

Food Advertised to Children: A Content Analysis Study of Saudi Food and Drug Authority Food Advertisement System

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Keywords

Marketing techniques · Childhood obesity · Food exposure · Advertisements · Saudi Arabia

Abstract

Introduction: Evidence showed that some food advertisements may encourage unhealthy dietary practices among children; therefore, regulatory developments were implemented to overcome this issue. Different countries control or ban unhealthy food advertisements marketed to children, whereas in Saudi Arabia, no regulations exist until now. Thus, identifying and analyzing food advertisements aimed at children is crucial for further implementation. **Methods:** A content analysis of food advertisements was obtained from the Saudi Food and Drug Authority advertisements electronic registration system (Ealan). The data extracted for this study consist of all Ealan system food advertisements' requests targeted at children (<12 years) and collected over 16 months (from January 2020 to April 2021). We created a codebook to analyze the advertisements' persuasive techniques. **Results:** Forty-one advertisements were analyzed; 58.5% were marketed as posters, whereas the rest (41.5%) were visual advertisements. About 95% of the advertisements were aimed to be marketed through social media, and 35% were aimed to be featured on television. The persuasive techniques used in the analyzed advertisements were children (73.2%), health claims (68.3%), and taste

appeals (34.1%). In addition, milk powder products were among the most marketed food type (60.9%). **Conclusion:** This study found that the primary persuasive techniques used in children's advertisements were children's appearance, health claims, and taste appeals. Furthermore, most food companies chose social media to promote their products. We recommend designing preventive policies and restrictions to control children's exposure to unhealthy food and making modifications to the system before implementing any further restriction.

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Introduction

Childhood obesity is a growing problem globally; it is a concern for many countries as it predicts adulthood obesity and causes long-term economic and social burdens [1]. Obesity among Saudi children is alarming, as it has been increasing during the past decade [2]. A study conducted in 2016 of 3,613 school-aged children (6–19 years) from different regions of Saudi Arabia concluded that 21.5% of children were obese or overweight [3]. Moreover, a study conducted in 2015 on 7,930 children (6–16 years) in Riyadh city found that 13.4% and 18.2% of children are obese or overweight, respectively [2]. According to the report, the prevalence of overweight and

obesity in Saudi children aged 5–19 years was 37.1% and 16.7%, respectively, based on data from a 2015 national survey [4]. The etiologies of obesity can be attributed to dietary and physical activity patterns, such as frequent snacking and screen time use, which are often the result of environmental and societal changes associated with a lack of supportive policies and health education from different sectors [5]. In addition, nutrient-poor foods marketed to children significantly contribute to childhood obesity, as it is associated with increasing children's food consumption and dietary habits choices [6].

The food industry spends a fortune on food marketing, which is an activity that an organization engages in to facilitate product exchange between itself and its consumers [7]. Food companies use different persuasive marketing techniques to establish trust and credibility among the target audience [7, 8]. The persuasive technique is “a method of advertising that attempts to convince a consumer to purchase a product or service by appealing to their needs and desires [9].” For example, using promotional characters and health claims by introducing a product as the healthiest option or claiming that the product contains specific nutritional benefits [9].

Children are exposed to food advertisements daily through many food marketing channels including television, the Internet, social media, or outside the home in public areas. In Saudi Arabia, children spend more than 2 h a day on electronic devices; about 71% use smartphones, followed by television and computers, respectively [10]. Similarly, according to a local survey addressed to parents, Saudi children are among the youngest in the world who receive their first mobile, which may increase the chances of advertisement exposure [11]. It is widely acknowledged that frequent exposure to energy-dense food advertisements is linked to changing food preferences among children and causes overconsumption [12, 13]. In addition, children are more vulnerable to persuasive advertising techniques, as they may interpret the marketing intent of selling a product as accurate and truthful, especially those of younger age [12, 14, 15]. Furthermore, as food advertisements play a significant role in children's food choices, they also indirectly impact parents' purchasing practices through a possible negative influence from the children on their parents [16].

Few countries have statutory regulations over television food advertisements targeting children, such as the UK and Chile. The policies either restrict all forms of food advertisements targeting children or only restrict energy-dense food marketing [17]. Additionally, some governments have implemented policies that regulate the content or utilize the time of food advertisements to

reduce the exposure and influence of such marketing [17]. However, in Saudi Arabia, there are no specific restrictions or policies on junk food advertising, and 44% of international advertising's existing policies did not specify any limits to techniques or appeals usually used in food marketing to children [17].

