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Article

A content analysis of food advertising on Turkish television

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Summary

The aim of this study was to conduct a comprehensive content analysis of Television (TV) food advertising and compare various food advertisements on free-to-air Turkish national TV channels by broadcast time (duration) and frequency over the period of a week (19–25 April 2012). TV food advertisements were the unit of content analysis in this study. Each advertisement identified as promoting a food product was analysed for content; non-food advertisements were not analysed, although they were counted as a proportion of the advertisements aired. We recorded all programmes for 4 h each per day (7 p.m.–11 p.m.), totalling 84 h. Five types of food-related advertisements were identified (basic foods, junk foods, meat products, beverages and fast food), and six types of non-food advertisements. The Student *t*-test and ANOVA were used to compare the mean broadcast time of all prime time advertising for the two groups. The mean broadcast times for prime time, non-food advertisements showed a statistically significant difference ($p < 0.05$). This difference is related to the prime time period 7 p.m.–8 p.m. being considered dinner time for most Turkish families. Additionally, the number and broadcast times of beverage advertisements increased during this time period, while the broadcast time per beverage advertisement decreased (ratio = 20.8 s per ads). As a result, TV food advertising increased not only during dinner time but also in overall broadcast time (per advertisement). These findings may be useful for explaining how advertising can negatively influence food choices, thereby increasing public awareness of the need for health messages targeting obesity.

Key words: food advertisement, television, adults, Turkey

INTRODUCTION

Television (TV) advertising has been a major factor contributing to the obesity epidemic because of increasing public exposure to food advertisements. TV food advertisements lead consumers to eat enjoyable foods by stimulating emotional eating. Many studies indicate that adults and children consume substantial amounts of food calories while sitting in front of the television, and many of these calories come from unhealthy foods (Henderson and Kelly, 2005; Guran *et al*., 2010; Bodenlos and Wormuth, 2013). Overweight and obesity are recognized worldwide as public health problems because they frequently lead to chronic diseases that are associated with high mortality rates (Adams *et al*., 2009; Gray-Abbatangelo *et al*., 2008; Ali and Crowther, 2009; Bodenlos and Wormuth, 2013; Han *et al*., 2013). Obesity prevalence

has increased notably around the globe not only in developed countries but also in developing countries (Gray-Abbatangelo *et al.*, 2008; Han *et al.*, 2013). Health professionals have focused on the prevalence of the advertising of calorie-dense, low-nutrient foods as a major contributor to the obesity epidemic (Henderson and Kelly, 2005). The global epidemic of obesity is the result of a number of factors including (i) genetic susceptibility, (ii) increased availability of high-energy foods and (iii) decreased physical activity requirements of modern society (Henderson and Kelly, 2005; Kunkel and McKinley, 2007; Harris *et al.*, 2009). The trend toward increased sedentary behaviour, such as TV watching, contributes to obesity. The relationship between TV watching and obesity is well documented by research studies (Adams *et al.*, 2009; Bodenlos and Wormuth, 2013; Boyland and Halford, 2013). Different aspects of the relationship have been examined, but a key concern of all the studies is the influence of food advertisements on the population. Exposure to food advertisements affects food choices and nutritional habits, which can lead to increased health risks and obesity (Adams *et al.*, 2010; Boyland and Halford, 2013; Raynor *et al.*, 2013). It has been reported that more than 60% of overweight incidence among children and adolescents in the USA can be attributed to TV watching. Notably, it has been shown that TV watching in childhood can (independently) indicate increased body mass index in adulthood, suggesting a causal link (Boyland and Halford, 2013). Previous research, both experimental and observational, has demonstrated that there is a positive relationship between TV watching and food consumption among adults. TV watching is strongly correlated with the number of hours of TV watched and body mass index in adults, especially women (Henderson and Kelly, 2005; Scully *et al.*, 2008; Bodenlos and Wormuth, 2013; Raynor *et al.*, 2013). A study of a sample of overweight women with diabetes found that most of the meals were consumed while watching TV (Bodenlos and Wormuth, 2013).

