

Food marketing on the International Food and Beverage Alliance's Mexican websites during Covid-19

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Abstract

Objective. To identify the marketing strategies employed on the Mexican websites of the International Food and Beverage Alliance (IFBA) members and to evaluate whether these strategies appealed to children or adolescents. Additionally, we assessed the healthiness of marketed products using the Mexican Nutrient Profile Model (NPM) and the use of the Covid-19 pandemic as a marketing strategy. **Materials and methods.** We conducted a content analysis of IFBA website members (including brands, foods, and beverages) during the Covid-19 lockdown in Mexico. The Mexican NPM was used to determine whether a product can be advertised to children. Codes (e.g., face masks, shields) were designed to determine whether a website used Covid-19 as a marketing strategy. **Results.** 269 websites were analyzed. 95% had a link to social media, 74% used a social responsibility/philanthropy strategy, 60% appealed to children, 32% to adolescents, and 28% used a Covid-19 strategy. Furthermore, 89% of the products marketed were determined unhealthy according to the NPM. **Conclusions.** During the Covid-19 pandemic, IFBA websites marketed their products to Mexican children and adolescents by using links to social media, philanthropy strategies, and adopting the pandemic as a marketing strategy, which contradicts IFBA's

Resumen

Objetivo. Identificar las estrategias de *marketing* empleadas en las páginas web mexicanas de los miembros de la Asociación Internacional de Alimentos y Bebidas (IFBA, por sus siglas en inglés) y evaluar si estas estrategias estaban dirigidas a niñas y niños o adolescentes. Asimismo, evaluar la calidad nutricional de los productos comercializados mediante el Modelo de Perfil de Nutrientes (MPN) de México y el uso de la pandemia de Covid-19 como estrategia de *marketing*. **Material y métodos.** Se realizó un análisis de contenido de las páginas web de los miembros de la IFBA (incluyendo marcas, alimentos y bebidas) durante el confinamiento por Covid-19 en México. El MPN de México se utilizó para determinar si un producto podía ser publicitado a niños. Se diseñaron códigos (por ejemplo, uso de cubrebocas, caretas) para identificar si un sitio web utilizaba el Covid-19 como estrategia de *marketing*. **Resultados.** Se analizaron 269 páginas web: 95% tenía un enlace a redes sociales, 74% utilizaba una estrategia de responsabilidad social/filantropía, 60% era atractivo para niños, 32% para adolescentes y 28% utilizaba una estrategia relacionada con Covid-19. Además, 89% de los productos publicitados se clasificaron como no saludables según el MPN de México. **Conclusiones.** Durante la pandemia de Covid-19, las páginas

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food marketing self-regulations. Evidence-based mandatory regulations should be reinforced.

Keywords: marketing; advertising; food publicity; internet; food industry

web de la IFBA promocionaron sus productos a niñas, niños y adolescentes mexicanos mediante enlaces a redes sociales, estrategias filantrópicas y la adopción de la pandemia como estrategia de *marketing*, lo cual contradice las autorregulaciones de la IFBA en materia de *marketing* de alimentos. Se deben reforzar las regulaciones basadas en la evidencia.

Palabras clave: marketing; publicidad; publicidad de alimentos; internet; industria de alimentos

Mexico has one of the highest overweight and obesity prevalence among children and adolescents, reaching up to 40%.¹ The omnipresence and continuous marketing of unhealthy food and beverages are among the main drivers of this epidemic.² Food marketing influences children's and adolescents' behaviors, intake, and health outcomes, disproportionately impacting their decisions, considering their limited ability to recognize the intent to sell.³ Adolescents are more aware of the marketing commercial purpose; however, they are vulnerable to emotional cues and peer influence, and their ability to exercise self-control and engage in planned behaviors is not fully developed.⁴

