



## Iranian Television Advertisement and Children's Food Preferences

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**How to cite this article:** Hajizadehghaz M, Amini M, Abdollahi A. Iranian Television Advertisement and Children's Food Preferences. *Int J Prev Med* 2016; issue: page.

### ABSTRACT

**Background:** In this study, the nature of food commercials in children's television (TV) was monitored and analyzed; simultaneously, the relationship between recalling TV food commercials and children's interest in them and in the consumption of the same food products was evaluated.

**Methods:** A total of 108 h children's programs broadcast on two channels (Two and Amouzesh) of Islamic Republic of Iran Broadcasting (IRIB) media organization were monitored (May 6–12, 2015). Simultaneously, a cross-sectional study using 403 primary schoolchildren (201 boys) in four schools of Shirvan, Northeast of Iran, was executed. The children were prompted to recall all TV commercials broadcast on IRIB. Meanwhile, they were directed to define in the list of recalled TV food commercials those were interested in and the commercials (food products) they actually were willing to consume.

**Results:** Regarding the frequency and duration of broadcasting, food commercials ranked fifth and sixth, respectively. Fruit leather and plum paste were the most frequently broadcast food commercials. "High quality" (19%), "good taste" (15%), "novelty," and "message on nutritional composition" (13%) were the most frequent messages used in promoting the sale of food products, respectively. In addition, focus on "high quality/precision in the preparation of the food products" was the most frequently used appeals in TV commercials. 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 ( $P < 0.05$ ).

**Conclusions:** TV food commercials do not encourage healthy eating. The current study provides convincing evidence for policy-makers and researchers to pay more attention to this area.

**Keywords:** Children, commercial, food, television

### INTRODUCTION

Despite the increase in the spread of social networks, television (TV) and its commercials are considered a

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significant determinant of the food choice and lifestyle of people, especially children.<sup>[1]</sup> TV commercials influence the food choices of children in different ways. Using their highfalutin and vivid messages, they encourage people to buy the advertised products.<sup>[2]</sup>

TV commercials implicitly increase the tendency of people to purchase these food products. Children and adolescents are particularly vulnerable since they do not understand the profit maximization purpose of the commercials. This deficiency in understanding makes them to buy food products that are often high in fat, sugar, and salt and are nutritionally of low value.<sup>[3]</sup> In a recent study, it was revealed that the entertaining and captivating dimension of the commercials influenced the extent of unhealthy food selection by the children.<sup>[4]</sup>

Many studies have demonstrated that the majority of TV-advertised food products directed at children are high in calories and low in nutrients and against the current regulations on food commercials.<sup>[5-9]</sup> Therefore, it is not surprising that the high prevalence of childhood overweight and obesity around the world has been attributed to watching TV.<sup>[10]</sup> In addition, by changing the children's attitude toward unhealthy food and food preferences, TV commercials can influence and shift the food choices of the family toward these types of foods.<sup>[11]</sup>

According to the available nationwide data,<sup>[12]</sup> the average amount of time spent in sedentary behaviors, including TV viewing, is two times more than recommended.<sup>[13]</sup> The high exposure of Iranian children to TV messages including food commercials may increase the chances of selection and consumption of unhealthy foods, thereby making them more prone to chronic diseases.

To the best of our knowledge, only a few studies have analyzed the content of food commercials on Iran TV so far.<sup>[1,14-16]</sup> The mentioned studies are very valuable in their own scope of study; however, they have not fulfilled some fundamental aspects of the study. First, they have not targeted the same destination; second, they have scarcely dealt with the impressibility of the audience (especially children), and third, the studies with rather similar goals are not up-to-date. Hence, the need for a recent study that overcomes the mentioned shortcomings is apt. In the present study, we explored the content of TV commercials in a period of 1 week. Thereafter, in a cross-sectional study on primary schoolchildren, the relationship between recalling TV food commercials and their interest in them and in the consumption of the same food products was evaluated.

## METHODS

The study protocol was approved by the Institutional Review Board of Students' Research Committee of Shahid Beheshti University of Medical Sciences (code: 5587)

which is in accordance with the ethical standards of Declaration of Helsinki. This study was conducted in two separate parallel parts.