The Saudi Food and Drug Authority (SFDA) restrictions over children's marketing include that an advertisement should not include harmful actions, false information, or misleading the target group [18]. In addition, milk formula is forbidden in advertisements [18]. Therefore, the SFDA is working on guidelines to align with the World Health Organization recommendations regarding restricting energy-dense and nutrient-poor foods and beverages marketing to children [19]. Nevertheless, the current status of food advertisements, in terms of the portion of children's advertisements, unhealthy food advertisements, and the technique used in the advertisements in the Saudi media, has not been examined previously.

To monitor the food companies' compliance and approve the food product advertisement requests, the SFDA uses an electronic registration system called “Eaalan.” The system ensures that food companies comply with the guidelines and requirements of the advertisements. The system was established by the end of 2018, and each advertisement's license lasts 1 year [20].

This study analyzes and quantifies children's food advertisements by analyzing Eaalan system advertisement requests. The study examined the extent and nature of the persuasive marketing techniques used to promote food to children. The results of this study may help policymakers and scholars implement effective policy designs to minimize children's exposure to unhealthy food advertising and evaluate the Eaalan system for potential enhancements and recommendations.

Methodology

Study Design

Content analysis of food advertisements was targeted at children (<12 years of age) in Saudi Arabia. *Content analysis* is “any technique for making inferences by objectively and systematically identifying specified characteristics of messages” [21]. The content analysis methodology has been used in multiple advertisement analysis studies and is an effective research method as it provides empirical, systematic, and objective data [22].

Data Source and Measurements

The data were obtained from the SFDA advertisements' registration system (Eaalan) [20]. The data extracted for this study consist of all Eaalan system food advertisement requests collected

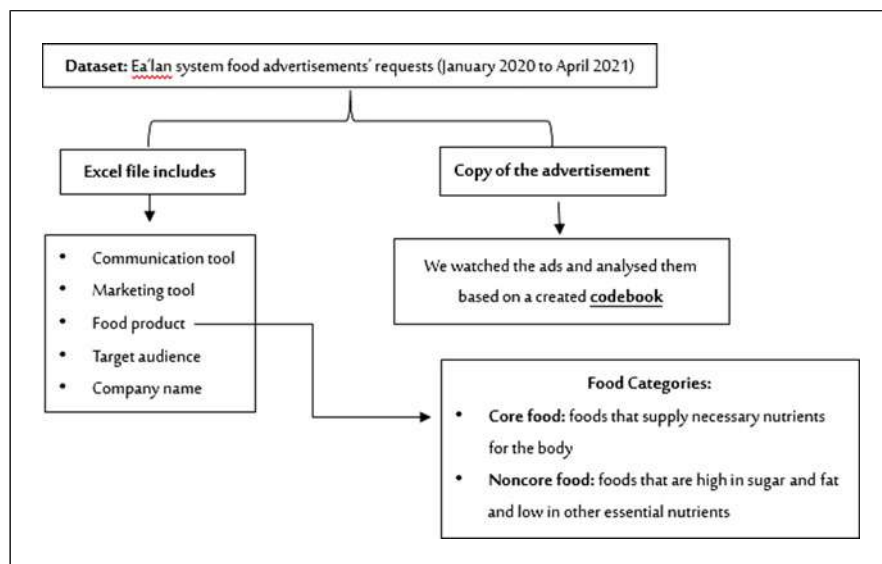


Fig. 1. This figure shows the data extraction flow and the type of data available in the Ea'lan system including our classification of the food products.

over 16 months (from January 2020 to April 2021). The system was launched at the beginning of 2019. We chose this specific time for quality reasons and based on the study period. The variables included in the dataset are

- communication tool (television, radio, flyers, public transportation, newspapers, road advertisements, SMS, magazines, and social media),
- marketing tool (printable or posters, which is any advertisement that uses pictures and art to market a product, such as flyers and pictures; visual or audible, which is any advertisement that uses visualization or audio for marketing a product, such as TV and radio),
- food products,
- target audience,
- copy of the advertisement, and
- the food company name. Figure 1 shows the flow of data extraction and analysis.

Persuasive Techniques Coding

The researcher developed the coding categories with procedural guidance taken from previous studies that evaluated advertisements aimed at adults and children with adjustments in the categories to fit the study objectives and the available data [23–25]. The codes consist of (1) presence of children (includes scenes of children's appearance, such as parent-child interactions, a group of kids in the background, or a child's picture); (2) cartoon character (the appearance of cartoon characters in any part of the advertisement, such as the food product itself (package), the cartoon character used to deliver the message, or if the whole ad is made of a cartoon or a fantasy character); (3) health claim or benefit (the presence of or spelling out any health benefit statements "gives power, makes you strong" or nutritional claims "high in calcium"); (4) premium offers (the presence or use of any information about the price/value of the product or any promotions/competitions relating to the product (toys, gifts, buy one get one free)); (5) famous character (any presence of celebrities/a well-known person endorsement); (6) taste appeal (behavior showing satisfaction or relief of the taste, happiness

combined with consuming the advertised food, or changes in the mood); and (7) marketing claims (mentioning phrases such as number one product, "the bestseller product in 2021"). Table 1 shows the categories of the codebook with descriptions.