In the USA, adult women watch ~4.5 h of TV per day (Gray-Abbatangelo *et al.*, 2008). According to the Turkish Radio and Television Supreme Council (RTSC) 2012 research report, the average TV watching time in Turkey is 3.7 ± 2.3 h/day on weekdays and 4.4 ± 2.3 h/day on weekends (RTSC, 2012).

As reported in previous studies, there is a positive relationship between the number of hours of TV watching and adult obesity. Increased TV watching has been associated with increased caloric intake and decreased quality of diet among children and adolescents, which results in high consumption of foods rich in fat and low consumption of fruits and vegetables (Feldman *et al.*, 2007; Scully *et al.*, 2008). Data from the Youth Risk Behaviour Survey indicated that adolescents who reported watching TV more than 2 h per day were more likely to consume inadequate servings of fruits and vegetables compared with adolescents who reported two or fewer hours of TV watching per day (Feldman *et al.*, 2007).

The evening meal is usually a regular and important part of people's lives. Understanding how people cognitively construct (think about) the evening meal can provide insight into the social and behavioural processes used in food choices (Blake *et al.*, 2008). As emphasized in previous studies, it has been found that watching TV during main meals or family meals is associated with lower intakes of vegetables, grains and dairy foods, and higher intakes of soft drinks and fried foods, leading to increased body weight (Feldman *et al.*, 2007; Scully *et al.*, 2008; Vik *et al.*, 2013).

A number of studies have examined food advertisement exposure on children's TV programmes during prime daytime hours. However, there are few studies of food advertisement exposure during prime night-time hours. The aim of this study was to conduct a comprehensive content analysis of TV food advertising and to compare food advertisements on selected Turkish TV channels by broadcast time, frequency and prime night-time hours.

METHODS

A content analysis was conducted on TV food advertisements broadcast on the three most popular (according to TV ratings), free-to-air, Turkish national TV channels viewed across the whole country (RTSC, 2012). We collected data on TV food advertising for a week (Thursday 19 to Wednesday 25 April, 2012), from 7 p.m. to 11 p.m. During the study week, we recorded all programmes that included TV advertisements between 7 p.m. and 11 p.m. A total of 84 h of data were collected. The procedures used were similar to those of other researchers (Guran *et al*, 2010; Mink *et al.*, 2010; Chapman *et al.*, 2006).

Before analyzing the data, the advertisements were divided into two main groups: food-related advertisements and non-food advertisements. The food-related advertisement group was then divided into five subgroups and the non-food advertisement group was divided into six subgroups, as follows:

(i) Food-related advertisements
   (a) Basic foods: foods that supply necessary nutrients for the body, including milk, yogurt, cheese, bread, eggs, baby foods.
   (b) Junk foods: foods high in sugar and fat and low in nutrients, including candies, packaged cakes/cookies and other desserts, chips.

(c) Meat products: various processed meats that are easy to eat without cooking, including salami, sausage, pastrami, soujouk.
(d) Beverages: beverages such as processed fruit juices, carbonated beverages, tea and coffee. Drinking water was excluded.
(e) Fast food: foods known as *fast food*, also the packaged, ready-to-eat foods that require little heating, such as frozen pizza, some types of Turkish kebabs.

(ii) Non-food advertisements
(a) Gasoline or various fuels.
(b) Communication and media devices.
(c) Personal care products.
(d) Home decoration.
(e) Home cleaning products.
(f) Finance and investment.

TV food advertisements were the unit of content analysis in this study. Each advertisement identified as promoting a food product was analysed for content; non-food advertisements were not analysed, although they were counted as a proportion of all advertisements aired. The focus was on food advertisements because of their importance in understanding and combatting obesity.