### Part A

All TV food commercials aired on TV 20 min before, during, and 20 min after children's and adolescents' programs from channels "Two" and "Amouzesh" were recorded for 1 week (May 6–12, 2015) using a time recorder method. In this recording method, TV programs were automatically recorded at the stipulated time set on the device memory. During the period, there were no national, political, or religious occasions, and the week was considered normal. Children received the selected TV channels all over the country. Moreover, within a few random days of monitoring, TV commercials were more frequently broadcast on the mentioned channels compared with other channels. After recording, all commercials were repeatedly viewed, and their information was extracted and reported based on a predetermined set of instructions.

### Part B

This part was a cross-sectional study conducted in May 2015 in four primary schools (two schools for each gender) in Shirvan, Northeast of Iran. Sampling was conducted using convenience sampling. Based on the formula for calculating the sample size in cross-sectional studies and taking into account an attrition of 5%, 404 primary schoolchildren (201 males and 202 females) were chosen for this study.

$$N = \frac{z^2_{\frac{\alpha}{2}} \times p(p-1)}{d^2}$$

$p$ : 50%,  $z$ : 1.96, attrition: 5%, and  $d$ : 0.05.

$$N = \frac{(1.96)^2 \times 0.05 \times 0.05}{(0.05)^2}$$

In this part of the study, the relationship between recalling TV food commercials and the primary schoolchildren's interest in them and in consumption of the same food products was examined. After obtaining the necessary approvals, four schools agreed to participate in the study. Finally, 403 children (50% boys) who had an informed consent signed by their guardians/parents were recruited.

The questionnaire was self-administered and self-reported. The questions included the date of birth, height, weight, time spent on watching TV per day, and recalled TV commercials. Thereafter, the students were directed to define in the list of recalled TV food commercials those commercials (food products) they were interested in and the commercials (food products) they actually were willing to consume.

### Statistical analysis

Descriptive statistics, namely, frequency, percentage, mean, and standard deviation, were reported. The

Chi-square test was performed for categorical data, and SPSS software version 22.0 (Chicago, IL, USA) was used for data analysis.  $P < 0.05$  was considered significant.

To evaluate the reliability between the coders, another person coded the message. The agreement coefficient was calculated according to the formula below.<sup>[17]</sup>

$$\text{Coefficient of agreement} = \frac{\text{agreements} \times 100}{\text{number of agreements} + \text{number of disagreements}}$$

The internal reliability of appeals was 87.5%, and the reliability between the coders was 82%.

Appeals are underlying content of the advertisement which are used to attract the attention of consumers and influence people's feelings toward the product or service.<sup>[18]</sup>

## RESULTS

### Content analysis study

In the study period, 198 commercials were recorded in 3446 s. Food commercials comprised 10.2% of the number and 7.4% of the broadcasting duration in the studied period. In other words, regarding the frequency and duration of broadcasting, food commercials ranked fifth and sixth, respectively [Figure 1].

Table 1 shows the frequency and duration of TV food commercials. As seen, 75% of the food commercials were related to "fruit leather and plum paste."

Regarding the type and frequency of the messages used to promote the sale of a product, taking into consideration the repeated commercials, "high quality" (19%), "good taste" (15%), "novelty," and "nutritional composition" (13%) had the highest frequency in order.

Based on Table 2, the most frequent appeals of food commercials, taking into consideration the repeated commercials, were "high quality/precision in the preparation" (28.3%), "novelty" (21%), and "stimulation

**Table 1: Frequency and duration of TV food commercials broadcasting at the time of children's programs from Channel 2 and Amouzes, Islamic Republic of Iran Broadcasting, May 6-12, 2015**

Food commercials (brand)	Frequency	Percentage	Duration (s)	Percentage
Fruit leather A	10	50	60	23.5
Plum paste A	5	25	75	29.5
Fruit juice A	4	20	100	39
Tomato paste A	1	5	20	8
Total	20	100	255	100

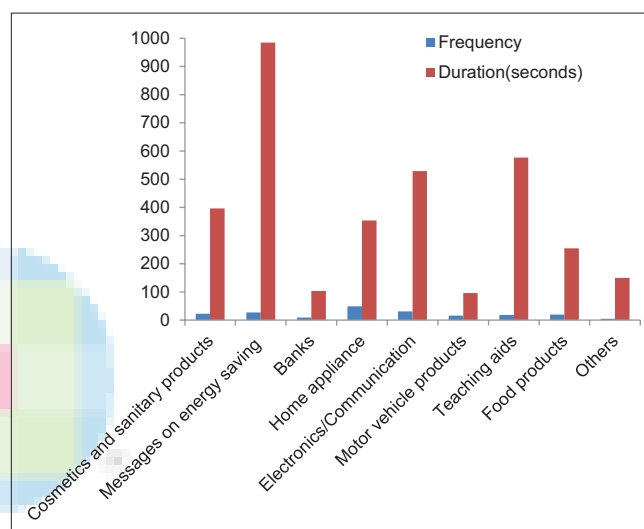
of thirst and hunger" (15%) in order (repeated commercials were considered).