Traditional marketing is shifting to digital media, and digital spaces have become a crucial space in which children are exposed to unhealthy food marketing.⁵ In Mexico, 83% of children are internet users, 68% consume internet content,⁶ and only 13% do not use social media applications.⁷ Moreover, in 2019, 91% of Mexican adolescents reported exposure to sugary beverages ads at least weekly, a figure that remained stable until 2021. Such exposure was associated with the consumption of sugary beverages.⁷ Furthermore, during the Covid-19 pandemic and lockdown, children increased their screen time, therefore their social media exposure.⁸

International organizations have been calling for mandatory regulations on digital food marketing (DFM).^{3,9} Moreover, in May 2025, the 78th World Health Assembly, convened by the World Health Organization (WHO), expanded the provisions of the International Code of Marketing of Breastmilk Substitutes to address the digital marketing of formula milk and baby foods, acknowledging the impact of such aggressive strategies on breastfeeding practices.¹⁰

Self-regulatory approaches to restrict children's exposure to DFM are implemented in some countries.³ In 2008, the world's largest food and beverage transnational companies founded the International Food and Beverage Alliance (IFBA), a commitment to self-regulate their commercialization practices.¹¹ In 2009, the IFBA voluntarily adopted a Global Policy on Marketing Communications

to Children, pledging not to advertise products to children aged <12 years unless products meet specific nutrition criteria. By 2014, the pledge covered digital spaces, but nutrition criteria were not yet established.¹¹ An accountability evaluation conducted in 2018 concluded that the IFBA marketing pledge had made no progress and that no structures were in place to ensure compliance.¹² The IFBA marketing pledge was updated in 2021, raising the age of coverage to 13 years and establishing nutrition criteria that took effect in 2022.¹³ In 2023, the IFBA reported a compliance of 90% with their marketing code;¹³ however, regional studies reported children's exposure to IFBA brands or products.¹⁴

Governments have implemented mandatory regulations to protect children from DFM, which are more effective than self-regulation.¹⁵ Portugal was the first country in Europe to implement mandatory restrictions on unhealthy DFM appealing to children <16 years.³ In 2021, the British government announced a watershed initiative to restrict unhealthy DFM from 5:30 h to 21:00 h; however, the initiative was put on hold until 2026.¹⁶ In Latin America, Chile has banned the use of strategies appealing to children under 14 years on food products with warning labels in all media since 2016.¹⁷

In Mexico, the *Código de Autorregulación de Publicidad de Alimentos y Bebidas Dirigida al Público Infantil* (PABI) was launched in 2009, following the IFBA marketing code, by the *Consejo de Autorregulación y Ética Publicitaria* (Conar), which was mainly integrated by IFBA members. A year later, IFBA member companies reaffirmed their commitment to follow the PABI Code.¹⁸ In 2014, the government adopted mandatory restrictions banning unhealthy food and beverage marketing on television and cinema when the content appeals to children aged ≤12 years.¹⁹ Such regulation did not include digital spaces. In 2020, marketing strategies appealing to children (e.g., cartoons, celebrities, games, digital games) were forbidden in the packaging of food and beverage products high in calories, sugars, fats, and sodium.²⁰ However, children are still exposed to unhealthy DFM.⁵

Studies in Mexico have described the most prevalent DFM strategies appealing to children and adolescents.^{5,14} Marketing strategies or power are defined by the WHO as the extent to which a marketing communication, message, or action achieves its communications objectives. Marketing power is influenced by the content of the message, especially by the creative strategies or creative content used.²¹

There is a clear information gap regarding IFBA marketing strategies in Mexican digital spaces during the Covid-19 pandemic, especially since food and beverage companies aligned their DFM campaigns with the pandemic.^{22,23} This study provides an opportunity to monitor tactics that may influence children's behavior, and it is also relevant because IFBA includes the most-consumed pre-packaged food products in Mexico.²⁴ Hence, this study aimed to identify the marketing strategies employed on the Mexican websites of the IFBA and to evaluate whether these strategies appealed to children or adolescents. Additionally, we assessed the healthiness of marketed products according to the Mexican Nutrient Profile Model (NPM) and the use of the Covid-19 pandemic as a marketing strategy.

