



## **Food Marketing to Children in Iran: Regulation that Needs Further Regulation**

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### **Abstract**

Increased exposure to advertising of unhealthy food products is one of the main risk factors for the increased prevalence of childhood obesity and non-communicable diseases. This scoping review aimed to investigate the characteristics and effects of food advertisements targeted at children in Iran and review the existing regulations on food marketing targeted at children in the country. In this study, we searched Web of Science, Scopus, PubMed, Google, and Google scholar, in addition to Iranian scientific search engines, including Iranian Research Institute for Information Science and Technology (Iran.doc), Scientific Information Database (SID), Iranmedex, Magiran, and Civilica up to December 2020 to find any literature about food marketing to children in Iran and current related regulations and policies in the country. A total of 23 eligible studies were selected for this review. Most of the studies had focused on television as the media to assess. The main food products advertised with reference to children included: Salty snacks, including cheese puffs, chips, cheese fish snacks, puffed corn, and sweet snacks such as ice creams, cakes/biscuits/cookies and



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candies, beverages/drinks/soft drinks/fruit juices, dried fruits and fruit rolls, and chocolates. Strategies that most commonly used in marketing foods to children in Iran were emotional appeals, misleading messages/claims, use of music and known characters to children, as well as conveying happiness and/or security. The main reported violation of food regulations included using obese children, either as consumers or presenters of the product. In Iran the advertising of unhealthy food products for the general population is banned; however, it is weakly implemented. There are a limited number of regulations that have addressed children explicitly in this regard. The main barriers identified in partial implementation of regulations included weakness in scientific criteria, legal enforcement guarantee, poor intersectoral collaboration, inadequate infrastructures, and poor monitoring. Policies and regulations in food marketing need to clearly address children as an important audience. It is suggested future policies focused on children cover all forms of food marketing and consider all types of persuasive food marketing strategies targeted at children.

## Background

Childhood obesity is one of the most challenging public health issues that can lead to the early onset of adult Non-Communicable Diseases (NCDs).<sup>1-3</sup> In 2016, almost 40 million children under 5 years of age and 340 million children and adolescents aged 5-19 years were overweight or obese throughout the world.<sup>4</sup> Iran, as a developing country, is also dealing with this health problem.<sup>5, 6</sup> The prevalence of overweight and obesity were reported 9% and 8%, respectively, in Iranian children under 5 years of age,<sup>7</sup> and 11% and 9% in those aged 7–18 years.<sup>8</sup> The CASPIAN-IV (2011-2012) and CASPIAN-V (2015) national school based surveys revealed an association between junk foods' consumption and excess weight in Iranian children.<sup>9, 10</sup> According to CASPIAN-IV, 34%, 20%, 13%, and 2.9% of school-age students (6-18 years) had daily consumption of sweets, sweetened beverages, salty snacks, and fast foods, respectively.<sup>11</sup> Based on CASPIAN-V, 22%, 3.1%, 6.4% and 11% and of adolescent girls consumed sweets, sweetened beverages, salty snacks, fast foods respectively on a daily basis.<sup>12</sup> Besides, a systematic review on Iranian children revealed that sugars and sweets had the highest consumption compared with other processed foods.<sup>13</sup>

Pediatric obesity has been linked to exposure to marketing of unhealthy food items, and easy access to energy dense food items.<sup>14, 15</sup> Children often have limited ability to control on food environment around them and living in unhealthy food environments can

easily encourage them to consume low nutritional value food items.<sup>16</sup> Therefore, they have become a main target market for the food industry<sup>17, 18</sup> and are the largest consumers of these products in Low and Middle Income Countries (LMIC).<sup>19</sup> Children may be affected by persuasive messages conveyed through food marketing, since their cognitive development is relatively not completed.<sup>20</sup> They may even interpret advertising as factual or helpful information to choose up-to-dated products available in stores.<sup>21</sup> Therefore, exploitation of children's cognitive limitations in marketing pose ethical concerns.<sup>22</sup> Food industries, through applying attractive techniques such as music, visual effects, animation, gif advertising, and storytelling, influence children and adolescents' choices.<sup>23</sup> Findings of systematic reviews reveal that children s' food consumption, preferences, and attitudes can be influenced by the surrounding food advertising.<sup>24-26</sup>

It is well accepted that controlling and regulating food marketing to children is a crucial prevention strategy for managing obesity in this age group.<sup>15, 27-29</sup> In 2010, the World Health Organization (WHO) established recommendations for food marketing to children to formulate new policies and/or reinforce existing policies to decrease the impact of marketing of low nutritional value food products on children.<sup>30</sup> One of the recommended actions of the WHO Commission on Ending Childhood Obesity focused on establishing and implementing effective measures to assess the impact of existing

related legislations, guidelines and regulations, and to design mechanisms to strengthen their effectiveness.<sup>29</sup> Despite WHO's recommendations, implementation remained a challenge, with only 8% of LMIC countries regulating the food marketing to children.<sup>31</sup> Iran's health system has some actions to ban marketing of unhealthy food products with high levels of sugar, saturated and trans fats, and salt.<sup>32</sup> However, despite the various attempts in this regard, Iranian's pediatric population has not been addressed properly and explicitly in these policies and actions. Since, providing strong evidence is necessary for supporting the policies making and decisions in this regard,<sup>33</sup> this scoping review aimed to explore existing policy regulations relevant to food marketing in children and to assess evidence on food marketing channels targeting children in Iran, evaluating their nature, the products they promote and their effect on children.

### Materials and Methods

The Arksey and O'Malley methodological framework<sup>34</sup> was applied to conduct this scoping review through the following steps:

#### Identifying the Research Question

The research questions of this review include the following:

- What promotional channels are used by food marketers to reach Iranian children?
- What type of food products are highly promoted to Iranian children?
- What are the most frequently used advertising techniques by food marketers to target children?
- What do we know about the impact of food marketing on Iranian children?
- Is there any violation of food regulations in Iran?
- What are food advertising regulations for children in Iran?

