Original Paper

Application of NutriScore and warning labels in foods targeting children in Spain

Félix Alexis Morales Rodríguez

Concísate (Divulgación sobre Consumo, Ciencia y Salud). Tacoronte. Santa Cruz de Tenerife. España.

Date of online publication:
07-november-2019

Félix Alexis Morales Rodríguez:
felixamorales@gmail.com

Abstract

Introduction: study assessing the potential impact of introducing interpretive front-of-pack labelling in foods targeted to children children in Spain.

Methods: A descriptive study was carried out on a sample of 19 food products advertised on the leading children's television network in Spain that features advertisements. The analysis applied the NutriScore and nutrient-specific warning label systems based on the nutrition information and nutrition and health claims featured in the packaging of these products in 2018.

Results: of the foods included in the sample, 94.7% received scores corresponding to the bottom three NutriScore categories (C, D, E), and 78.9% at least one warning label. Nutrition claims were featured on the packaging of 52.6% of these products, of which 90% scored in 1 of the 2 lowest NutriScore grades (D, E) and 80% would receive at least one warning label.

Conclusion: the introduction of interpretive front-of-pack labelling for food products could be a valuable public health intervention in Spain, helping identify unhealthy foods that target children and curb childhood obesity.

Key words:
- Food labelling
- Legislation
- Nutrition
- Public Health
- Obesity

Application of NutriScore and warning labels in foods targeting children in Spain

Resumen

Introducción: evaluar la implantación en España de un sistema de etiquetado frontal interpretativo en productos alimentarios dirigidos a menores.

Material y métodos: estudio descriptivo de una muestra de 19 productos alimentarios promocionados en el canal televisivo infantil con publicidad líder en España. Se aplicaron los modelos NutriScore y Sellos de Advertencia, según la información nutricional y las declaraciones nutricionales y de propiedades saludables de dichos productos en 2018.

Resultados: el 94,7% de la muestra registró las tres peores categorías en NutriScore (C, D y E) y el 78,9%, al menos un sello de advertencia. El 52,6% usó declaraciones nutricionales, de los cuales el 90% registró las dos peores categorías en NutriScore (D y E) y el 80% al menos un sello de advertencia.

Conclusiones: la implantación en España de un sistema de etiquetado frontal interpretativo en los productos alimentarios podría constituir una valiosa herramienta de salud pública, identificando productos poco saludables dirigidos a menores y contribuyendo a luchar contra la obesidad infantil.

Palabras clave:
- Etiquetado de alimentos
- Legislación
- Nutrición en Salud Pública
- Obesidad

How to cite this article: Morales Rodríguez FA. Aplicación de NutriScore y sellos de advertencia a productos alimentarios dirigidos a la población infantil en España. Rev Pediatr Aten Primaria. 2020;22:15-20.

INTRODUCTION

Childhood obesity is a serious public health problem that requires effective policies to address it, a salient one being the implementation of interpretive front-of-pack food labelling systems.[1] The World Health Organization considers systems that provide evaluative judgments about product unhealthfulness, such as the NutriScore system implemented in France[3] or the Warning Labels introduce in Chile,[2] to be more effective.

In 2018, the Spanish government announced the future application of the NutriScore system,[5] and the Sociedad Española de Salud Pública y Administración Sanitaria (Spanish Society of Public Health and Health Care Administration, SESPAS) supported this decision (although calling for certain modifications relative to the original model).[6]

The aim of the study presented here was to analyse the potential impact of implementing a system of this kind for food products that target children using the two currently most widely used models: the NutriScore, used in Europe,[2] and Warning Labels, used in America,[7] which, to my knowledge, will be the first analysis of the kind in Spain.

MATERIAL AND METHODS

I conducted a cross-sectional descriptive study in a sample of food products advertised in the leading commercial children's interest television network in Spain, Boing,[8] broadcast in the 2 peak viewing time intervals for children aged 4 to 12 years during 1 week day and 1 weekend day in April 2016.[9]

One of the 20 products advertised in this time framework, a fast-food meal menu (McDonalds®Happy Meal) was excluded, as it is not a packaged food, and 2 other products (Sunny Sport® and Bollycao Zero®) that were no longer marketed in December 2018 were substituted by similar products from the same manufacturers (Sunny Delight® and Bollycao original®).