Materials and methods

Included websites

This was a content analysis of the Mexican websites of IFBA members who endorsed the IFBA marketing code ($n=11$) and associated brands and products, e.g., IFBA members (Coca-Cola) and their products (Sprite). The full list of brands and products was compiled from the IFBA's websites. We first visited the IFBA official website and identified all brands and product websites officially listed there that met the following criteria: 1) the website had to be a Mexican site (e.g., ".com.mx"); 2) official; and 3) in Spanish. Webpages of products that were not edible on their own (e.g., powders, condiments, and sauces), or that did not load or were under construction were excluded. All eligible brands and products identified on the IFBA website were added to an Excel spreadsheet to avoid duplicates and to ensure that the entire list was included in the sampling frame.

To minimize the impact of potential changes to web content, data collection was conducted within a specific time frame, between February and July 2020, during the Covid-19 lockdown. The National Safe Distance Campaign in Mexico began on March 23, 2020, and children stopped attending in-person classes.

IFBA marketing pledge

At the time this study was conducted, the IFBA marketing pledge stated: "Only advertise products to children under 12 years of age that meet common nutrition criteria (cutoff points proposed and adopted by the food industry, not aligned to scientific evidence); or do not advertise to this age group at all". This pledge was published in 2014 and came into effect in 2016.¹¹ The IFBA defined *children's media* as any platform or medium where at least 35% of the audience consists of children (including digital platforms and social media). In cases where children aged 12 years or younger made up more than 35% of the audience, IFBA members agreed not to advertise their products unless they met the established nutrition criteria.²⁵ The IFBA marketing code identified the use of licensed characters, celebrities, and movie tie-ins as marketing techniques that specifically appeal to children.¹¹

Coding procedure

Trained coders ($n=5$) performed the content analysis following a manual developed by researchers.²⁶ Three coders had a bachelor's in nutrition science, and two had a master's in public health. Coders attended three virtual training workshops, each lasting three hours. At the end of each session, pilot tests were conducted on the websites of non-IFBA member brands.

The analysis unit was a brand or product website and its subsections. Coders explored whether the companies employed any marketing strategy,²⁶ on the main page or the subsections, and data was captured in an Excel spreadsheet. Screen recordings were taken.

For the inter-rater reliability (IRR) analysis, coders assessed 20 independent food and beverage websites. The IRR was calculated using the Gwet AC2 statistic with the Agreestat software.* The IRR was 0.87 (95%CI, 0.84,0.89).

The content analysis was performed as follows: Coders first visited the brand webpage and started the content analysis on the main/homepage, assessing the whole page from top to bottom, from left to right. Coders clicked within the main page as long as they were not redirected to another domain for up to five clicks on the banners, menu, images, etc., depending on what ap-

* Advanced Analytics. Gwet AC2 statistic with the Agreestat software. Gaithersburg, USA: Advanced Analytics, 2013.

peared. When pop-ups or new windows appeared they were analyzed following the same procedure, assessing from top to bottom, from left to right.

Marketing strategies and appeal to children and adolescents

A codebook was developed to capture marketing strategies commonly employed on DFM, adapting definitions from the WHO, the Pan American Health Organization (PAHO)^{9,27} and available scientific evidence.²⁸ The codebook included several marketing strategies and examples,²⁶ such as brand characters (e.g., Tony the Tiger), licensed characters (e.g., Frozen), celebrities (e.g., Shakira), hashtags (words or phrases prefixed by the hash symbol #, e.g., #fun), advergames (e.g., games personified with the product), philanthropy activities (e.g., donations, support to charities), and link to social media (e.g., follow us on Instagram); each strategy was coded as present= 1 when it appeared at least once on the main/home page or the subpages; otherwise, it was coded as absent= 0.