#### Identifying Relevant Studies

We searched English and Persian (Farsi) articles, reports, dissertations, and documents from international electronic databases, including Web of Science, PubMed, Scopus, Google scholar, and the Iranian databases, including Iranian Research Institute for Information Science and Technology ([www.Irandoc.ac.ir](http://www.Irandoc.ac.ir)), Scientific Information Database

(SID: [www.sid.ir](http://www.sid.ir)), Magiran ([www.magiran.com](http://www.magiran.com)), and Civilica ([www.civilica.com](http://www.civilica.com)). The search was performed using the following keywords: market\*, advertis\*, tv, televis\*, media, magaz\*, commerc\*, regula\*, polic\*, govern\*, bann\*, barrier\*, food\*, nut\*, diet\*, beverage\*, unhealth\*, health\*, child\*, kids, young\*, youth\*, adolec\*, teenag\*, school\*, and Iran\*. Relevant journal articles, congress/conference articles, dissertations, reports, or policy briefs published from January 1978 to December 2020 were included. Hand searching among the included articles' references and google engine were performed to identify additional data sources.

#### Study Selection

First, duplicate studies were identified by EndNote™ (version X7) software and removed. Studies were screened by reviewing the titles and abstracts. We included all studies/documents related to food marketing in Iran, focused on 2-17-year-old children. Since there is no food marketing regulation in Iran with direct focus on children, we included all related regulations to explore how they have addressed children. The following documents were excluded from this review: conference and poster abstracts, letters, general reviews, and practice guideline papers. In addition, studies that did not consider children were left out for the review. If sufficient information was not available from the title and abstract, the full text was read. The full text of the selected studies were then read to determine if they were eligible. The selection process was performed independently by two authors (MA and NO). Any disagreement between them was resolved by discussion until a consensus was reached.

#### Charting the Data

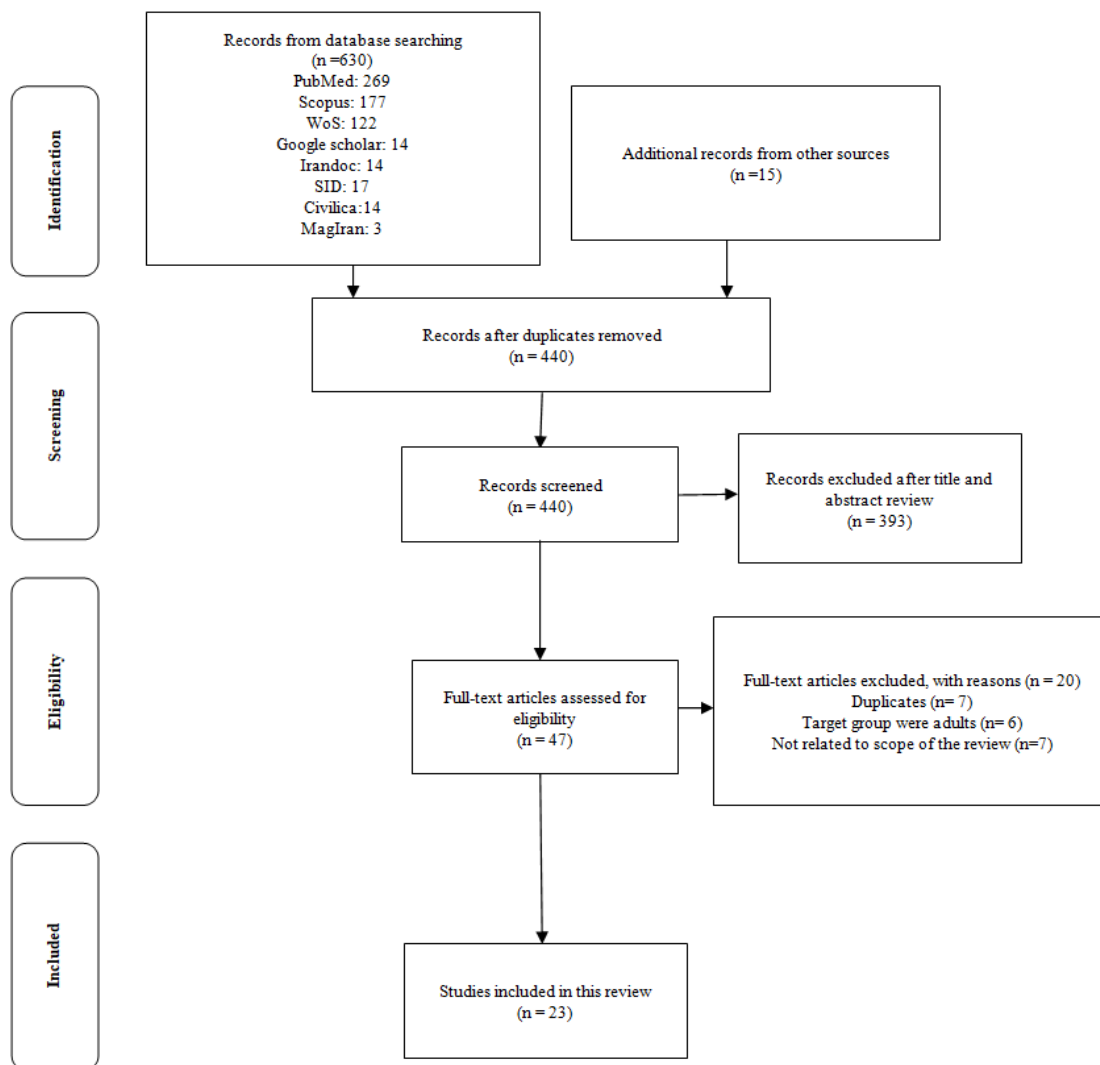
The studies and documents were categorized into three groups based on their content: 1) Studies on characteristics of food advertisements targeted at children in Iran, 2) Studies on the effect of food marketing on children in Iran, and 3) food marketing Regulations on (with reference to children) in Iran. The following information was extracted from each study: author, publication year, target group, media used for marketing, appeals/techniques for marketing, food(s) advertised, report of violation of Iran's regulations, objective(s) of the study, place of study, effect(s) of marketing on children. Title of regulation, date of publication/approval, target group and content were extracted from regulations.