For the final 19 products, I analysed the ingredient lists and nutritional information given for the different products sold in different parts of Spain in December 2018, as well as the nutrition and health claims that appeared in the packaging based on the applicable regulations.[10] The information analysed for the sweetened powdered cocoa product was the information given for 1 serving of reconstituted product.

NutriScore

The NutriScore system assigns a series of positive and negative points to each product based on its energy and nutrient contents and the ingredients used in its manufacture (saturated fats, sugars, sodium, fibre, protein and fruits, vegetables, legumes and nuts) per 100 g or 100 mL, with slight variations for beverages and oils or solid fats. An algorithm is then applied to determine the final classification in a grading system that combines letters (from A to E) and colours (from dark green to dark orange)[3] (**Fig. 1**).

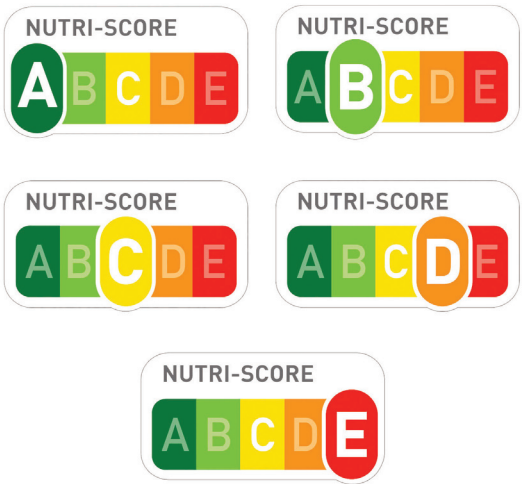
Warning Labels

The Warning Label system identifies products as high in sugars, saturated fats, sodium or calories if every 100 g or 100 mL of the product exceeds the corresponding established thresholds (**Fig. 2**). This analysis was only applied to products in which these nutrients were added as opposed to naturally occurring, and included an assessment of whether products with added sugars or fats were high in calories, following the official guidelines published by the Ministry of Health of Chile.[4]

Statistical analysis

After obtaining the nutrient profile of each product and recording the nutrition and health claims in the packaging, I calculated the percentages corresponding to each NutriScore and Warning Label. All the calculations were performed with the Microsoft Office®Excel® software.

Figure 1. Classification of products included in the analysis applying the NutriScore system



RESULTS

Of the 19 products in the analysis, 16 were foods (84.2%) and 3 were beverages (15.8%). Applying the NOVA classification system,[11] which categorises foods and drinks according to the extent and purpose of their processing, most corresponded to the ultra-processed group (75.9%), followed by the processed group (15.8%) and the unprocessed or minimally processed group (5.3%).

Applying the nutrient profile model proposed by the WHO Regional Office for Europe,[12] the foods in the sample were distributed into the following 9 categories, in decreasing order: cakes, sweet biscuits and pastries (36.8%); cheese (15.7%); savoury snacks (10.5%); yoghurts and fermented milk products (10.5%), chocolate and sugar confectionery (5.3%); juices (5.3%); milk drinks (5.3%); other beverages (5.3%) and sauces, dips and dressings (5.3%).

Applying the NutriScore model, the most frequent grade was D, corresponding to the next-to-worst quality category, with more than half of the products in the sample (52.6%), followed by grade E, the worst quality category, with approximately a quarter of the products (26.3%), grade C (15.8%) and grade B (5.3%). None of the products corresponded to grade A. Overall, 94.7% of products got gradings of C, D and E (Table 1).

Applying the Warning Labels system, most products (78.9%) would receive at least one warning label due to their high content in one or more of the assessed categories. The overall sample would receive a total of 39 warning labels, with a mean of 2 labels per product for the total sample and 2.6 labels for the subset of products that received at least 1 label. In the distribution by type of label, most products were "high in calories" (68.4%) and "high in saturated fats" (52.6%), followed in frequency by the "high in sugar" (47.4%) and "high in sodium" (36.8%) labels (Table 1).

