

Original Article

The effects of television food advertisement on children's food purchasing requests

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Background: Children's eating habits and their food consumption have direct relations with obesity, diabetes, cancers, hypertension and coronary heart disease. Television advertisements directly affect children's eating habits and their food consumption. This study was conducted in order to examine television advertisements and children's food consumption while watching television and their desire to purchase goods that they see on television advertisements.

Methods: In the first stage of the study, content analysis of the television advertisements was conducted. In the second stage of the study, a questionnaire (check list) was developed in order to examine children's food consumption while watching television and their purchasing requests while shopping in the supermarket. It was given to 347 mothers who have children aged between 3 and 8 years.

Results: When the results of the study were examined it was found that the time devoted to children's programs was approximately 121 min and the advertisements during this period were approximately 35 min. A total of 344 of the 775 television advertisements shown were related to food. It was also found that most of the food advertisements were about candy/chocolate, chips, milk and milk products such as cheese, yoghurt, and breakfast cereals. The results also revealed that 89.6% of the children either drank or ate something while watching television and the food they consumed most while watching television were fruits, soft drinks, popcorn/nuts, cake, chips and candy/chocolate. The results also revealed that 40.3% of the children asked their parents to purchase the goods that they saw on the television advertisements and that 8.9% of them argued with their parents and/or cried in order for their parents to buy that particular product. It was found that the children tended to request more sweetened products such as candy, ice-cream, biscuit, cake or soft drinks.

Conclusion: More than half of the food presented in television advertisements were rich in fat and sugar. Children ask their parents to buy the goods they see on television advertisements both while watching television and while shopping. Television advertisements especially affect young children's unhealthy food consumption.

Key words

advertisements, early childhood, food consumption, television.

Advertisements can be a tool for the introduction of various foods and services to the public.¹⁻³ The aim of advertisements can be seen as increasing commercial profits and the demands of the consumers. Especially nowadays, food marketers are interested in children and youth as consumers. With spending power, purchasing influence, and as future adult consumers, they are a valuable target for the food and beverage industries. These advertisements are introducing unhealthy food to children. Therefore, they are directly affecting their food choice, food preference and eating habits.⁴

Eating habits have a significant impact on health. Eating patterns that result in high intakes of fats and saturated fats and low intakes of fruits and vegetables are linked to some health problem such as increased risks of coronary heart disease, certain cancers, diabetes, hypertension, and obesity.⁵ Child food consumption trends show a shift over the past few decades towards unhealthy patterns. They are eating more food away from home, drinking more soft drinks and snacking more frequently.^{6,7} Consuming these kinds of food which contain excessive amounts of sugar, fat and salt seems to have an adverse effect on dietary quality in ways that could increase the risk of obesity and unhealthy weight levels among children.^{6,8}

The growing epidemic of overweight and obese children is a major public health concern in most of the world.⁹⁻¹⁷ Obesity

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and overweight problems have increased among children and adolescents since the early 1960s.¹⁸

Obese children and adolescents are under the risk factor of short and long-term medical problems such as gallstones, orthopedic abnormalities, asthma, and increased intracranial pressure, cardiovascular disease, diabetes 2 and adult obesity.^{12,14,18–22}

Behavioral, environmental and social factors in addition to a genetic predisposition may have an important role in a child becoming obese or overweight.^{4,18,23} Some researchers indicated that the time spent in front of the television can be an important environmental factor for development of obesity.^{8,23–30}

Today's children live in a media-saturated environment. Television directly effects children's energy intake and output; they spend less energy while they are watching television. Furthermore, they are generally eating snacks while watching television, therefore, they gain more energy.^{31–33} Food advertisements, especially on the television, effect the children's food consuming behaviors and their decisions on which food to consume.^{4,34}

Therefore, in recent years the anxiety levels related to the negative effects of television advertisements on children's food consuming behaviors are gradually increasing.

Although there are recent studies on the effects of television advertisements on children, there are only a few studies on the effects of television advertisements on children's purchasing requests^{1,35–39} and content of the television advertising.^{40–46}

The purpose of this study is to examine both the advertiser's contents on television and the children's food consuming behaviors together. In the first part of the study, content analysis of television advertisements have been conducted. In the second part, children's food consuming behaviors while watching television and their food purchasing requests during shopping were examined.

Method

This study was conducted in two parts. In the first part, content analysis of the television advertisements, which were during child programs on Saturday and Sunday morning, were examined.