Philanthropy activities were coded in the present study because food and beverage companies often use it to enhance their public image and build brand trust, particularly among children, and their parents.²⁹

All available hashtags, including duplicates, were recorded from the main/home page and subpages. Then, a list with all the hashtags was compiled, and the word cloud of the most frequent hashtags was created using NVivo software version 12.

Websites were categorized as appealing to children if at least one of the following marketing strategies was present: cartoon, licensed characters, celebrities, children's television show, anthropomorphized objects, visual-spatial games, or toys designed to appeal to children aged ≤ 12 years. Websites were categorized as appealing to adolescents when they featured: teens, teenage movies, celebrities, athletes, or displayed any type of sport.

The use of the Covid-19 strategy was coded as present if references related to the pandemic, Covid-19, staying at home, social distancing, and safety measures like wearing masks, glasses, and/or face shields were found on the main/home page or the subpages.²²

Food categories and nutrient profile model

NPM specify the nutritional criteria for determining whether a food is healthy and can be marketed to children. IFBA nutrition criteria were not yet published when this study was conducted, but typically, industry-

led nutrition criteria are less stringent than international criteria.²⁸ Thus, we assessed the healthiness of the food products using the Mexican NPM, which determines whether a product can be marketed to children in the country. We used phase one of the front-of-pack warning label system.³⁰ However, it does not consider food categories. For food categorization, we used the WHO Europe NPM to determine whether a food product is eligible for advertising to children.³¹ Water was also included as a category since it appeared during the pilot testing. All food and beverage products featured on the websites were recorded, and duplicates were excluded.

The energy and nutrition content of the website's products was collected in calories and grams or milligrams from company websites (58%), supermarket websites (39%), and other internet sources (3%). The information collected included energy, total fat, saturated fat, trans fat, total sugar, added sugar, and sodium per 100 grams of product. It was not possible to retrieve the nutrition information for all products, apart from calories; thus, for some products, there is missing information for nutrients of concern.

Statistical analysis

We calculated frequencies and percentages of marketing strategies by brands and by food categories, and the proportion of food and beverage categories according to the WHO Europe NPM. We calculated the proportion of products that exceeded the cutoff points for energy and nutrients of concern, according to the Mexican NPM. All analyses were performed using Stata 14.*

Ethical considerations

The present study did not use any personal data; we used public data available on the internet, particularly websites. This study was part of the umbrella study approved by the Committees of Research, Ethics and Biosafety of the Mexican National Institute of Public Health (INSP, by its acronym in Spanish) (board number: 1648).

Results

We analyzed 269 websites, including 11 brand websites and 258 product websites. Nestle (21.2%) and Kellogg's (15.2%) had the highest proportions for product websites (data not shown). Overall, 52% of the websites showed a brand character; 95% had a link to social media, 28%

* StataCorp. Stata Statistical Software: Release 14. College Station, TX: StataCorp LP, 2015.

used a Covid-19 strategy, and 74% displayed a claim of social responsibility or philanthropy. Kellogg's and Bimbo were the brands with the highest proportions of Covid-19 strategies, 55% and 41%, respectively. All brands, except for General Mills, had a social responsibility statement or claimed to perform philanthropic activities (table I). When evaluating philanthropy alongside advertising appealing to children, it was found that among the 199 websites declaring philanthropic responsibility, 139 (70%) were also considered appealing to children, and 62 (31%) were considered appealing to adolescents (data not shown).

Overall, 60% of the websites had marketing strategies appealing to children and 32% to adolescents. The webpages with the highest proportions of marketing appealing to children were Kellogg's (25%) and Bimbo (20%). Kellogg's was the brand that featured the highest proportion of marketing appealing to adolescents (47%), followed by Coca-Cola (16%). Ferrero and Mars websites did not display marketing strategies appealing to adolescents (table I).

Figure 1 shows the food categories marketed on the website's IFBA members; 233 unique food products were recorded, and most of them were sweet snacks and desserts (24%), followed by breakfast cereals (17%), cake and sweet bakery (14%), and edible ices 14%. The least frequent categories were savory snacks (2%). Table II shows the proportions of marketing strategies by food and beverage categories.