The results showed that half of the food commercial messages (50%) were silent and pictorial. Thirty percent of the food commercials were presented by humans who pretended to be eating the products.

### The experimental study

A total of 403 children (201 boys, 202 girls) took part in the study. The mean age of the boys and girls was  $11 \pm 6.8$  and  $10.45 \pm 0.7$ , respectively.

According to Table 3, the relationship between recalling TV food commercials and the interest in five out of eight of the commercials (62.5%) was statistically significant ( $P < 0.05$ ).



**Figure 1: Frequency and duration of commercials broadcasting at the time of children's programs from Channel 2 and Amouzes, Islamic Republic of Iran Broadcasting, May 6-12, 2015**

Commercial groups	Frequency	Percentage	Duration (s)	Percentage
Cosmetic	23	11.6	396	11.5
Sport and fitness	0	0	0	0
Banks	9	4.5	104	3.0
Home appliances	49	24.7	354	10.2
Electronic communications	31	15.7	529	15.4
Vehicle accessories	16	8.1	96	2.9
Game/entertainment	5	2.5	150	4.4
Education	18	9.1	577	16.7
Saving water and/or electricity	27	13.6	985	28.5
Food	20	10.2	255	7.4
Total	198	100	3446	100

**Table 2: Frequency and percentage of appeals associated with food products advertised on Channel 2 and Amouzeh of Islamic Republic of Iran Broadcasting, May 6-12, 2015**

Appeals	Repeated commercial messages are included		Repeated commercial messages are not included	
	Frequency	Percentage	Frequency	Percentage
High quality/precision in the preparation of the food products	19	28.3	3	23.15
Novelty	14	21	2	15.3
Stimulating thirst and hunger	10	15	3	23.15
Refreshment/empowerment	5	7.4	1	7.7
Peer acceptance	5	7.4	1	7.7
Hygiene/beauty/health	5	7.4	1	7.7
Superiority to others	9	13.5	2	15.3
Total	67	100	13	100

**Table 3: The relationship between recalling TV food commercial and being interested in them among primary schoolchildren of Shirvan, May 10-11, 2015**

Food products	Commercials recalled	Interested in the food product (%)		P*
		Yes	No	
Tomato paste A	Yes	35.6	64.4	<0.001**
	No	12.0	88.0	
Cheese puff A	Yes	43.2	56.8	<0.001**
	No	14.7	85.3	
Rice A	Yes	10.0	90.0	<0.05**
	No	0.3	99.7	
Cheese puff B	Yes	0	100.0	0.96
	No	0.8	99.2	
Cheese puff C	Yes	11.1	88.9	0.43
	No	0.8	92.2	
Tuna A	Yes	0.50	50.0	<0.001**
	No	0.5	99.5	
Tomato paste B	Yes	9.1	90.9	0.054
	No	0.3	99.7	
Rice B	Yes	6.9	93.1	<0.05**
	No	0	100.0	

\*Based on Chi-square test, \*\*The significant level was considered as  $P < 0.05$

According to Table 4, 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 ( $P < 0.05$ ).

## DISCUSSION

This study analyzed the content of TV programs for children in a period of 1 week. Compared with the studies conducted in previous decades, the duration of TV food commercials has decreased significantly.<sup>[15-17]</sup>

The decreasing trend can be seen in other recent studies in Iran.<sup>[11]</sup> This trend may somehow reflect the new policies of the Islamic Republic of Iran Broadcasting (IRIB) in reducing commercials directed at children. On the other hand, this study was conducted in a period that

was close to the final examinations of schoolchildren in Iran (almost from May 9 to 21) and the time spent on watching TV probably decreased drastically. Furthermore, this trend might be due to an increase in tariffs of broadcasting of commercials. However, due to lack of convincing evidence, any more comment would be impossible on this matter.