When it came to nutrition and health claims, more than half the products analysed (52.6%) featured such claims, in every instance nutrition claims. An assessment of the quality of the products that featured these claims based on the front-of-pack labelling systems considered in the study revealed

Figure 2. Established thresholds and warning labels given to products exceeding the thresholds

Solid foods	10 g/100 g	4 g/100 g	275 kcal/100 g	400 kcal/100 g
Beverages	5 g/100 ml	3 g/100 ml	70 kcal/100 ml	100 kcal/100 ml

Table 1. Nutritional quality of products marketed to the paediatric population applying the NutriScore and Warning Label models

Applied model	Products, *n* (%)
NutriScore	
Grade A (dark green)	0 (0%)
Grade B (light green)	1 (5.3%)
Grade C (light orange)	3 (15.8%)
Grade D (medium orange)	10 (52.6%)
Grade E (dark orange)	5 (26.3%)
Warning label (at least 1 label)	**15 (78.9%)**
High in sugars	9 (47.4%)
High in calories	13 (68.4%)
High in saturated fats	10 (52.6%)
High in sodium	7 (36.8%)
Total	**19 (100%)**

that 90% of products with these claims belonged to the 2 lowest-quality categories in the NutriScore system (D and E), while 80% warranted at least 1 warning label, most frequently for being high in calories (70%), high in saturated fats (60%) and high in sugar (50%) (Table 2).

DISCUSSION

Most products in the sample (94.7%) received the three lowest nutritional quality grades in the NutriScore, all in the precautionary colour range due to their unhealthy nature, while applying the Warning Label system nearly 80% of products obtained at least 1 label. Based on these results, both models are consistent in classifying most of the analysed products as unhealthy.

Table 2. Nutritional quality of products marketed to the paediatric population that featured nutrition claims, applying the NutriScore and Warning Label models

Applied model	Products, *n* (%)
NutriScore	
Grade A (dark green)	0 (0%)
Grade B (light green)	1 (10%)
Grade C (light orange)	0 (0%)
Grade D (medium orange)	5 (50%)
Grade E (dark orange)	4 (40%)
Warning label (at least 1 label)	8 (80%)
High in sugars	5 (50%)
High in calories	7 (70%)
High in saturated fats	6 (60%)
High in sodium	3 (30%)
Total	**10 (100%)**

These results are consistent with those of 2 studies conducted in 2008 and 2016 that found that most food products that target children advertised in television in Spain were unhealthy,[13,14] revealing a status quo sustained over a long time that calls for more effective measures for the protection of this particularly vulnerable subset of the population.

Among such possible measures, one priority in policy would be to adopt interpretive front-of-pack labelling systems like those applied in this study, as there is evidence that they improve the understanding of consumers of the nutritional quality of food products.[2,15]

The SESPAS has called for the use of the NutriScore system to regulate nutrition and health claims[6] given the lack of development of the planned nutrient profile-based schemes [10,16] so that such claims can only be made in products classified as NutriScore grades A or B. This study found that 90% of products in the sample did not meet this criterion, evincing the clear public health benefit of applying such a measure.[17]

One of the limitations of this study is the small sample size, which may put it question whether it is representative. However, this would be partly ameliorated by the fact that these food product advertisements were broadcast in the leading commercial children's channel in Spain, and were therefore aimed at children, and by the unequivocal evidence that already exists that the advertisement of unhealthy products influences the preferences, behaviours and consumption patterns of children and is associated with childhood obesity.[1,18]

CONCLUSIONS

The study presented here shows that the implantation in Spain of an interpretive front-of-pack la-

belling system such as the NutriScore or the Warning Labels could be a useful public health intervention to identify the unhealthy nature of food products marketed to children, a subpopulation that requires the protection of their best interests and rights, and would also contribute to the fight against childhood obesity.

CONFLICTS OF INTEREST

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

ACKNOWLEDGMENTS

I thank Manuel Herrera Artiles, inspector of the Directorate General of Public Health of the Regional Government of the Canary Islands, for his guidance in the development of this study within the framework of the 3-year undergraduate degree in Public Health of the Escuela de Servicios Sanitarios y Sociales of the Canary Islands, affiliated to the Department of Public Health of the Regional Government of the Canary Islands, and the Escuela Nacional de Sanidad, affiliated to the Instituto de Salud Carlos III.