The food categories with the highest marketing strategies appealing to children were sweet snacks and desserts (20%) and edible ices (19%). Overall, 39% of breakfast cereals and 23% of sweet snacks and desserts had marketing appealing to adolescents. Water was the only category that did not have marketing appealing to adolescents. Breakfast cereals and sweet snacks and desserts were the categories with the highest proportion of brand characters. Edible ices accounted for the highest proportion of a licensed character strategy (82%). Cake and sweet bakery and breakfast cereals had the highest proportion for Covid-19 strategies. Sweet snacks and desserts had the highest proportion for social responsibility or philanthropy (25%), while cake and sweet bakery had the highest proportion for celebrities (67%) (table II).

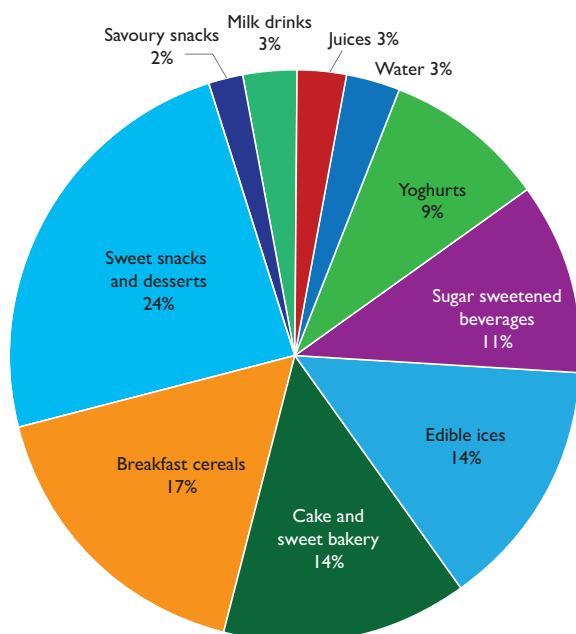
According to the Mexican NPM, 89% of products displayed on IFBA members' websites exceeded at least one cut-off for energy or nutrients of concern (data not shown); 55% of products had an excess of calories, 80% of sugars, 61% of saturated fat, 1% of trans fat, and 11% of sodium (table III).

A total of 1 032 hashtags were recorded, with 82 unique hashtags. Hashtags related to the Covid-19 pandemic and related sentiments were the most prevalent: better days (6.69%), stay at home (4.07%), find your magic (5.23%), at home with Kellogg's (3.97%), my safe shop (3.1%), keep going (3.49%), and Covid-19 (0.19%) (figure 2). Seasonal hashtags like Mother's Day (3.97%)

Table I
MEXICAN WEBSITES THAT ARE PART OF THE IFBA* MARKETING COMMITMENT AND PROPORTIONS OF MARKETING STRATEGIES USED BY BRANDS. DATA COLLECTED BETWEEN FEBRUARY AND JULY 2020 IN MEXICO