Food Categories Classifications

Food categorization was based on the literature and international food categorization [24–26]. The categories are

- core food, which is food that supplies necessary nutrients for the body (e.g., milk, yogurt, cheese, bread, honey, and baby foods), and
- noncore food, which is food that is high in sugar and fat and low in other essential nutrients (e.g., candies, packaged cakes/cookies, desserts, chips, and sweet beverages).

Coding Reliability

We performed an inter-rater reliability test to test the codes' reliability and ensure their clarity and appropriateness. The inter-rater reliability is the extent to which different observers are consistent in their judgments. Therefore, we assigned two trained researchers who independently analyzed a sample of advertisements from outside data using the study codes; we provided them with 32 videos, which consist of 20% of the study data. The two raters were trained simultaneously and provided the same data, but they analyzed the videos independently.

Data Analysis

We analyzed all the categorical variables using descriptive analysis with numbers and percentages, and we used cross-tabulations to examine the presence of persuasive techniques in the advertisements by food category and marketing tool. We used Cohen's kappa coefficient (κ) test to calculate the percentage of agreement between the two raters, a statistical measure of the degree of agreement or concordance between two independent raters considering the possibility that agreement could occur by chance alone [27, 28].

Table 1. Codebook categories with decryptions

Code	Description
Presence of children	Includes any scenes of children's appearance such as parent-child interactions, group of kids in the background, a picture of a child, etc.
Famous/cartoon characters	Includes the appearance of cartoon characters in any part of the advertisement, such as the food product itself (package), cartoon character used to deliver the message, or if the whole ad is made of cartoon or a fantasy character, etc.
Health claims or benefits	Includes the presence of or spelling out any health benefit statements (gives power, makes you strong, etc.) or nutritional value (high in calcium)
Premium offers	Includes the presence or use of any information about the price/value of the product, or any promotions/competitions relating to the product (toys, gifts, buy one get one free)
Personality presenting the advertisement	Includes any presence of celebrities/a well-known person's endorsement
Taste appeal	Includes any behavior showing satisfaction or relief of the taste, happiness combined with consuming the food being advertised, or changes in the mood
Serving size	Was the serving size appropriate compared to the recommended portion size for kids
Marketing claims	Includes mentioning phrases such as the number one product, a bestseller in 2021...

Results

Reliability Result

We found an agreement between the two observers; Cohen's kappa coefficient (κ) test had an acceptable value of ($\alpha = 0.89$). One variable from our codebook did not meet the acceptable level of agreement (serving size); thus, it was removed.

Primary Advertisement Characteristics from Eaaln System

A total of 893 food advertisements were included in the dataset, of which 190 (21.2%) were child-focused advertisements. Hence, forty-one advertisements were analyzed after excluding the duplicates and requests that were missing some information. Of the analyzed advertisements, 29 (70.7%) were directed at children, and 12 (29.3%) were directed at children and adults simultaneously based on the company's selection of the target audience. More than half of the advertisements (24, 58.5%) were marketed as posters, whereas the rest (17, 41.5%) were visual. The most used communication tools to market the ad were social media (39, 95.1%), flyers and magazines (14, 34.1%), television (13, 31.7%), and transportation and street advertisements (9, 22%), respectively.

Advertisements' Food Type

The core foods consisted of 70.7% of the foods, mostly milk formula for children 3 years and older (86%). Whereas noncore food comprises 29.3% of the advertisements,

Table 2. Type of food being advertised

Food category	n, %
Core	29 (70.7)
Milk formulas	25 (60.9)
Dairy products	2 (5)
Honey	1 (2.4)
Water	1 (2.4)
Noncore	12 (29.3)
Confectionery	6 (14.6)
Flavored milk	4 (9.7)
Sweet beverages	1 (2.4)
Sweet spreads	1 (2.4)
Total	41

Table 3. Persuasive and marketing techniques used in the advertisements ($n = 41$)

Persuasive techniques*	n	%
Presence of children	30	73.2
Health claim or benefit	28	68.3
Taste appeal	14	34.1
Marketing claim	8	19.5
Premium offer	7	17.1
Cartoon character	3	7.3
Famous character	2	4.9

*More than one technique can be presented in each ad.