Descriptive statistics were calculated to demonstrate the percentage and frequency of advertisements. The Student *t*-test was used to determine the differences between two advertisement groups in TV prime time periods (7 p.m. to 8 p.m.; 8 p.m. to 9 p.m.; 9 p.m. to 10 p.m.; and 10 p.m. to 11 p.m.). Analysis of variance (ANOVA) was calculated to compare the mean broadcast time of all prime time groups per advertisement groups. All statistical analyses were carried out using the Statistical Package for Social Science, version 17.0 (SPSS Inc., Chicago, IL, USA). The Student *t*-test was used for comparisons of continuous data and a two-sided p value <0.05 was considered statistically significant.

RESULTS

A total of 1588 advertisements, broadcast over 84 h of programming, were analysed. Of these, 472 (29.7%) were food-related advertisements, an average of 5.6 food-related advertisements per hour of programming. When the broadcast time of advertisements in all prime time periods was analysed, communication advertisements had the longest average (mean) broadcast time (120.89 s).

Comparison of broadcast number of food-related advertisements was also considered by their groups (duration in seconds) (Figure 1). The total broadcast time for food-related advertisements was 216.97 s, and the total number of advertisements was 472 (2.18 s per advertisement); the total broadcast time for non-food advertisements was 408.41 s and the total number of advertisements was 1116 (2.73 s per advertisement).

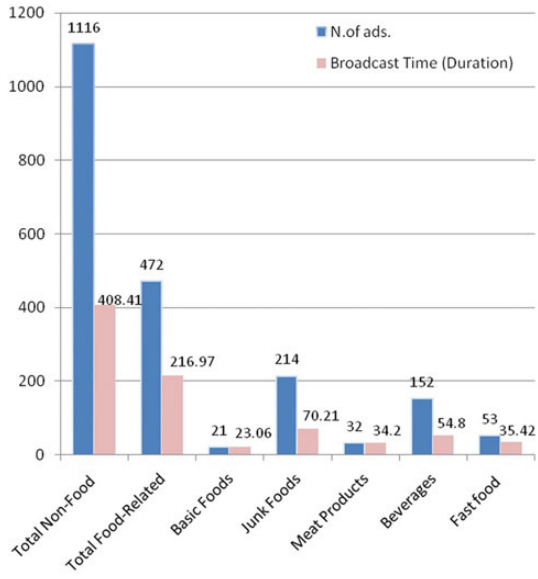

Fig. 1: Comparison of non-food and food-related TV advertisements by number of ads and duration of broadcast time (in seconds), Turkish TV 2012.

According to data, in a 4-h (240 min) period of TV watching duration, 21 basic food advertisements (1 advertisement per 11 min), 214 junk food advertisements (1 advertisement per 1.12 min) and 152 beverage advertisements (1 advertisement per 1.6 min) have been viewed in Figure 1. The lowest average broadcast time was for the basic food advertisements (23.06 s), whereas the highest average broadcast time was for the junk food advertisements (70.21 s). The number of junk food advertisements is 10.2 times greater than the number of basic food advertisements (214/21). Similarly, beverage advertisements are 7.23 times greater than basic foods (152/21).

There was no statistical difference between the various food-related advertisements for the mean broadcast time, according to prime time ($p > 0.05$). However, the mean broadcast time by prime time for non-food-related products was found to have a statistically significant difference ($p < 0.05$). This difference is associated with the prime time 7 p.m. to 8 p.m. (Table 1).

In every prime time, when the mean broadcast time for food-related and non-food advertisements are compared (for the four periods of time), a statistically significant

Table 1: Comparison of food-related advertisements and non-food advertisements on TV by number of ads and broadcast time of ads in seconds (minimum, maximum and mean), according to the prime time broadcast periods, Turkish TV 2012