In the current study, the frequency of snacks (plum paste and fruit leather, 75%), fruit juice (20%), and flavorings (tomato paste 5%) ranked first to third, respectively, in the food products group [Table 1]. The finding is in agreement with other studies,<sup>[19-21]</sup> indicating the dominance of displayed foods that are rich in salt and/or sugar. Despite the decline in the number of commercials related to foods during programs for children and adolescents, it seems that the

**Table 4: The relationship between recalling TV food commercials with being interested in consumption of the same food products among primary schoolchildren of Shirvan, May 10-11, 2015**

Products	Commercials recalled	Consumption of food products		P*
		Yes (%)	No (%)	
Tomato paste A	Yes	82.5	13.5	0.54
	No	86.6	13.4	
Cheese puff A	Yes	88.0	12.0	0.35
	No	86.0	14.5	
Rice A	Yes	100.0	0	0.23
	No	86.2	13.8	
Cheese puff B	Yes	80.0	20.0	0.51
	No	86.6	13.4	
Cheese puff C	Yes	88.95	11.1	0.65
	No	86.5	13.5	
Tuna A	Yes	87.5	12.5	0.70
	No	86.5	13.5	
Tomato paste B	Yes	54.5	45.5	<0.001**
	No	87.5	12.5	
Rice B	Yes	86.2	13.8	0.56
	No	86.6	13.4	

\*Based on Chi-square test, \*\*The significant level was considered as  $P < 0.05$

contents of these messages are still nonnutritional and unhealthy.<sup>[22,23]</sup>

“High quality” and “good taste” were the dominant messages that promoted the sale of the food products. In an advertisement of leather fruit, a group of fruits was playing happily; while jumping from a spring, they changed into fruit leather and plum paste, implicitly conveying the message that these food products, which are processed using industrial methods, are as healthy and nutritious as natural fruits. These findings are almost in agreement with previous studies, in which “taste” and “high quality” were the most frequent messages used to promote the sale of food products.<sup>[24-29]</sup>

In the current study, “high quality/precision in preparation,” “novelty,” and “stimulation of thirst and hunger” were the most frequent appeals [Table 2]. These findings are almost consistent with the results of previous studies, but the rank of the appeals was different.<sup>[19,27]</sup> In similar studies conducted in other countries, “entertainment,” “adventure,” and “becoming successful” were mentioned among the most frequent appeals.<sup>[30]</sup> However, “stimulation of hunger and thirst” was the dominant appeal for TV food commercials targeted at children as avid consumers.<sup>[31]</sup>

While most similar studies have exclusively analyzed the content of TV commercials,<sup>[11,20,21]</sup> this study is one of the few studies to examine the behavior of consumers simultaneously. This study showed that in most of the cases, there was a significant relationship between

recalling TV food commercials and the interested in the related food products [Table 3], and the interest in the consumption of the same food was significant for one food product (one out of eight or 12.5% of the food products) [Table 4]. The results are more or less similar in other studies. In one study, it was observed that watching TV is linked to some unhealthy eating behaviors such as decreased consumption of fruits and vegetables and increased consumption of fast foods in school-age children.<sup>[32]</sup> It was also observed that exposure to commercials for healthy foods could increase their consumption by preschoolers<sup>[7]</sup> and by contrast and exposure to commercials for unhealthy foods could increase their consumption among teenagers.<sup>[33]</sup> Many studies have also shown that more exposure to TV commercials affects food preferences and the demand for the advertised products in preschoolers and schoolchildren.<sup>[34-37]</sup>

The current research was a cross-sectional study, in which the content of TV food commercials and the attitude and behavior of the audience toward TV food commercials was evaluated simultaneously. It certainly cannot be concluded that the relationship found in the current study shows causality; however, consideration of the existing literature on TV food commercials and their effects on children as vulnerable audience<sup>[31]</sup> makes our findings worthy of note. More longitudinal studies are obviously needed on this issue.

## CONCLUSIONS

Compared with other studies, the number of TV food commercials, at least in children’s programs of IRIB, has decreased significantly. However, the small number of food commercials does not encourage healthy eating. Due to the high vulnerability of children and adolescents to TV food commercials, the authorities should pay more attention to this area. Regarding the observed significant relationship between recalling food commercials and the desire to consume them by children, the current study provides convincing evidence for policy-makers and researchers to take more proactive steps in improving the children’s eating behaviors.

## Financial support and sponsorship

This study is supported by Students’ Research Committee of Shahid Beheshti University of Medical Sciences.

## Conflicts of interest

There are no conflicts of interest.

Received: 07 Jan 16 Accepted: 19 Nov 16

Published: \*\*\*

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