**Collating, Summarizing, and Reporting Results**

The relevant content of included studies and documents were extracted in duplicates by three authors (MA, NO and MB) and entered into data sheets. The final report was prepared according to the Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) guideline.<sup>35</sup>

**Results**

A total of 23 documents, including nine peer-reviewed articles, four dissertations, two project reports, one full-text article from a congress proceeding and seven government publications/documents met eligibility criteria and were included in this review (Figure 1).



**Fig. 1: PRISMA flow diagram for the study selection process**

**Characteristics of Food Advertisements Targeted at Children**

Eight studies identified reported on food advertisements in the country.<sup>36-43</sup> Characteristics of these studies are presented in Table 1. All of the studies are on advertisements targeted at children

and/or adolescents.<sup>36-43</sup> Seven out of eight studies had focused merely on television and one on children’s magazines.<sup>42</sup> The main type(s) of foods advertised with reference to children included: Salty snacks, e.g. cheese puffs,<sup>36-38, 41, 43</sup> chips,<sup>38, 41</sup> cheese fish snacks, puffed corn,<sup>38</sup> as well as sweet snacks

such as ice creams,<sup>37, 38, 43</sup> cakes/biscuits/cookies and candies,<sup>36, 37, 41</sup> beverages/drinks/soft drinks/fruit juices,<sup>36, 37, 40, 41</sup> dried fruits and fruit rolls,<sup>40, 42</sup> and chocolates.<sup>37, 43</sup> The majority were foods with poor nutritional values.<sup>36-38, 41, 43</sup> Most reported violation of food marketing regulations in the studied documents included using an obese child/actor, either as the consumer or presenter of the product(s).<sup>36-38, 43</sup> In one study, it was shown that half of the nutritional messages conveyed through the advertisements were scientifically untrue or misleading.<sup>36</sup> Another study reported that more than one quarter of Islamic Republic of Iran Broadcasting (IRIB)'s advertisements were "misleading"<sup>36</sup> and the main value(s) conveyed to the audience who were mainly children and adolescents, were negative values, e.g. aggressiveness, greed, etc.<sup>38</sup> Marketing techniques that were commonly used in advertising food products targeted at children in Iran were as follows:

#### **Appeals**

The most frequent appeals used in food ads included: "stimulation of hunger/thirst,"<sup>36-40</sup> "attributed quality/high quality,"<sup>36, 38, 40</sup> "stimulating curiosity,"<sup>37, 39</sup> "attention to health and nutrition,"<sup>36-39</sup> "entertainment/laughter/ happiness/emotional attractiveness,"<sup>37-39</sup> "novelty,"<sup>37, 40</sup> "highlighting and exaggeration,"<sup>39, 43</sup> and appeals namely "scientific credit", "energy boosting", "energetic", "superiority over other products", "exceptional", "must be remembered", "miraculous function", "magic", "passion for the product", "appealing to cartoon characters" and "dream world". Appeals aimed to stimulate and provoke emotions and influence children's subconscious minds to convey their message, and to attract the attention and gain trust of their young audience.<sup>38</sup>

#### **Messages/Claims**

The message that was most frequently used to advert a food product was "taste",<sup>36, 37, 40</sup> followed by "quality",<sup>36, 40</sup> "delight",<sup>37</sup> "relaxing"<sup>37</sup> and "novelty".<sup>37, 40</sup> Most of the food advertisements expressed at least one nutritional message (either explicitly or implicitly).<sup>36, 37, 40</sup> Some had gone far enough to describe the consumption of the food advertised as a factor to fulfill ones dreams.<sup>38</sup>

#### **Techniques to Convey Message**

Simultaneous application of language and picture for emphasis and depiction of famous cartoon characters (e.g. Batman) and using animation

or a combination of animations, computer, and live action were common techniques used for conveying message(s).<sup>37, 38</sup> Using prose, verse, or a combination of both, or narration style without text were common;<sup>39</sup> however, in some food commercials, messages were silent and exclusively pictorial.<sup>40</sup>

#### **Music**

Rhythmic music was used in most advertisements.<sup>36-38</sup> Rhythm of music reported were *larghetto*,<sup>39</sup> happy and regular.<sup>43</sup>

#### **Setting/Location**

The most frequent locations in food advertisements were park, garden, seaside, amusement places,<sup>36</sup> and /or home environment.<sup>37, 39</sup>

#### **Social/Cultural Values**

Social values depicted in advertisements included family connectedness, security and tranquility of friendship, work and physical activity, ethnic, local and/or national values. Cultural symbols were depicted in one content analysis.<sup>39</sup>

#### **Narrator/Deliverer/Presenter**

In many cases men or boys presenters were featured in advertisements.<sup>37</sup> Presenting of thirty percent of the food ads were done by individuals who were eating the products while presenting.<sup>40</sup> The presenters in 43% of the advertisements were alone, in 50% were accompanied by their peers and only in 7% were with their parents.<sup>36</sup>