REFERENCES

1. Report of the Commission on Ending Childhood Obesity. In: World Health Organization [online] [accessed 05/11/2019]. Available at http://www.who.int/end-childhood-obesity/publications/echo-report/en/
2. Kelly B, Jewell J. What is the evidence on the policy specifications, development processes and effectiveness of existing front-of-pack food labelling policies in the WHO European Region? In: World Health Organization [online] [accessed 05/11/2019]. Available at www.euro.who.int/__data/assets/pdf_file/0007/384460/Web-WHO-HEN-Report-61-on-FOPL.pdf
3. Usage regulation for the "NutriScore" logo. In: Santé publique France [online] [accessed 05/11/2019]. Available at www.santepubliquefrance.fr/Media/Files/NUTRISCORE/reglement_usage_EN
4. Manual de Etiquetado Nutricional de Alimentos. In: Ministerio de Salud (Chile) [online] [accessed 05/11/2019]. Available at www.minsal.cl/wp-content/uploads/2018/01/Manual-Etiquetado-Nutricional-Ed.-Minsal-2017v2.pdf
5. Carcedo: "Vamos a implantar el etiquetado frontal de calidad nutricional para aportar mejor información a los consumidores de alimentos y bebidas". In: Ministerio de Sanidad, Consumo y Bienestar Social [online] [accessed 05/11/2019]. Available at www.mscbs.gob.es/gabinete/notasPrensa.do?id=4424
6. SESPAS apoya la decisión del Ministerio de Sanidad de aplicar el sistema de etiquetado NutriScore en España. In: Sociedad Española de Salud Pública y Administración Sanitaria [online] [accessed 05/11/2019]. Available at http://sespas.es/2018/11/19/sespas-apoya-la-decision-del-ministerio-de-sanidad-de-aplicar-el-sistema-de-etiquetado-nutriscore-en-espana/
7. Cunzolo F. Analizan cómo será el etiquetado frontal de los alimentos. In: Clarín [online] [accessed 05/11/2019]. Available at www.clarin.com/buena-vida/avanzan-definicion-etiquetado-frontal-alimentos_0_HJCHbdmIX.html
8. Barlovento Comunicación. Análisis Televisivo 2015. In: Barlovento Comunicación [online] [accessed 05/11/2019]. Available at www.barloventocomunicacion.es/images/analisis-televisivo-2015-Barlovento.pdf
9. Martínez S. Audience measurement data from Kantar Media 2016. Personal communication.
10. Reglamento (UE) No 1924/2006 del Parlamento Europeo y del Consejo de 20 de diciembre de 2006 relativo a las declaraciones nutricionales y de propiedades saludables en los alimentos. In: Boletín Oficial del Estado [online] [accessed 05/11/2019]. Available at www.boe.es/doue/2006/404/L00009-00025.pdf
11. Monteiro C, Cannon G, Moubarac J, Levy RB, Louzada MLC, Jaime PC. The UN Decade of Nutrition, the NOVA food classification and the trouble with ultra-processing. Public Health Nutr. 2017;21:5-17.
12. WHO Regional Office for Europe nutrient profile model. Region? www.euro.who.int/__data/assets/pdf_file/0005/270716/Nutrient-children_web-new.pdf?ua=1
13. Romero-Fernández M, Royo-Bordonada M, Rodríguez-Artalejo F. Evaluation of food and beverage television advertising during children's viewing time in Spain using the UK nutrient profile model. Public Health Nutr. 2012;16:1314-20.

14. Morales-Rodríguez F, Berdonces-Gago A, Guerrero-Anarte I, Peñalver Moreno JP, Pérez Ramos L, Latorre-Moratalla ML. Evaluación de los anuncios de alimentos procesados y ultraprocesados en la televisión en España aplicando el modelo de Semáforo Nutricional de Reino Unido. Rev Esp Nutr Hum Diet. 2017;21:221-9.

15. Egnell M, Talati Z, Hercberg S, Pettigrew S, Julia C. Objective Understanding of Front-of-Package Nutrition Labels: An International Comparative Experimental Study across 12 Countries. Nutrients. 2018;10:1542.

16. Morales F. 402-285: ¿un Parlamento contra la salud de sus ciudadanos? In: Concísate [online] [accessed 05/11/2019]. Available at https://concisate.es/2016/05/23/402-285-un-parlamento-contra-la-salud-de-los-ciudadanos/

17. 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.

18. 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.