For this purpose the television programs and the advertisements broadcast during the programs between 07.00 hours and 11.30 hours on Saturdays and Sundays were watched for 5 weeks. Also, every week only one channel was watched and the data observed were recorded on a semi-structured observation form and then analyzed.

The second part of the study focused on children's behaviors while watching television advertisements and their purchasing requests during shopping, in children aged 3–8 years old.

In the second part of the study, a questionnaire was given to 347 parents. A total of 104 of these parents' children were

attending first, second, and third grades of the primary schools and 243 of the children were attending the pre-schools.

In order to gather data for this research, the schools of these children were visited and the teachers were informed about the research and they were asked to help in delivering the questionnaire to the families. It was indicated that families which have more than one child should complete the questionnaire for considering their child who is in the specified age group.

Statistical analysis was done using the χ^2 analysis for dichotomous variables and ANOVA for continuous variables.

The demographic characteristics of the subject group for this research were as follows: 9.5% 3 years old; 20.7% 4 years old; 39.8% 5 years old; 11.5% 6 years old; 10.1% 7 years old; and 8.4% 8 years old. A total of 47.3% of the children were girls and 52.7% were boys; 31.2% of the children were a single child; 54.2% had two siblings; and 14.7% had three or more siblings. In total, 75% of the parents were high school and university graduates. A total of 90% of the mothers were in the 26–40 years age group and 85% of the fathers were 31 years old or above.

Results

Different channels were observed each weekend and were watched between 7.00 and 11.30 in the morning and the data related to the programs and the advertisements broadcast during the programs were recorded. At the end of 5 weeks, data gathered for the five channels were added up to a mean value and the results are presented in Table 1.

Table 1 indicated that children's programs usually started around 07.00 hours and ended on different hours according to the channels and days.

Between those hours, the total mean time of the children's programs on these five channels was 121 min, and it was observed that programs not appropriate for children were broadcast during the remaining time. When the children's programs were examined, it was determined that 28 of these programs were cartoons, nine were competition programs for children, and one was a soap opera. The rest of the programs were novies (woman programs and magazine programs) that are not appropriate for children.

Total mean amount of broadcast advertisements on the five channels during the morning hours was seven and the total mean time was 35 min. A total of 775 products were presented in these advertisements and the number of food advertisements was approximately 347.

As can be seen from these numbers, children are exposed to advertisements for approximately 35 min on weekends. They are exposed to approximately 1890 min of advertisements on a yearly basis, only during the morning hours on weekends.

In addition, children watch approximately seven lots of advertisements on one weekend and they are exposed to

Table 1 Values of the children's programs and advertisements broadcast during the morning hours on weekends according to channels

	Star Tv		Show Tv		Atv		Kanal D		TRT 1	
	Saturday	Sunday	Saturday	Sunday	Saturday	Sunday	Saturday	Sunday	Saturday	Sunday
Time of the children's program	7.00–10.40	7.00–9.13	7.00–8.41	9.17–9.43	7.35–10.27	7.30–10.15	7.50–12.44	7.50–10.52	8.55–11.30	8.52–9.50
Total time of the children's program	203 min	110 min	89 min.	26 min.	128 min	128 min	213 min	115 min	144 min	58 min
Number of advertisements	5	5	9	6	7	6	9	9	6	6
Total time of advertisements	12 min	10 min	52 min	29 min	41 min	43 min	72 min	53 min	19 min	19 min
Number of products in the advertisements	19	16	93	59	103	82	175	124	51	53
Number of food advertisements	7	5	39	24	50	37	82	58	21	24

347 food advertisements which equates to a total of 18738 food advertisements during a year.

When Table 2 is examined, it can be found that 44.37% of the advertisements broadcast during the children's programs are food advertisements, 26.05% cleaning supplies, and 9.15% journals/magazines. In short, it can be indicated that nearly half of the advertisements broadcast during this period consist of food advertisements. A total of 344 of the 775 advertisements are related to food.

When Table 3 is examined, it can be seen that the food advertisements given during the morning hours on weekends include 28.53% candy/chocolate, 23.91% chips, 12.96% milk and derivations of milk such as cheese and yogurt, and 11.64% breakfast cereals.

However, there were no advertisements about fruit/vegetables, legume and eggs which are the most important nutrients.