#### **Effect(S) of Food Marketing on Children**

Ten studies assessed the food marketing effect(s) of on children in Iran.<sup>36, 40, 44-51</sup> Table 2 presents foremost characteristics of the included studies in this category. The main approaches used to evaluate the effect of food advertisement on Iranian children were through asking children to recall any advertisements seen and liked, interviewing the child and/or caregiver assessing the number of times the child had requested the advertised food product(s),<sup>36, 40, 45</sup> and evaluating the child's food intake.<sup>44-49, 51</sup> A significant relationship was found between food advertisements recalled by children and the number of times those foods were requested from their parents.<sup>45</sup> Also, the numbers of time advertisements watched and the frequency of consumption of the advertised food product

were significantly associated.<sup>48</sup> The most common commercial food items recalled and/or consumed by children and adolescents were for chips and cheese puffs, which were also the most widely advertised food products.<sup>48, 52</sup>

**Table 1: Studies on characteristics of food marketing to children in Iran**

First author (year) <sup>Reference</sup>	Target group (Years Old)	Media used for marketing	Appeal(s)/Technique(s) for marketing	Food(s) advertised	Violation of Iran's regulations
Poornorooz, M. (1998) <sup>43</sup>	Children (3-17)	TV	Appeals -More than one third of the ads were in the format of a "happy show". -The music in one third of the ads was "happy". -Half of the ads used "exaggeration and magnification". -More than half of the ads had "message highlighting". Techniques - Half of the ads were accompanied by "text". -More than half of the ads had used the principles of "repetition" (of key words and symbols).	-Cheese puffs -Chocolates -Ice-creams	-In 43% of the advertisements, an obese child was featured to promote food products.
Amini, M. (2005) <sup>36</sup>	Junior high school students (12.6±0.93)	TV	Appeals -67% of the ads used "attributed quality" -64% of the ads used "stimulation of hunger/thirst". - 41% of the ads used animation or toys. - 67% of the ads deployed rhythmic rhymes. Techniques - 26% of the messages were implicit. -31% of the messages were explicit. - 43% of the ads used a combination of explicit and implicit messages. -In half of the advertisements, the food presenters had a companion -43% of the food presenters were alone -7% of the food presenters were shown with their family. - In 77% of the advertisements, a food product was filmed while being eaten -61% of the food items advertised were	-Cheese puffs -Cakes/biscuits -Beverages -Oils -Pasta	- Consumers of 43% of the food products were overweight or obese. - In 66% of the ads, an overweight or obese person was featured. -Half of nutritional messages of the advertisements were scientifically misleading or untrue.

		used as a snack. - 86% of the ads locations for advertised products were park-garden-seaside and amusement places. -In 25% of the advertisements, another food was depicted, 56% of which were fruits and vegetables.			
Fatehi-Nasrabadi, A. (2009) <sup>39</sup>	Children and adolescents	TV	Appeals -Family /kinship in 31.6% -Friendship in 26.3% -Security and tranquility in 5.3% -Work and activity in 36.8% -Laughter in 26.3% -Logical in 68.4% - Stimulation of hunger and/or thirst in 15.8% -Curiosity in 15.8% -Exaggeration (high in 57.9%, moderate in 42.1%) -Attention to health in 26.3% -Fun (entertaining) in 26.3% -Cultural symbol: ethnic and local (10.5%), national (5.3%). Techniques - A combination of animation, computer, computer and real was used -Rhythm of music: larghetto in 73.7%, no rhythm in 10.5%. -Audience: - 47.4% general population - 26.3% children/adolescents -15.8% children -10.5% adolescents -Advertisement setting: - Décor in 57.9% - Home in 26.3% - House and nature in 5.3% -Narrator: -Adults in 57.9% -A boy in 15.8% -No narrator in 25.4% - Monophonic in 68.4% -Duo in 21.1% -Voice and sound in 10.5% -Prose in 57.9% -Verse 21.1% -Combination of prose & verse 15.8% -Without Text narration style 5.3%	NA	- 26.3% of Islamic Republic of Iran Broad casting (IRIB's advertisements were misleading.

Omidvar, N.(2009) <sup>42</sup>	Primary school children's	children magazine	Appeals -The most frequent appeal was commercial interest.	-Dried fruits -Fruit rolls	NA
Karami, K. (2011) <sup>41</sup>	Children	TV	NA	-Puffs -Chips -Sugary drinks -Candies -Canned foods -Sausages/salami -Squeezed plum -Mixed junk foods.	NA
Boroojerdi -Alavi, M. (2012) <sup>38</sup>	Children and adolescents	TV	Appeals -Novel -Energetic -Superiority over other products -Healthy -High quality -Magic -Tasty -Exceptional -Must be remembered -Passion for the product -Fulfillment of dreams -Miraculous function - Causes happiness Techniques -Appealing to cartoon characters	-Plum paste -Ice cream -Puff cheese -Chips -Cheese fish snacks -Puffed corn	- The main values conveyed were negative values, e.g. competition for more food, egoism, edacity, ignoring others. -Obese children and men were selected as presenters
Amini, M. (2014) <sup>37</sup>	Primary school students	TV	Appeals -Stimulation of hunger/thirst in 38.5% of the ads. -Stimulation of curiosity/entertainment in 15.5% -Novelty in 12% -High quality in 10% -Providing welfare in 10% -Profiteering in 11% Techniques -Music: Rhythmic rhymes in 40% - Presented as animations in 54% -The presenters: -Male (44.5%) -Female (35%) -Both male and female (17.5%) -No presenter (3%) - Setting: -Home environment (34%).	-Chocolate -Soft drinks -Extruded cereals (Puffs) -Ice creams -Cookies -Candies	-Eight percent of the presenters appeared overweight



Hajizadehghaz, M., (2016) <sup>40</sup> in 28.3%	Primary school children	TV	<p>Appeals</p> <ul style="list-style-type: none"> <li>-High quality/precision in the preparation of the food products</li> <li>-Novelty in 21%</li> <li>-Stimulation of thirst and hunger in 15%</li> </ul> <p>Techniques</p> <ul style="list-style-type: none"> <li>-Half of the food ads messages were pictorial and silent.</li> <li>- Presenters were humans who in 30% of ads pretended to be eating the products.</li> </ul>	<ul style="list-style-type: none"> <li>-Fruit rolls</li> <li>-Plum paste</li> <li>-Fruit juice</li> <li>-Tomato paste</li> </ul>	NA
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NA: Not applicable