Prime time periods	Food-related advertisement[a]					Non-food advertisement[b]					t	p Value
	Number of ads	Minimum	Maximum	Mean	SD	Number of ads	Minimum	Maximum	Mean	SD		
7 p.m.–8 p.m.	149	6.00	52.00	31.90	12.33	321	31.67	95.00	66.39	18.48	7.11	0.00
8 p.m.–9 p.m.	119	6.00	54.00	27.90	14.25	242	12.50	93.33	49.21	23.06	3.58	0.00
9 p.m.–10 p.m.	108	6.00	60.00	24.86	13.61	269	26.67	79.17	55.99	13.70	7.39	0.00
10 p.m.–11 p.m.	96	12.00	63.00	27.83	14.83	284	6.67	91.67	54.25	23.68	4.23	0.00
Total	472	6.00	63.00	28.14	13.72	1116	6.67	95.00	56.46	20.75	10.36	0.00

SD, standard deviation.
[a] $F = 0.930$; $p = 0.45$.
[b] $F = 2.69$; $p = 0.041$.

difference between the two groups has been observed ($p < 0.05$). In all prime time periods, the mean broadcast time for non-food advertisements was more than twice that of food-related advertisements (Table 1).

Table 2 shows trends in advertisement numbers and broadcast times during the prime time periods. Beverage and junk food advertisements are at the highest frequency between 7 p.m. and 9 p.m. Of the 472 food-related advertisements, only 21 were related to basic foods. However, despite the number of total advertisements decreased, broadcast time per advertisement increased through the prime time periods. As indicated in Table 2, while the number and broadcast time of beverage advertisements increased during 7 p.m. to 8 p.m., the broadcast time per beverage advertisement decreased (ratio = 20.8).

DISCUSSION

This study presents data on broadcast timing and frequency of food-related advertisements and non-food advertisements on free-to-air national Turkish TV channels. We compared food-related and non-food advertisements with respect to the broadcast time and frequency during the prime time period (7 p.m. to 11 p.m.) on Turkish TV channels during 1 week in 2012. We focused on advertisements during night-time prime time television, when adults are most likely to be watching TV, in contrast to other research studies that have mainly focused on children's programmes and associated food advertisements (Feldman *et al.*, 2007; Kunkel and McKinley, 2007; Harris *et al.*, 2009; Han *et al.*, 2013). However, we found that the prime time period attracts both adults and children, and large numbers of children continue watching TV until midnight (Guran *et al.*, 2010). Health authorities believe that the accumulation of unhealthy messages communicated to children through food advertising is a leading cause of consumption of unhealthy foods (Harris *et al.*, 2009). Behaviours adopted early in life can predict later habits; it is not surprising that more time spent watching TV during youth is a strong predictor of compromised health later in life (Boulos *et al.*, 2012). It is important to consider the possible negative effects of exposure to food-related TV advertisements, especially the health effects on adults.

According to RTSC research on trends in TV watching, in 2012 TV watching time among all age groups was highest between 6 p.m. and 9 p.m. (53.7%) and between 9 p.m. and 12 a.m. (61.0%) on weekdays; on weekend days, exposure was even higher: 6 p.m. to 9 p.m. (57.1%) and 9 p.m. to 12 a.m. (70.2%). The highest average durations of TV watching on weekdays were 2 h (23.5%), 3 h (23.5%) and 4 h (16.4%). On weekend

Table 2: Number of ads, duration of broadcast time (in seconds) and the ratio of broadcast time to ads (broadcast time/number of ads) by prime time periods and food-related advertising groups, Turkish TV 2012

Food-related advertising group	Prime time periods											
	7 p.m.–8 p.m.			8 p.m.–9 p.m.			9 p.m.–10 p.m.			10 p.m.–11 p.m.		
	Number	Broadcast time	Ratio[a]	Number	Broadcast time	Ratio[a]	Number	Broadcast time	Ratio[a]	Number	Broadcast time	Ratio[a]
Basic foods	6	155	25.83	3	60	20.00	9	155	17.22	3	45	15.00
Junk foods	64	1525	23.83	58	1320	22.76	52	1345	25.87	40	1005	25.13
Meat products	10	195	19.50	5	185	37.00	8	220	27.50	9	255	28.33
Beverages	56	1165	20.80	36	850	23.61	28	620	22.14	32	880	27.50
Fast food	13	310	23.85	17	375	22.06	11	270	24.55	12	320	26.67
Total	149	3350	22.5	119	2790	23.4	108	2610	24.2	96	2505	26.1