Table 2 Types of products advertised on television channels

Type of advertisement	<i>n</i>	%
Food advertisement	344	44.37
Cleaning supplies	202	26.05
Journal/magazine	71	9.15
Make-up and beauty products	61	7.87
Shoes/slippers	22	2.83
Furniture/kitchen supplies	16	2.04
GSM	13	1.67
Bank	11	1.41
Toys	8	1.03
Car	9	1.15
Benzine	1	0.13
Diaper	7	0.90
Chewing gum	9	1.28
Battery	1	0.12
Total	775	100.00

In addition, the meat/fish advertisements were mostly about canned food.

During the data gathering period there were no ice-cream and little soft drink advertisements on the television channels and we think that the reasons for this may be due to the fact that the research was conducted during the autumn/winter period and ice-cream and soft drink consumption in Turkey decreases during this season.

The data gathered from the parents of the children were evaluated and the results of the analysis showed that during weekdays, children watched television for approximately 143 min (2h and 38 min) and on weekends approximately 202 min (3h and 36 min); the results also showed that children

Table 3 Types of food advertisements given on the television channels

Type of food	Total	
	<i>n</i>	%
Candy/chocolate	99	28.53
Chips	83	23.91
Milk and derivations of milk	45	12.96
Breakfast cereals	41	11.81
Ready-made soup/flavor	17	4.90
Biscuit/cake	14	4.03
Acidic soft drinks (e.g. cola)	12	3.46
Non-acidic soft drink (e.g. fruit juice)	11	3.17
Oil/margarine	8	2.31
Tea/coffee	6	1.73
Ketchup/mayonaise	4	1.15
Pasta	2	0.57
Jam	2	0.57
Meat/fish	2	0.57
Olive	1	0.28
Total	347	100.00

Table 4 Distribution of food consumed by children while watching television ($n=347$)

Food consumed while watching television	<i>f</i>	%
Fruit	211	60.8
Soft drinks	153	44.1
Cake/pasta	117	33.7
Chocolate/candy	100	28.8
Popcorn/nuts	127	36.6
Chips	116	33.4
Nothing	36	10.4

in the 5–6 year old group spent more time on watching television during weekends than the other age groups ($f(5,300) = .003$, $P > 0.05$). In short, these results show that children spend approximately 19h during a week watching television.

The results of the analysis showed that 89.6% of children had a snack while watching television (Table 4). It was determined that 60.8% of children consumed fruits while watching television, 44.1% consumed soft drinks, 36.6% corn/nuts, 33.7% cake, 33.4% chips, and 28.8% chocolate/candy.

As can be seen from Table 5, while 17.6% of the children pay attention to the advertisements, it was also found that children in the age group of 4–5 years showed attentive behavior more than the children in the other age groups. In contrast, 6.9% of the children were determined to do whatever they were doing and not taking any notice of the advertisements. This result was especially true for the elder children. In addition, it was found that 32.85% of the children asked their parents to buy the products presented in the advertisements while watching them and that this behavior was highly observed in the 4–5 year old children.

Furthermore, approximately 95% of the families indicated that they talked about the nutritional values of the food presented in the the advertisements and that they also talked about the benefits and harms of the products for the health of children.

The results determined that 2.6% of the children did not show any reaction towards buying the products when they saw advertised products while they were shopping at the supermarket with their parents; 13.5% pointed to the products they saw

on advertisements and made some comments about it; 40.3% wanted their parents to buy the products they saw on the advertisements; and 8.9% insisted on buying the products and cried ($X(45) = 55.55$, $P > 0.05$; see Table 6).

It was observed that 3–6 year old children were more insistent on crying for advertised products while they are shopping than the other age groups. However, there was no correlation between the amount of time that children spent watching television and requesting a purchase while shopping.

In contrast, it was observed that the children of the parents who indicated that they talked about the products presented in the advertisements showed more purchasing requests of the products (46.5%) and insisting/crying (40%) than the children of the parents who indicated that they did not talk about the products presented in the advertisements (15% and 11.1%, respectively; $X(19) = 39.84$, $P < 0.05$).

According to the results of the analysis, 59.1% of the children requested candies; 50.7% of them requested non-acidic soft drinks (fruit juice); 33.7% of them requested acidic soft drinks (such as cola); 26.8% of them requested milk and related products; and 5.5% of them requested fish and meat products from their parents when they go shopping together (Table 7).

Discussion

In the first part of the study it was determined that in the morning programs have seven advertisement breaks and that the total mean time of these advertisements was 35 min. It was found that approximately 775 products were presented in these advertisements and almost half of these advertisements were about food.