**Table 2: Studies on the effect of food marketing targeted at children in Iran.**

First author (year) <sup>Reference</sup>	Objective(s)	Target group/ (Age)/place	Media	Effect of marketing on children
Amini, M. (2002) <sup>45</sup>	-To determine the relationship between recalling TV food advertisements and foods requested and consumed	Junior high school students/ (12.6±0.93 years old)/ Tehran city	TV	<ul style="list-style-type: none"> <li>-A significant relationship was found between the food products advertisements that the children could recall and the frequency of consumption of the promoted food products.</li> <li>-There was an association between the food products which the children could recall and the number of times they requested these food products.</li> </ul>
Ghafoorian, SF (2003) <sup>48</sup>	-To evaluate the relationship between watching TV food advertisements and dietary pattern of children and adolescents	Children and adolescents/ Isfahan and Najafabad cities	TV	<ul style="list-style-type: none"> <li>-There was a significant relationship between the type of foods advertised and the foods consumed by children and adolescents.</li> <li>- The distribution of time to watch advertisements and the consumption of the advertised food had a significant relationship.</li> <li>-Products such as chips and cheese puffs, which were widely advertised, were consumed more by children and adolescents than others.</li> </ul>
Amini, M. (2005) <sup>36</sup>	-An investigation with school children to determine which food advertisement they remembered mostly.	Junior high school students /District 6 of Tehran.	TV	<ul style="list-style-type: none"> <li>-A brand for cheese puffs which comprised the largest category of the advertised foods was the most recalled advertisement by the students.</li> </ul>
Pejman, R (2012) <sup>50</sup>	- To investigate the effect of TV commercial message features on food selection of primary school	Primary school children/Karaj	TV	<ul style="list-style-type: none"> <li>-According to the parents, TV advertisements had the most effect on shaping inappropriate behaviors of the children.</li> <li>- Parents believed that TV advertisements had the least role in fulfilling the children's dietary needs.</li> </ul>

	students in Karaj - To assess the impact of food advertisements on the target audience			
Hajizadeh-oghaz, M., (2016) <sup>40</sup>	- A cross-sectional study in four schools to evaluate the relationship between recalling TV food commercials and children's interest in them and in the consumption of the promoted food products	Primary school children/ Shirvan, Northeast of Iran	TV	- There was a significant relationship between recalling TV food commercials and the interest in five out of eight of the commercials (62.5%) (P < 0.05). - The relationship between recalling TV food commercials and the interest in the consumption of the same food product ("Tomato paste B") was statistically significant for 12.5% of the commercials (P < 0.05).
Pirmoradi, M.(2016) <sup>51</sup>	To explore relationship between watching TV advertisements and food consumption pattern of children in Boroojerd	Children aged 7 to 10 years and their parents / Boroojerd	TV	-There was a negative correlation between watching TV advertisements and consumption of nutritious foods(r=-0.19). - There was a positive correlation between watching TV advertisements and consumption of junk foods(r=0.46). -There was a positive correlation between watching TV advertisements and consumption of fast foods and eating in restaurants (r=0.35).
Esmailpour, F., (2018) <sup>46</sup>	-To examine how the moderating effects of health knowledge (inactive vs. active) and advertising's entertainment level (high vs. low) affect children's response to advertising's food content (unhealthy vs. healthy).	-Students / 6-11 years old	TV	- Children tended to choose healthier foods after exposure to unhealthy food advertising. -This effect was greater for a higher level of entertainment, and was successfully moderated by the activation of health knowledge.
Esmi, R. (2018) <sup>47</sup>	To explore relationship between watching TV advertisements and food consumption pattern of	Children and adolescents aged 7-14 years and parents /Tehran city	TV	- There was a positive correlation between watching advertisements of foods with high nutritional value on TV and consumption of foods with high nutritional value among children and adolescents (r =0.43). - There was a positive correlation between

	children and adolescents in Tehran			watching foods with low nutritional value on TV and consumption of foods with low nutritional value among children and adolescents (r =0.40).
Aliakbari Dehkordi, M. (2019) <sup>44</sup>	-To evaluate the effect of TV productions on eating behavior in obese children.	Elementary school students/ Damghan	TV	- TV products had the effect on children's eating behavior and this effect was more on the girls than boys.
Moradi Latreyi S, (2020) <sup>49</sup>	- To determine the junk food consumption by the exposure to junk food advertisements	High school students /Rasht	TV, Radio, school, Newspaper, Magazine Internet and social networks, Outdoor billboards /public places	-In terms of the frequency of exposure to junk food advertisement, 37.2%, 33. 4% to time", "quite often" and "very often", respectively. -Regarding the source of exposure to junk food advertisement, 51.9% were exposed to more than one advertising source. -Results showed a significant difference in junk food consumption frequency based on the frequency of exposure to food advertisement

**Regulations on Food Marketing to Children In Iran**

Table 3 presents the list of regulations on food marketing in Iran, their approval date, target

group(s), and main content. All of regulations focused on food marketing on TV and radio and targeted the public.

**Table 3: Regulations on food marketing in Iran**

Title(publication/approval date) <sup>Reference</sup>	Target group	Content
The Regulation on the Establishment and Monitoring of the Work and Activity of Advertising Centers (1980) <sup>53</sup>	General public	-Note Ch, article 12: Any form(s) of marketing and advertising in kindergartens, schools, and spaces specified for children have been banned
Protection of Consumers' Rights (2009) <sup>54</sup>	General public	-Featuring children in the advertisements of goods has been prohibited -Untruth advertising that misleads the consumers (which can include children) has been forbidden
The Policies and Regulations Governing on Environmental Advertising (2010) <sup>55</sup>	General public	Any form(s) of marketing and advertising in kindergartens, schools, and spaces specified for children have been banned.
The 5th 5-years national development plan (2011-2016) <sup>56</sup>	General public	Article 37: The advertising of health-threatening goods and services has been banned.