Table 4. Persuasive techniques used based on the marketing tool and food category (n [%])

Publishing method	Presence of children	Cartoon character	Health claim	Premium offer	Famous character	Taste appeal	Marketing claim
Visual (17)	15 (50)	1 (33.3)	12 (42.9)	0	2 (100)	8 (57.1)	4 (50)
Poster (24)	15 (50)	2 (66.7)	16 (57.1)	7 (100)	0	6 (42.9)	4 (50)
Food category							
Core (29)	25 (83.3)	0	24 (85.7)	4 (57.1)	1 (50)	12 (85.7)	8 (100)
Noncore (12)	5 (16.7)	3 (100)	4 (14.3)	3 (42.9)	1 (50)	2 (14.3)	0
Total	30	3	28	7	2	14	8

confectionery was the most advertised food product (50%). A high proportion (60.9%) of the requests are for milk formula for children aged 3 years and above. Table 2 describes the food types of the analyzed advertisements.

Persuasive and Marketing Techniques Used in the Advertisements

Children were used as a persuasion tool in the advertisements with a high percentage (73.2%) compared to the other techniques, followed by health claims (68.3%), then taste appeal by 34.1%. In comparison, the presence of a famous character was used less frequently among the other techniques (4.9%). Table 3 shows the primary persuasive techniques used in the analyzed advertisements.

Regarding the persuasive techniques used the most based on the marketing tool, children were used equally between the visual and poster advertisements. In terms of the persuasive techniques that were used the most based on the food category, the presence of children (83.3%), health claims (85.7%), and taste appeals (85.7%) were used primarily in core food advertisements. At the same time, cartoon characters occurred only in noncore food – more details in Table 4.

Discussion

In this study, we analyzed forty-one advertisement requests for food products in the Eaaln system. We found a high range of duplicate requests and requests that lack requirement fulfillment. Therefore, we removed a high proportion of requests. The majority of the analyzed advertisements were for core food and included children's appearance.

This study shows that the primary persuasive techniques used in advertisements directed at children in Saudi Arabia were children, health claims, and taste

appeals. In contrast, other studies found that promotional characters, celebrity endorsers, and premium offers are used more frequently in food advertisements [25]. In addition, this study found that using the poster as a marketing tool is more frequent than visual marketing. This finding could be attributed to the high proportion of social media advertisement requests, which might include posting pictures. Nevertheless, this advertisement is less likely to influence children than it conveys to adults due to the limited persuasive techniques that can be used as a poster [29]. We also found that promotional offers and celebrity endorsements occurred in the analyzed advertisements, while some countries restrict the use of any kind of promotional offers or celebrities in children's advertisements [17].

In this study, core food compromised more than half of the advertisements, unlike other findings, whereas healthy food is promoted less frequently. Scholars found that many advertisements primarily promote unhealthy products – such as sweet snacks and beverages, fast food, and salty snacks [30]. This finding could be attributed to the high proportion of milk formula (>3) advertisements in our data. The current local guidelines that restrict and prioritize monitoring milk formula marketing increased the company's adherence. Therefore, controlling children's advertisements could begin by formulating restricted guidelines over unhealthy food marketing.

About 95% of the advertisements used social media to promote their products, indicating the transmission change from advertising food on television to social media. Besides, nowadays, children may be exposed to advertisements on social media more than on television or other communication channels [31]. Social media marketing is less likely to be monitored and poses a significant challenge that requires global efforts [32].

In this study, we only analyzed the advertisements of the SFDA electronic system that were collected over specific time. Thus, we cannot estimate the exact number of advertisements aired or published in Saudi Arabia. Therefore, the results cannot be generalized to all the regional aired advertisements. In addition, due to data limitations and the small advertisement sample, our results are limited.

Moreover, we could not categorize the food into further subcategories due to the lack of a national food classification system in Saudi Arabia. Nevertheless, the study may help in future directions and recommendations for scholars and policymakers.

Conclusion and Recommendations

This study found that the primary persuasive techniques used in children's advertisements were children's appearance, health claims, and taste appeals. Furthermore, most food companies chose social media to promote their products. We recommend designing preventive policies and restrictions to control children's exposure to unhealthy food. Moreover, we suggest that scholars examine social media platforms for unhealthy food advertisements and content aimed at children. Moreover, enhancements in the system are recommended to achieve the best results of its data and support the monitoring process, which may be helpful in future policy enactments.

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Statement of Ethics

The study was reviewed and exempted from requiring IRB approval by the Saudi Food and Drug Authority Institutional Review Board Committee.

Conflict of Interest Statement

Both authors work at the SFDA.

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Author Contributions

Lulu A. Almutairi: designing the study, data collection and analysis, and drafting the manuscript. Amani S. Alqahtani: designing the study, supervising data analysis, and manuscript drafting. All authors have made substantial contributions to editing the manuscript.

Data Availability Statement

The data that support the findings of this study are available on request from the corresponding author, and further inquiries can also be directed to the corresponding author. The data are not publicly available due to privacy restrictions.

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