	n (%)	Marketing appealing to children	Marketing appealing to adolescents	Brand character	Licensed character	Celebrities	Use of online-gaming (advergaming)	Movie of the moment	Link to social media	Covid-19 strategy	Social responsibility/ philanthropy
Total	269 (100)	162 (60.2)	87 (32.3)	141 (52.4)	13 (4.8)	21 (7.8)	46 (17.1)	3 (1.1)	255 (94.8)	75 (28.2)	199 (74.0)
IFBA members											
Bimbo	33 (12.3)	32 (19.8)	3 (3.5)	33 (23.4)	0	15 (71.4)	33 (71.7)	0	33 (12.9)	31 (41.3)	33 (16.6)
Coca-Cola	17 (6.3)	1 (0.6)	14 (16.1)	3 (2.1)	0	3 (14.3)	0	0	17 (6.7)	2 (2.7)	17 (8.5)
Danone	32 (11.9)	25 (15.4)	6 (6.9)	24 (17.0)	0	0	7 (15.2)	0	32 (12.6)	1 (1.3)	24 (12.1)
Ferrero	10 (3.7)	7 (4.3)	0	5 (3.6)	2 (15.4)	1 (4.8)	4 (8.7)	0	10 (3.9)	0	9 (4.5)
General Mills	4 (1.5)	2 (1.2)	1 (1.1)	0	0	0	0	0	4 (1.6)	0	0
Kellogg's	41 (15.2)	41 (25.3)	41 (47.1)	41 (29.1)	0	0	1 (2.2)	0	41 (16.1)	41 (54.7)	40 (20.1)
Mars	5 (1.8)	0	0	0	0	0	0	0	5 (2.0)	0	5 (2.1)
Mondelez	7 (2.6)	0	2 (2.3)	0	0	2 (9.5)	0	0	7 (2.8)	0	1 (0.5)
Nestle	57 (21.2)	23 (14.2)	9 (10.3)	25 (17.7)	0	0	0	0	48 (18.8)	0	38 (19.1)
Pepsico	37 (13.7)	9 (5.6)	10 (11.5)	6 (4.3)	1 (7.7)	0	0	1 (33.3)	33 (12.9)	0	6 (3.0)
Unilever	26 (9.7)	22 (13.6)	1 (1.2)	4 (2.8)	10 (76.9)	0	1 (2.2)	2 (66.7)	25 (9.8)	0	26 (13.1)

* IFBA (International Food and Beverage Alliance) member companies represent the global leaders of the food and non-alcoholic beverage industry.



* Food and beverage categories were only given for products that pertain on websites and for those products that fitted in food or beverages categories, hence sample size is smaller.

‡ We used the Europe Nutrient Profile Model (NPM) to determine food categories because the Mexican NPM does not have food categories. IFBA: International Food and Beverage Alliance.

FIGURE 1. FOOD AND BEVERAGE CATEGORIES OF PRODUCTS MARKETING BETWEEN FEBRUARY AND JULY 2020 IN THE IFBA MEXICAN WEBSITES ACCORDING TO THE WHO EUROPE NPM* (N= 233).‡ MEXICO

and Nestle Pride (3.2%) were also found since data collection coincided with Mother's Day and the LGBT Pride parade. Hashtags with brand names linked to physical and recreational activities were also recorded as Football Bimbo (2.71%), Danone creation (0.29%), and Bonafont race (0.97%).

Discussion

The present study showed that IFBA members' websites appealed to Mexican children and adolescents and promoted unhealthy food products, which is inconsistent with the IFBA's food marketing self-regulation, and utilized the Covid-19 pandemic, links to social media, and social responsibility/philanthropy as marketing strategies.

Almost all websites had links to social media (95%), suggesting that brands are attempting to drive traffic to these platforms. This is alarming, given that Mexican children's social media use increased from 39% in 2017

to 69% in 2022.⁶ Furthermore, in Mexico in 2020, 80% of posts promoted on social media were classified as appealing to children or adolescents, and 90% of the marketed products were unhealthy.¹⁴ Likewise, a national study showed that social media are the primary sites where children are exposed to DFM.⁵ Regarding social responsibility or philanthropic activities, over 70% of companies had a related claim, practices aimed at cleaning the brand's image and associating products with desired values.²⁹ A study found that the transnational companies Coca-Cola, McDonald's, and Kentucky Fried Chicken advertised healthier products in high-income countries but used their philanthropic activities as marketing strategies in low-income countries.³²