The Set of Production Criteria for Television and Radio Advertising (2016) <sup>57</sup>	General public	<ul style="list-style-type: none"> <li>-Food products should not be advertised during children's programs</li> <li>-Featuring obese children in advertisements has been banned</li> <li>-The portraying of individuals as overeating or eating a food product greedily in food advertisements has been forbidden</li> </ul>
The law of permanent provisions in the country's development plans (since 2016) <sup>58</sup>	General public	Note J, Article 48: The advertisement of health-threatening goods and services that determined and announced by the Ministry of Health and National Standardization Organization in all media has been banned.
National standards and examples of the final list of health-threatening goods and actions harmful to health to ban advertising (2020) <sup>59</sup>	General public	<p>This standard has defined 19 unhealthy food items to ban marketing. These products were justified by an elevated content of sugar, salt, saturated fat, and trans-fatty acids, including sausages, ham, all types of sandwiches and pizzas contain sausages and hams, samosas and falafels prepared by immersion in oil, processed pizza cheese and pizza topping, carbonated drinks with / or without sugar, energy drinks, flavored malt beverages, carbonated and non-carbonated fruit drinks with fruit juice content less than 25%, fruit and non-fruit syrups and non-fruit drinks, instant drink powder, semi-solid oils, high-fat sauces, oil fried potatoes and cereals products, corn-based bulk products, edible ice products, wet sweets, cocoa products, toffee and candy.</p>

In Iran, soft drinks were the first food products which advertisements were banned in 2004.<sup>60</sup> Later, article 37 in the 5<sup>th</sup> national development plan (2011-2016), banned the advertising of health-threatening goods and services,<sup>56</sup> and the Ministry of Health became responsible for determining and updating the list of health-threatening products on an annual basis. Since then, this list has been updated and expanded and now includes 19 unhealthy food products, e.g. sausages, ham, processed pizza cheese, chips, edible ice products, toffee and candy.<sup>59</sup> After 2016, this Article was adopted as a permanent section within the development plans.<sup>58</sup>

Despite these efforts, very few rules in Iran have directly or indirectly referred to what can be advertised to children and on the methodology of promotion. For instance, note F, article 7 of the Law on "Protection of Consumers' Rights"<sup>54</sup> has prohibited featuring of

children in the advertisements of goods. According to this law, untruth advertising that misleads the consumers (which can include children) has been forbidden. The only policy document that has specifically focused on food product advertisements to children is "The Set of Production Criteria for Television and Radio Advertising".<sup>57</sup> According to this bylaw, food products cannot be advertised during children's programs, and the use of obese children or portraying individuals while overeating or eating a food product greedily in food advertising is banned. Several violations of this bylaw on television have been reported,<sup>57</sup> which can be due to the fact that this document is just an internal bylaw within the Iran department of Broadcasting commercial and has no legal validity.<sup>61</sup>

On the other hand, the public campaigns are bottom-up strategies that can be used for protecting

children against exposure to unhealthy product advertisements.<sup>32</sup> In 2019, the virtual campaign by Iranian parents through social networks on removing ads from the Iran in a children's TV channel "Pooya" led to restricting broadcasting of advertisements on it.<sup>62</sup> In addition to the national television broadcasting, children can be affected by other media platforms, e.g., social media, satellites, webpages, and smartphone applications. Advertisements that are broadcasted on satellite networks over which the government has no control have been reported as a challenge faced in Iran.<sup>63</sup>

Controlling advertisements within the child care and education facilities was also identified in the included studies. In Iran, any marketing means and advertisement in kindergartens, schools, and spaces specified for children are banned based on note Ch, article 12 in "the Regulation on the Establishment and Monitoring of the Work and Activity of Advertising Centers", and article 9 of the Policies and Regulations Governing on Environmental Advertising.<sup>53, 55</sup> Although these are general rules that apply to all types of goods and products, they have also been used for food and beverage products. However, studies in different provinces, including Kerman and Tabriz, and Tehran reported the presence of advertisement of sweets, candies, fast foods, soft drinks, fast foods restaurant and supermarkets within the schools.<sup>64,65</sup> the presence of food products advertisements in the canteens through the promotional facilities and/or presence of equipment donated by food industries.<sup>66</sup> Finally, poor monitoring scheme to control food advertising status was identified as an additional challenge in implementing the advertising restriction policy.<sup>32, 67</sup>

## Discussion

This scoping review aimed to introduce the existing policies and regulation on food and beverages marketing targeted at children in Iran and to provide evidence on the status and effects of food and beverage marketing on children in the country. Regulating and controlling advertisements in the mass media and educational facilities in Iran has been enforced for the last 30 years. However, concern on marketing unhealthy food products through clear regulations was first documented in 2011.<sup>32</sup> Based on the present review, almost all the existing food marketing regulations in Iran are

directed at the general public with no or very little reference to children.<sup>32,61</sup> There are few regulations on advertising directed at children, e.g., forbiddance of featuring children 54 or displaying obese children in the products advertisements.<sup>57</sup> However, most of these regulations have no legal validity and their implementation is not well supported.<sup>61</sup>

Based on the present review, a high proportion of the existing food advertisements in Iran, specifically those targeted at children, are promoting unhealthy or nutritionally questionable food products. The most frequently advertised foods and beverages reported were those with added sugar, namely beverages, cakes, and chocolates and salty snacks e.g. cheese puffs and chips; the majority of which exceed the WHO Regional Office for Eastern Mediterranean region nutrient profiling model's threshold criteria for energy, sugar, fat, and/or sodium.<sup>68</sup> Similar findings have been reported in other countries.<sup>69-71</sup>

Emotional and rational appeals were the most frequently used techniques to encourage young customers to buy the advertised food products. The proportion of emotional appeals was higher than logical appeals, probably due to the fact that children are more susceptible to the emotional contents of the advertisements, as also reported by other researchers.<sup>71-73</sup> The message that was mostly used to promote food products was "taste" implying that food marketers recognize it as a driving motivation for food choices in children, compared to nutrition or health related concerns.