The results of this study are similar to the results of previous studies. The results of other studies also indicated that about half of the advertisements broadcast during the period in which children watch television excessively and on children's channels were food advertisements.^{42–44,46,47}

In a study by Gamble and Cotugna, it was found that 63% of all the advertisements were food and drink advertisements and that these advertisements were poor in nutritional qualities.⁴¹

Table 5 Children's behaviors towards advertised products while watching advertisements

Behaviors observed during watching advertisements	Total		Frequency of observed behaviors					
	<i>n</i>	%	Age					
			3	4	5	6	7	8
Pays attention	61	17.6	8	14	32	3	3	1
Watches for a few minutes	116	20.2	14	23	39	18	11	11
Looks from time to time	70	33.4	7	15	24	6	9	9
Does not care	24	6.9	2	1	6	4	6	5
Makes comment about the products	102	29.4	9	23	47	8	7	8
Wants the products	114	32.85	8	28	58	9	7	4

Table 6 Children's behavior towards advertised products in supermarkets

Behaviors observed at the supermarket	Total		Frequency of observed behaviors					
			Age					
	<i>n</i>	%	3	4	5	6	7	8
No reaction	47	2.6	5	8	15	6	7	6
Says has seen it on television	120	13.5	12	29	45	10	17	7
Requests the product	140	40.3	9	26	64	19	10	12
Insists on the product	31	8.9	6	7	11	4	1	2

When the food advertisements broadcast on television are examined it can be seen that more than half of these are candy, chocolate and chips advertisements which are harmful for the dental health of children and which include high amounts of fat and sugar that increases the risk of obesity, while it can be seen that there were no advertisements on fruit/vegetable, legume or egg which consist of vitamins, minerals and proteins that are the basic elements of child development.

In a study conducted by Kotz and Story, it was also found that 43.6% of food advertisements given on television consist of fat and sugar involving foods such as candy, chocolate, drinks and cakes. However, only 1.6% of the advertisements were about food with high nutrition levels such as meat, fish, legume and eggs and there were no fruit or vegetable advertisements.⁴³

In other studies, it was also found that more than half of the food advertisements are about food involving 'high levels of fat and sugar'.^{41,42,44,45,47-49}

Both from our and other studies results, it is indicated that children are exposed to high amounts of food advertisements. However, most of these food advertisements are not about food with high nutrition levels consisting of vitamins, minerals and proteins important for children, instead they are about food with high levels of fat and sugar. These unhealthy foods can cause tooth decay in children and can especially increase the risk of obesity.

It was found that during weekdays children watched television for approximately 143 min (2 h 38 min) and on weekends they watched television approximately 202 min (3 h 36 min) and that the 5-6 year old children spent more time watching television on weekends than did any other age group.

Other studies also show similar results and indicate that children spend 2-5 h a day watching television⁵⁰⁻⁵³ and that from ages 2-4 years there is an increase in daily viewing hours which peaks at about age 5, then decreases until the age of 7 years.⁵⁴

Berger indicated that 'the most important effect of television on children is not the effect that it will cause but the things that it will prohibit'.⁵⁵ This is because the television takes away the children's playtime, prevents their creativity⁵⁶ and social development, and decreases their communication skills.^{57,58}

Table 7 Total requests for types of products in the supermarket

Products requested	Number of requests	% of requests
Candy/chocolate	205	59.1
Non-acidic soft drinks (fruit juice)	124	35.7
Acidic soft drinks (cola)	116	33.7
Biscuit/cake	128	36.9
Ice-cream	176	50.7
Milk and derivations of milk	93	26.8
Fish and meat products	19	5.5
Fruit/vegetable	22	6.3

Television also has an important effect on children's health beside the effect it has on their development. The results of the analysis showed that 90% of the children ate or drank while watching television and that one-third of the food preferred by children while watching television were unhealthy nutrients involving fat and sugar such as popcorn/nuts, chips, chocolate, candy and cake.

In other studies, it was also found that children would have a snack while watching television.^{40,59}

It is obvious that children spend long periods of time watching television without moving. In addition to this, they consume unhealthy foods which have high rates of fat, salt and sugar during these period. This can increase obesity in early ages. Also, the reason for obesity and overweight problems in children were examined by many researchers and they pointed out that spending long hours in front of the television is the most important factor.^{8,23-30}

Longitudinal research determined that there is a direct relationship between the time spent watching television and obesity and every additional hour spent watching television increased obesity by 2%.⁶⁰ In other studies, it was also found that children watching television for more than 4-5 h a day were more overweight than children watching television for 2 h or less.^{23,27,28,60}

The results of the study showed that younger (preschool age) children paid more attention to advertisements than the older children. Children in this age group compared to the elder children show that they would insist more from their parents to buy advertised products and when that specific products was not purchased they started to argue and cry to get what they wanted.