Along with other evidence,¹⁵ this study suggests that self-regulation is insufficient to protect children from unhealthy marketing, as 60% of IFBA websites still appealed to children despite their commitment. In Mexico, 70% of children and adolescents were exposed to DFM during the Covid-19 pandemic.⁵ Likewise, a study in Canada found that 56% of the websites that followed marketing self-regulation, often the IFBA marketing code, utilized marketing techniques appealing to children.³³ Furthermore, the IFBA marketing code only considers licensed characters, celebrities, and movie tie-ins as marketing techniques appealing to children, while previous studies have documented other techniques employed in child-oriented websites, such as the use of brand characters, hashtags, and internet content creators (*influencers*).^{5,14} Although marketing aimed at adults or adolescents can also attract children, the definitions applied in this study have been used in epidemiological studies conducted in Mexico and Canada.^{5,34} When this study was conducted, the IFBA marketing code defined children as those aged <12 years, while international organizations recommend protecting all children aged <18 years from DFM.^{9,27}

Moreover, 32% of the websites employed marketing strategies that appealed to adolescents who have not fully developed their identity and are vulnerable to such strategies.⁴ Children and adolescents are especially vulnerable to marketing techniques. Some messages, like fun, friendship, or romance, are persuasive and emotional.³ Most of the time, children are unaware of the intent to sell. In the case of adolescents, there might be awareness. Still, marketing literacy does not mean they can resist marketing, especially when emotional cues and peer influence are employed.⁴

Almost all food categories marketed were unhealthy categories, consistent with previous studies.^{5,28} Unhealthy food and beverage marketing influence children's purchase and consumption behaviors; marketing

Table II
PROPORTIONS OF MARKETING STRATEGIES EMPLOYED ON WEBSITES BY MEMBERS OF THE IFBA BY FOOD CATEGORIES (N= 233). DATA COLLECTED BETWEEN FEBRUARY AND JULY 2020 IN MEXICO

Food and beverage category of product websites	n (%)	Marketing appealing to children	Marketing appealing to adolescents	Brand character	Licensed character	Celebrities	Use of online-gaming/advergaming [‡]	Movie of the moment	Link to social media	Covid-19 strategy	Social responsibility/philanthropy
Breakfast cereals	40 (17)	31 (15.1)	32 (39.0)	33 (24.3)	0	0	2 (4.4)	0	32 (14.6)	24 (32.9)	23 (13.1)
Cake and sweet bakery*	32 (14)	26 (16.7)	1 (1.2)	26 (19.1)	0	14 (66.7)	26 (57.8)	0	31 (14.2)	24 (32.9)	26 (14.8)
Edible ices*	32 (14)	29 (18.6)	1 (1.2)	12 (8.8)	9 (81.8)	0	1 (2.2)	2 (66.7)	33 (15.1)	0	32 (18.2)
Juices*	7 (3)	3 (1.9)	1 (1.2)	3 (2.2)	0	1 (4.8)	0	0	6 (2.7)	0	6 (3.4)
Milk drinks	7 (3)	4 (2.6)	6 (7.3)	3 (2.2)	0	1 (4.8)	1 (2.2)	0	6 (2.7)	3 (4.1)	5 (2.8)
Savoury snacks	5 (2)	2 (1.3)	2 (2.4)	1 (0.7)	1 (9.1)	0	0	1 (33.3)	2 (0.9)	0	1 (0.6)
Sugar sweetened beverages	26 (11)	12 (7.7)	16 (19.5)	13 (9.6)	0	2 (9.5)	0	0	27 (12.3)	1 (1.4)	22 (12.5)
Sweet snacks and desserts*	56 (24)	31 (19.9)	19 (23.2)	28 (20.6)	1 (9.1)	3 (14.3)	8 (17.8)	0	55 (25.1)	20 (27.4)	44 (25.0)
Yoghurts	21 (9)	15 (9.6)	4 (4.8)	14 (10.3)	0	0	7 (15.6)	0	20 (9.1)	1 (1.4)	12 (6.8)
Water [‡]	7 (3)	1 (0.6)	0	3 (2.2)	0	0	0	0	7 (3.2)	0	5 (2.8)

* Food and non-alcoholic beverages categories not permitted to be marketed to children according to the European NPM.

[‡] Category not included in the Europe Nutrient Profile Model (NPM).