Overall, the reviewed studies indicated that exposure to food advertising can influence attitude, preference and dietary practices of children and have an effect on their food choice and consumption.<sup>15, 36, 40, 44-51, 74</sup> There was relatively clear evidence that exposure to food advertisements increase energy intake in children and this effect can be greater in the obese children.<sup>75</sup> In the present review, TV was the main media studied with regard to children food advertisements and the time in recording the advertisements was mainly when children programs were broadcasted, because of larger number of child viewers.<sup>76-81</sup> However, studies in Slovenia<sup>80</sup> and the UK<sup>82</sup> revealed that when restriction of ads was implemented during children's programmes only, the frequency of advertisements for not permitted foods increased in the prime-time hours. Therefore, in order to efficiently protect children, food marketing

restriction should be applied not only during children's programs, but during peak child viewing times as well.<sup>80</sup> We did not find any studies on prime time advertisements directed at children in Iran.

Despite a number of clear but implicit references in the existing laws and regulations on banning persuasive marketing techniques that involves children or their favorite characters,<sup>54, 57</sup> review of studies on the characteristics of food advertisements in Iran, indicated the application of several unauthorized techniques to persuade and attract children or young customers.<sup>36-43</sup>

The slow progress in regulating and controlling unhealthy food marketing targeted at children by the government is not limited to Iran and has been raised as an international issue.<sup>24, 83</sup> Based on a recent review of food marketing policies in 22 countries by Kelly *et al.*, the current regulatory restrictions have not been able to create a more desirable food advertising environment for children compared to countries that did not apply such regulations.<sup>84</sup> In order to overcome weaknesses of these policies, some governments have applied multi-sector legal marketing structures to better regulate the unhealthy foods advertising and marketing for children. These policies involve all key stakeholders in the child-health advocacy, consider incentives for industry and the private sector to promote healthy food products and create healthy food environments. For instance, Chile adopted in 2015 the most comprehensive marketing restriction law in the world to date.<sup>85</sup> This law prohibits the marketing and advertising of foods and beverages that are high in sugar, sodium, saturated fats, and energy to children and adolescents aged 14 and younger. This regulation, forbade unhealthy food sale and promotion at schools,<sup>86</sup> as well as persuasive marketing strategies children advertisements on TV.<sup>87</sup>

To improve the impact of the enacted policies, efforts should be made to monitor all forms of food marketing in broadcast media, social media, and digital marketing platforms.<sup>88, 89</sup> While the existing restrictive laws on food marketing to children through the TV and radio stations in Iran are poorly implemented, there is also no controlling mechanism on food advertisements broadcasted through satellite TV stations, webpages, smartphone

applications, magazines and newspapers. Although all types of health-threatening advertisements in all media are banned by newly-developed laws for the general population,<sup>32</sup> there is a need to define exact platforms of marketing limitations with a focus on children.<sup>80</sup> Furthermore, the food labelling policy of food products in Iran has no clear and direct reference on marketing schemes used on the food labels and packages that address children.<sup>90</sup>

Regulating marketing of unhealthy food items can provide an opportunity for the food industry to enhance its products' quality. For example, in South Korea, the prohibition of unhealthy food advertising directed at children on TV motivated about 50% of food companies to reformulate their food products.<sup>91</sup> Governmental policies should address strategies to increase social responsibility initiatives of the food industry.<sup>92</sup> Kelly *et al.* indicated that applying voluntary practice codes food industry has been ineffective for responsible food marketing targeted at children.<sup>84</sup> Surprisingly, they showed higher rates of unhealthy foods products ads in the countries with industry self-regulatory codes for food marketing to children.<sup>84</sup>

Constant monitoring and evaluation of food marketing is needed to assay policy implementation trends and their impact in order to propose any essential modifications. Development of vigorous scientific criteria are also needed to objectively determine food restrictions for marketing to children. In this regard, using a standardized protocol such as INFORMAS protocol<sup>93</sup> and international or regional tools, e.g., the Nutrient Profile model of the WHO Regional Office,<sup>68</sup> may be beneficial. Table 4 presents a summary of recommendations considering the current status of food marketing policies in Iran with respect to WHO recommendations.

Based on our knowledge, this study is the first scoping review that presents characteristics and effects of food advertisements targeted at children in Iran and review the existing regulations on food marketing targeted at children and adolescents in this country. The findings of this study provide scientific evidence for policymakers to develop and improve food marketing policies for children. There are several limitations in this scoping review. The quality of included studies and literatures was not

evaluated. Thus, intrinsic quality of studies have been ignored. Besides, publication bias may also affect the study results (due to unpublished results of food marketing assessment on children).