[a]Ratio = (broadcast time/number).

days, average duration of TV watching was higher: 3 h (17.9%), 4 h (17.7%) and 5 h (17.0%) (RTSC, 2012). Han *et al.* (Han *et al.*, 2013) reported that adult Korean women spent ~3 h per day, on average, watching TV in 2010, slightly longer than men. In the USA, the average adult woman watches about 4.5 h of TV per day (Gray-Abbatangelo *et al.*, 2008).

Exposure to food advertising is positively correlated with the TV watching time (Harris *et al.*, 2009). The RTSC study found that 56.4% of people change the channel (on advertisements), 30.8% watch part of the advertisements and 10.7% watch the advertisements completely. Among TV watchers, 62.5% were disturbed by the frequency of all advertisements, while only 4.4% were disturbed by the frequency of food product advertisements (RTSC, 2012).

In this study, a total of 1588 advertisements broadcast during 84 h of programming were analysed. Approximately one-third (29.7%) of these advertisements were food-related, which is an average of 5.6 advertisements per hour.

A study by Adachi-Mejia *et al.* (Adachi-Mejia *et al.*, 2011) found that food advertisements make up a large proportion of TV advertising, an estimated 23–57% of all TV commercials, depending on the channel and time of day. In a study by Guran *et al.* (Guran *et al.*, 2010) covering 256 h of TV broadcasting that included 8853 TV advertisements, a total of 2848 (32.1%) were found to be related to food. The same study reported that of 43.1 h of advertising, 16.2 h (37%) were food or beverage advertisements (Guran *et al.*, 2010).

Frequency of food-related advertisements was 5.1 per hour in Canada. Adams *et al.* (2009) and Guran *et al.* (2010) noted that the Canadian data showed a slightly smaller proportion of food advertisements among all TV advertisements (~32%), compared with the USA (47%).

In the present study, junk food advertisements have the highest frequency in both broadcast time and number. Fast food and beverage advertisements are higher in broadcast time and number than basic food advertisements. The differences were found statistically significant. Several studies have shown that the majority of advertisements broadcast on TV are for foods that are high in energy density and low in nutritional value, and these foods are considered unhealthy (Adachi-Mejia *et al.*, 2011; Dovey *et al.*, 2011; Boyland and Halford, 2013; Han *et al.*, 2013). In our study, it was found that unhealthy foods such as junk foods, beverages and fast foods have the highest percentage in total food-related advertisement (88.7%). Another Turkish study found similar results: 81% of food advertisements on TV were for foods low in nutritional value and high in fat and sugar (Guran *et al.*, 2010).

According to RTSC reports, the highest TV watching period is between 6 p.m. and 12 a.m. on weekdays. An increase in the proportion of food advertisements among all advertisements broadcast during the prime time has also been noted. This study found that not only advertisements in general, but food-related advertisements in particular, increased during the 7 p.m. to 8 p.m. prime time period. This is the culture in Turkey, where dinner time for most families is during this time period. Several studies have indicated that when exposed to food advertisements, both children and adults consumed more foods than did those not exposed to food advertisements (Scully *et al.*, 2008; Harris *et al.*, 2009; Guran *et al.*, 2010; Boulos *et al.*, 2012; Bacardí-Gascón *et al.*, 2013; Bodenlos and Wormuth, 2013; Boyland and Halford, 2013).