Other studies also determined that demands during shopping decreased according to age,³⁷ and preschool children made more requests than the older elementary school children.³⁵ In addition to this, children's requests were effected by the television advertisements.³³

It was determined that as the children grew older their desires to purchase the goods they see on the television advertisements showed a decrease; this can be explained by the

increase in their cognitive understanding of the advertisements. The cognitive development of the preschool-aged children takes place in the preoperational period. During this period, children do not understand the real intent of the advertisements.^{34–36,52,61} Before the ages of 7 or 8, children find the advertisements fun, entertaining (e.g. advertisements are funny) and containing unbiased information (e.g. advertisements tell you about things you can buy).⁶¹ For this reason, this age group believe in every message that they receive from the television advertisements. Children who believe that the vitamins in the advertisements will make them grow faster and become bigger and stronger may consume these goods excessively.⁵⁵ By the ages of 7–8, children develop an understanding about the intents of the advertisements.^{36,61,62} For children at the age of 8 or older, knowledge about advertising can be determined to be a cognitive defense against advertising.⁶¹ According to Ward, Wackman and Wartella, age has an important function in children's cognitive understanding of advertisements.⁶²

Another reason for not insisting, can be that elder children's experience about how their parents will react to their demands about shopping/purchasing. Parent's reactions towards their children during prior shopping experiences may effect the children's future shopping demands.^{37,62} Parents usually accept the demands of their elder children on buying some specific goods⁶² or they can convince them about their decisions.³⁷

Other studies also found that children experience some problems with their parents if the products that they ask from the markets are not purchased.^{33,63} This study determined that when children went shopping with their parents, they mostly wanted to buy candy/chocolate, ice-cream, biscuit/cake, fruit juice, and soft drinks.

Isler *et al.* found that more than half (54%) of the things the children asked for were snack/dessert food, candy, cereal, fast foods, and fruits and vegetables.³⁵ Paley and White found that the items the children requested the most were cereals and candies and that these were the items most frequently advertised.³⁹

The advertisements broadcast on television and the products children wanted during shopping are examined and the results show that these products are the one's which are advertised the most. Other studies also indicated similar results.³⁹ Taras *et al.* found that there was a parallel relation between the frequency of the advertisements and the children's wanting to buy the items they see on the advertisements; and they also found that the children would prefer the goods they saw in the advertisements.³³

In addition to this, during the period in which the study was conducted it was found that there were only few acidic soft drink advertisements (3.46%) and there were no advertisements for ice-cream. However, the findings of the study show that ice-cream (50.7%) and coke (33.7%) were the two items which the children requested the most from their parents during shopping. Both of these are the goods which are highly advertised during the summer season in Turkey, but because

of the season these goods are rarely or never advertised during the autumn/winter period. However, during the study period these two items were requested the most by the children and this brings the question of 'how long does the effect of advertisement last on children?' As can be seen, this effect is not a short-term one. There is a need for an intensive study into this as no studies have been conducted on this issue.

Conclusion

To conclude, we can say that the children are the direct targets of the television channels. It can be observed that television channels give place to food advertisements mostly during the morning hours on weekends when children watch television excessively and the advertised foods are mostly the one's which involve high levels of fat and sugar.

In addition to this, when the behaviors of children are examined, it can be observed that children consume food which are rich in fat and sugar while watching television and have problems with their parents about buying the products they have seen on the advertisements. It was also observed that the foods which are requested the most by children during shopping where the foods rich in fat and sugar and which were found more in the advertisements.

This shows that children in the younger age groups are affected more from the advertisements broadcast on television and reflect these more in their consuming behaviors. In short, children's food consuming behaviors are affected from the children's television food advertisements.

Children especially in the younger age groups are consuming foods that have poor nutrients of vitamins, minerals, and proteins and this could carry important developmental and health risks. These foods could be rich in fat and sugar, therefore, increasing the risk of obesity during childhood. Also, it affects tooth decay in early childhood and increases the risks of cardiovascular diseases, diabetes and chronic diseases in later life.

In conclusion, it can be suggested that in order to decrease these risk factors, parents can organize the television watching time of their children in the early years; they can prevent their children from eating and drinking while watching television; and as an alternative, food advertisements can be prohibited during the time when children are most likely watching television.

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