**Table 4: Current status of food marketing policies for children in Iran compared to the WHO recommendations,<sup>94</sup> recommendations for their improvement**

The WHO recommendations	Current status in Iran	Recommendations for Iran
1. "The policy aim should be to reduce the impact on children of marketing of foods high in saturated fats, trans-fatty acids, free sugars, or salt."	Almost all of the existing food marketing regulations in Iran are directed at the general public. The list of unhealthy food products with high levels of saturated fat, sugar, salt, and/or trans-fatty acids are determined and updated on an annual basis by the Ministry of Health. Marketing of these food products is generally prohibited.	The specific food marketing policies to reduce exposure of children to low nutritional quality food marketing should be formulated.
2. "Given that the effectiveness of marketing is a function of exposure and power, the overall policy objective should be to reduce both the exposure of children to, and power of marketing of foods high in saturated fats, trans-fatty acids, free sugars, or salt."	There are few regulations on advertising directed at children, e.g., food advertising is banned during children's programs, forbiddance of featuring children or displaying obese children in the products advertisements. However, most of these regulations have no legal validity and their implementation is not well monitored.	Legally valid and highly enforceable food marketing policies aiming at regulating children's exposure should be developed.
3. "To achieve the policy aim and objective, Member States should consider different approaches, i.e. stepwise or comprehensive, to reduce marketing of foods high in saturated fats, trans-fatty acids, free sugars, or salt, to children."	Regulating and controlling advertisements (in general), has been enforced for the last 30 years; however, banning marketing unhealthy food products through clear regulations, started in 2011. The list of banned unhealthy food products have been announced annually since 2012 and are updated almost every year. These lists are not specific for children and have become stricter over time.	Comprehensive policies should be adopted to restriction unhealthy food advertising to children and become more stringent over time.
4. "Governments should set clear definitions for the key components of the policy, thereby allowing for a standard implementation process. The setting of clear definitions would	Key components of the food marketing policies in Iran are not clearly defined in most cases, leading to no uniform implementation.	All key policy components must be clearly defined. International standards such as WHO's nutrition profiles and INFORMAS protocol can guide

<p>facilitate uniform implementation, irrespective of the implementing body. When setting the key definitions, member States need to identify and address any specific national challenges so as to derive the maximal impact of the policy.”</p>		<p>policies’ conception. The different challenges of policies to reduce exposure of children to unhealthy food ads at the national level should be carefully identified and provide strategies to deal with them.</p>
<p>5. “Settings where children gather should be free from all forms of marketing of foods high in saturated fats, trans fatty acids, free sugars, or salt. Such settings include, but are not limited to, nurseries, schools, school grounds and pre-school centers, playgrounds, family and child clinics and pediatric services and during any sporting and cultural activities that are held on these premises.”</p>	<p>In Iran, any type of marketing and advertisements in kindergartens, schools, and spaces specified for children is banned. However, several cross sectional studies have reported the presence of unhealthy food marketing in some schools.</p>	<p>A system, with a strong monitoring scheme, should be designed and established to reprimand violators of the regulation.</p>
<p>6. “Governments should be the key stakeholders in the development of policy, and provide leadership, through a multi-stakeholder platform, for implementation, monitoring and evaluation. In setting the national policy framework, governments may choose to allocate defined roles to other stakeholders, while protecting the public interest and avoiding conflict of interest.”</p>	<p>The government is one of the key stakeholders and has tried to lead; however, there seems to be poor governance in implementing these policies.</p>	<p>A stakeholder analysis of food marketing policy targeting children is needed. The policy framework should clearly determine the stakeholders/ actors’ role and consider ways to address conflicts of interest.</p>
<p>7. “Considering resources, benefits and burdens of all stakeholders involved, Member States should consider the most effective approach to reduce marketing to children of foods high in saturated fats, trans-fatty acids, free sugars, or salt. Any approach selected should be set within a framework developed to achieve the policy objective.”</p>	<p>None</p>	<p>Given the available resources, the best approach is to engage stakeholders effectively to achieve the goals of the food marketing policies.</p>
<p>8. “Member States should cooperate to put in place the means necessary to reduce the impact of cross-border marketing (in-flowing and out-flowing) of foods high in saturated fats, trans-fatty acids, free sugars, or salt to children in order to achieve the</p>	<p>It seems most of the ban regulation on advertising has focused on broadcasting and there is no mechanism for other platforms such as satellite networks or social networks</p>	<p>All advertising platforms should be defined in the policy framework and mechanisms for enforcing and monitoring them should be considered.</p>



highest possible impact of any national policy.”

<p>9. “The policy framework should specify enforcement mechanisms and establish systems for their implementation. In this respect, the framework should include clear definitions of sanctions and could include a system for reporting complaints.”</p>	<p>None</p>	<p>A robust policy framework should be designed, with specific systems for their implementation and enforcement. In this respect, the framework should include a feedback system or a system for reporting complaints.</p>
<p>10. “All policy frameworks should include a monitoring system to ensure compliance with the objectives set out in the national policy, using clearly defined indicators.”</p>	<p>None</p>	<p>A robust monitoring system should be developed using accurate and scientific indicators.</p>
<p>11. “The policy frameworks should also include a system to evaluate the impact and effectiveness of the policy on the overall aim, using clearly defined indicators.”</p>	<p>- None</p>	<p>The effectiveness and impact of the system of policies of restriction of food marketing to children should be developed using precise and scientific indicators for proper evaluation.</p>
<p>12. “Member States are encouraged to identify existing information on the extent, nature and effects of food marketing to children in their country. They are also encouraged to support further research in this area, especially research focused on implementation and evaluation of policies to reduce the impact on children of marketing of foods high in saturated fats, trans-fatty acids, free sugars, or salt.”</p>	<p>Based on the present review, small-scale studies (18 studies) have assessed the extent, attributes and effects of food advertising targeted at children in Iran. In these studies, TV was the main media studied. One study focused on stakeholder analysis of food marketing policies.<sup>67</sup></p>	<p>Food advertisements on all platforms should be regularly studied and evaluated. In this regard, it is necessary to develop comprehensive protocols in line with global protocols.</p>

**Conclusions**

This scoping review provides evidence and recommendation(s) to the policy-makers and practitioners about controlling of children exposure to unhealthy food advertisements. Through this review, current status of food marketing in Iran and shortcomings of existing regulations were presented and discussed as a case study. The need for regulations with clear reference to children and focusing on systematic monitoring of effective implementation was emphasized. Besides, key factors in the policy success, including improving

inter-sectoral collaboration (between the health sector and the media, advertisement centers, food producers, and consumers) and making food industries more socially accountable, particularly for children s' health were emphasized.

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