (Spanish Society of Public Health and Health Administration).

and awareness-raising measures to stimulate a change in eating behaviours at an individual level.

Although food industry sponsorship of societies active in the field of childhood nutrition and obesity is very widespread, it is less common than that observed for medical societies sponsored by pharmaceutical and health technology industries in a similar study that was recently undertaken in Italy.¹⁷ Although we do not have similar data for Spain, one ongoing study shows that medical societies received €130.5 million from the pharmaceutical industry in 2017, mainly for congresses.¹⁸ If our analysis were to be restricted to scientific nutrition, paediatrics, obesity and diabetes societies, then sponsorship frequency would be shown to be similar in Spain and Italy. As with our study here in Spain, sponsorships in Italy were found to be independent of the existence of an ethical code. Coca-Cola was one of the largest sponsors of all types of societies and foundations across the period 2017–2018, with a certain preference for nutrition societies. This result is in line with data obtained from the transparency list published by Coca-Cola itself, which sponsored 74 health organisations in Spain across the period 2010–2016: of these, cardiology and nutrition societies received the greatest funding.¹⁴ In both studies, attention should be drawn to the absence of sponsorship of public health organisations and societies, unlike what is seen in the USA.¹⁹

Sponsorship of scientific societies and foundations active in the field of childhood nutrition and obesity, by an industry that markets ultra-processed foods and sugar-sweetened beverages causes a conflict of interests among the professionals of these organisations,⁸ with the ensuing risk that their professional judgement or actions may be unduly influenced by non-health-related interests, due to feelings of gratitude or reciprocity, which may be unconsciously induced by even the smallest gifts.²⁰ These conflicts can cause biases in scientific research, since it has been repeatedly shown that studies funded by pharmaceutical and tobacco industries produce more favourable results about the latter's products than do independent studies.^{21,22} Recent research shows that this is also the case with studies funded by the food industry,^{9,10,23} which have presumably copied the tactics of the tobacco industry.^{24,25} Although sponsored researchers routinely state that the funder has had no influence on the design, analysis and publication of their results, the data nonetheless suggest that studies funded by Coca-Cola in Spain serve its commercial goals,¹⁴ and a recent analysis of the company's research funding agreements with US and Canadian public institutions highlighted the fact that at times these agreements specified that Coca-Cola had the final say about any publication, though there was no evidence to show that it had indeed exercised this power.²⁶ Furthermore, an analysis of Coca-Cola's internal documents has revealed that the company's intention in funding the Global Energy Balance Network (*Red Global del Balance Energético*) was none other than to defend its own interests, on presenting obesity as a mere question of a lack of balance between energy intake and exercise, in order to divert attention from the effect of sugar-sweetened beverages.²⁷ However, the influence of the unhealthy food and drink industry can be extended to other levels, such as the drawing-up of recommendations and guidelines by sponsored scientific societies.²⁸ Thus, in its hydration guidelines for the Spanish population, the Spanish Society for Community Nutrition (*Sociedad Española de Nutrición Comunitaria*) which received almost €300,000 from Coca-Cola between 2010 and 2016, recommends daily consumption of sugar-free soft drinks (with non-caloric sweeteners), sports drinks and commercial fruit-based juices, and weekly consumption of soft drinks sweetened with sugar or fructose,²⁹ substances linked to metabolic alterations, obesity, diabetes and cardiovascular disease.³⁰

To promote healthier food and eating environments, societies not sponsored by the industry advocate measures such as taxes

and the regulation of advertising and food sold in public spaces, all of which the food industry opposes.²⁵ In contrast, the initiatives of sponsored societies are limited to information and awareness-raising proposals, goals more in line with the industry's position. While the Federation of Public Health Associations supported the ministerial initiative to implement the Nutri-Score in Spain from the outset,³¹ the Spanish Federation of Nutrition, Food and Dietetics Societies brought out a press release opposing it, in which its Chairperson stated: «There are no scientific studies that back the Nutri-Score's performance».³² This was despite the fact that such studies had already been published at the time.³³ The industry is also trying to slow down the implementation of the Nutri-Score in Spain. To this end, it is conducting an aggressive campaign in Europe to implement its alternative nutritional labelling proposal, with the dissemination of a presentation video and a communiqué.³⁴ This alignment between some scientific societies' positions on public health interventions and those of their industrial sponsors who strongly oppose policies to promote healthy food and eating environments,^{19,27} might be yet another undesirable consequence of the financial conflicts of interest to which such societies are subject. In line with our results, a recent systematic review found that industry founded organizations generally supported policy positions that favour sponsors' interest.³⁵

This study has a number of limitations. Firstly, it is a cross-sectional study, which means that we are unable to establish causal relationships. Secondly, it is difficult to ascertain the real scope of food industry sponsorship, due to the fact that scientific societies and foundations are not always given to declaring funding sources on their websites and forthcoming with information about the content of the agreements with their funders.^{19,25} It is also possible that information on initiatives to promote healthy food policies or the existence of ethical codes might not always be available on the websites, though the existence of such codes would not appear to act as a bar to societies receiving funding from the food industry. Thirdly, we have no information on the amount of the sponsorships, whether in absolute terms or in relation to the overall budget of societies and foundations, or on the terms and conditions of the funding agreements, data which could be relevant as regards possible undue influence of the industry on societies and foundations. That said, however, our study's findings serve to highlight the influence which conflicts of interest with the food industry can have on scientific societies and foundations active in the sphere of childhood nutrition and obesity in Spain. It is desirable that total transparency surrounds the financial contributions which this industry makes to these organisations. What is more, political authorities, scientific community and civil society organisations should work jointly to create ethical codes targeted at avoiding this undue influence, which can have negative consequences for child public health.

In conclusion, with the single exception of public health societies, most scientific societies and foundations active in the field of childhood nutrition and obesity in Spain are sponsored by the food industry, with the ensuing financial conflicts of interest. While unsponsored scientific societies promote initiatives with proposals which seek to improve the food and eating environment, and to which the industry objects, the initiatives promoted by sponsored societies or foundations, with educational and awareness-raising measures, are in line with the proposals of the industry, which bases its action on measures of a merely individual scope. To avoid the public health risks of these conflicts of interest, it would be best not to accept sponsorships from industries which market unhealthy products and whose interests clash with those of public health, and instead publicly declare the sums received under and the conditions stipulated in the funding agreements concluded with the industry.

What is known about the topic?

Sponsorship by food companies of scientific societies and foundations of childhood nutrition and obesity may jeopardize their role in promoting healthy eating habits and preventing childhood obesity. However, there is no information on the spread of such kind of sponsorship in Spain.

What does this study add to the literature?

Sponsorships by food companies in Spain, mainly by Nestlé, Coca-Cola and Danone, are widespread among paediatric and nutrition associations, but inexistent among those of public health. As only unsponsored associations propose policies aimed at improving the food system and eating environments, we recommend rejecting sponsorships from industries whose interests clash with those of public health.

Editor in charge

Laura I. González Zapata.

Transparency declaration

The corresponding author on behalf of the other authors guarantee the accuracy, transparency and honesty of the data and information contained in the study, that no relevant information has been omitted and that all discrepancies between authors have been adequately resolved and described.

Authorship contributions

Conception, design of this study and acquisition of data was in charge of M.A. Royo-Bordonada and G. Guzmán-Caro. Analysis and interpretation of data, as well as drafting the article and final approval of the version to be published, were in charge of all of the authors.

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Conflicts of interest

None.

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