IFBA: International Food and Beverage Alliance.

Table III
PRODUCTS DISPLAYED ON THE IFBA WEBSITES THAT EXCEEDED CALORIES AND NUTRIENTS OF CONCERN ACCORDING TO THE MEXICAN NPM PHASE I.* DATA COLLECTED BETWEEN FEBRUARY AND JULY 2020 IN MEXICO

Mexican NPM (phase I)	Products that exceed the cut-off points	
	n	%
Excess of calories (n= 232)	127	54.7
Excess of sugars (n= 230)	185	80.4
Excess of saturated fat (n= 180)	110	61.1
Excess of trans fat (n= 78)	1	1.3
Excess of sodium (n= 223)	25	11.2

* Sample size varies due to nutrition information collected. Nutrient Profile Models (NPMs) were applied to products in websites members of the IFBA, and the proportion of products that exceed the cut-off points is presented IFBA: International Food and Beverage Alliance.

strategies trigger children's emotions, raise brand and food awareness, shape attitudes and preferences, and influence purchases and consumption. Marketing can lead to overconsumption of nutrients of concern, weight gain, and ultimately, diseases.²

Around 30% of the IFBA members were using the Covid-19 pandemic as a marketing strategy, which is also reflected in the hashtag word cloud. This aligns with evidence showing that Covid-19 was used as a marketing strategy by big food and big alcohol in Australia during the pandemic.²³ Similarly, a study conducted in New Zealand reported that unhealthy food brands used the Covid-19 pandemic to encourage consumption and increase brand loyalty.²² Such tactics are called Covid-19-washing, implemented by the food industry to "wash" their reputation and to be associated with good practices.²⁹

As a whole, the Mexican food marketing regulations cover television, cinema, packaging, and, recently, digital spaces. However, such regulations do not yet meet international recommendations.³ Few countries have fully regulated DFM; however, interference from the food industry has limited its impact. For example, in the UK, despite its promising DFM watershed, it has been delayed for several years.¹⁶

Moreover, most regulations do not cover the use of personal data (e.g., age, sex, geo-location) or emerging data-driven marketing techniques, such as influencer marketing, in which the lines between marketing and genuine content are blurred. Thus, governments might design policies that consider all minors and adopt a



FIGURE 2. HASHTAGS RELATED TO THE COVID-19 PANDEMIC AND RELATED SENTIMENTS. MEXICO

Finally, our study faced some limitations. First, while the study assesses IFBA member websites, it only assesses Mexican websites, so the results are not generalizable and depend on the products and brands that have websites at the time of this study. Additionally, the internet is inherently dynamic; therefore, we can only ensure that the information captured corresponds to what was available during the data collection period. The present study does not represent children's and adolescents' DFM exposure. However, we assessed the marketing practices of the world's largest food companies' websites. Considering the companies' size, it can be expected that children are likely exposed to their marketing across different platforms.

actual online availability of products and brands from IFBA members at the time of the study, and thus the potential digital marketing environment to which children may be exposed.

This study was further strengthened by its high IRR, which demonstrated its high internal validity. In addition, we do not perform a compliance analysis of the IFBA marketing code, as data about the percentage of children navigating the included websites was not available, nor were the nutrition criteria to determine whether a product could be advertised to children. However, we conducted a content analysis to determine whether the websites appealed to children or adolescents, and the healthiness of the products was assessed according to the local NPM published in the Official Mexican Gazette (DOF, by its acronym in Spanish).

Conclusions

The IFBA Mexican websites displayed marketing strategies appealing to children and adolescents, promoting unhealthy products using links to social media, philanthropic activities, the Covid-19 pandemic, and hashtags. The IFBA marketing code seems insufficient to protect children from unhealthy food and beverage marketing. Evidence-based mandatory regulations should be ex-

panded to digital media and should regulate emerging marketing strategies.

Declaration of conflict of interests. The authors declare that they have no conflict of interests.

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