Consumption behaviours can also be activated through automatic processes such as external cues which may not be related to the sensory qualities of food and affect the amount consumed without the consumer's knowledge (Gray-Abbatangelo *et al.*, 2008; Harris *et al.*, 2009; Wonderlich-Tierney *et al.*, 2013). In some families, watching TV during meals is common practice, with a reported 64% of children aged 11–18 watching TV during meals (Feldman *et al.*, 2007; Powell *et al.*, 2007). In similar studies it is reported that watching TV during a meal contributes to increased energy intake and could thereby be associated with increased consumption of unhealthy foods and body mass index (Feldman *et al.*, 2007; Boulos *et al.*, 2012; Vik *et al.*, 2013).

The intentional use of certain items in TV programmes is a form of promotion in which advertisers methodically place brand-name products (product placement). There are three basic forms of product placement: (i) visual: a specific product, logo, or sign is prominently shown; (ii) auditory: the product is specifically mentioned or (iii) a product is part of the background but attention is not drawn to it during a programme (Boulos *et al.*, 2012). Visual and verbal figures examined in a research study were used to produce mental images that led to more favourable attitudes towards advertisements. The results of this research showed that visualization and auditory content can contribute to strengthening the recall of advertising messages (Mzoughi and Abdelhak, 2011). Children have been found to recognize brand logos at very young ages and a recent study found that preschoolers exhibited significantly higher preferences for food and beverage items in branded versus plain packaging (Powell *et al.*, 2010).

Many researchers have reported that snack advertising has increased consumption of unhealthy foods, as much by adults as by children, because the power of food-related advertising is that it promotes automatic eating behaviours, and the influence of food advertising extends far beyond brand preference alone. Furthermore, the effects of food-related advertisements persist after the viewing session (Halford *et al.*, 2004; Lobstein and Dibb, 2005; Feldman *et al.*, 2007; Scully *et al.*, 2008; Harris *et al.*, 2009; Dovey *et al.*, 2011).

In comparing broadcast time and number of food-related advertisements, the basic food group advertisements have 1.09 s per ad of broadcast time. On the other hand, the broadcast time is 0.33 s per ads for junk foods and 0.36 s per ad for beverages. It indicates that the exposure to junk food and beverage advertisements is shorter than other basic advertisements. The ratio of junk food advertisement is 10.19 times more than basic food advertisements. Similarly, beverage advertisements are 7.23 times more than basic foods. Despite these wide range ratios, the broadcast time of junk food advertisements are 3.04 times more than basic foods and the exposure for beverage advertisements is 2.38 times more than basic foods.

The findings of this study can be accepted as potential visual and auditory effects of food advertisements which are reported in the previous research (Boulos *et al.*, 2012). Many studies emphasize the link between high body mass index and exposure to food advertisements while watching TV. TV food advertisements may not be related to a particular product but, in many cases, the placement of foods and the use of brand-name items are intentional. Familiarity with the advertised food, including characteristics such as taste and smell, provoke the desire to consume not only the advertised food but also similar products; this behaviour pattern relates to the sense of initial hunger reported by study participants (Harris *et al.*, 2009; Boulos *et al.*, 2012; Bacardí-Gascón *et al.*, 2013). Behaviours can be learned through observation, and repeated exposure to stimuli such as food advertisements can produce individual responses. External cues have a significant influence on food consumption behaviours. The sensory properties of food items or the images of attractive models eating, snacking and expressing positive emotions about food consumption have the effect of increasing food consumption and contributing to changing patterns of food choices (Gray-Abbatangelo *et al.*, 2008; Harris *et al.*, 2009). The impact of TV food advertisements continues long after the advertisement has been viewed because of the mental link established between remembering food advertisements and eating more of these foods. This finding indicates that susceptibility to food cues contributes to overeating and promotes weight gain in individuals (Dixon *et al.*, 2007; Calvert, 2008).

In our knowledge, this is the first descriptive study which aimed to determine the broadcast time, number

and content of food advertisements on free-to-air Turkish TV Channels during night prime time. In this study, the food preferences related to food advertisements were not analysed. However, this study is important to raise awareness about the possible negative effects of food advertisement according to TV watching time.

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