



JRHS

Journal of Research in Health Sciences

journal homepage: www.umsha.ac.ir/jrhs



Original Article

Content Analysis of Islamic Republic of Iran Television Food Advertising Related to Oral Health: Appeals and Performance Methods

Taraneh Movahhed (DDS)^a, Safoura Seifi (DMD)^b, Anousheh Rashed Mohassel (DDS)^c, Mojtaba Dorri (PhD)^d, Fateme khorakian (DDS)^e, and Zahra Mohammadzadeh (DDS)^{f*}

^a Oral and Maxillofacial Diseases Research Center, Department of Community Oral Health, School of Dentistry, Mashhad University of Medical Sciences, Mashhad, Iran

^b Dentist, Mashhad, Iran

^c Dental Research Center, Department of Pedodontics, Faculty of Dentistry, Birjand University of Medical Sciences, Birjand, Iran

^d College London Dental Institute, University College London, London, UK

^e Dental Material Research Center, Department of Community Oral Health, School of Dentistry, Mashhad University of Medical Sciences, Mashhad, Iran

^f Dental Research Center, Department of Community Oral Health, School of Dentistry, Mashhad University of Medical Sciences, Mashhad, Iran

ARTICLE INFORMATION

Article history:

Received: 11 December 2013

Revised: 13 March 2014

Accepted: 16 April 2014

Available online: 25 May 2014

Keywords:

Food

Content analysis

Television

Advertising

Oral health

* Correspondence

Zahra Mohammadzadeh (DDS)

Tel: +98 915 5193518

E-mail: mohammadzadehz@mums.ac.ir

ABSTRACT

Background: Today, electronic mass media such as television (TV), influence behavioral patterns of their audiences. This study aimed to evaluate what messages on food advertisements related to oral health were transmitted (appeals) and how they were transferred (performance methods & artistic techniques) in Islamic Republic of Iran Broadcasting (IRIB).

Methods: In this cross sectional study, broadcasted advertisements on 4 important channels of Iran TV were recorded for a week from 8 am to 12 pm in 2012. The content and volume of food advertisements were investigated using a researcher-made check list. Advertisement group (food, non-food), food group (non-cariogenic, cariogenic), advertisement appeals (rational, emotional, and humor content), advertisement performance methods (hard-sell, soft-sell, presenting confirmation of Ministry of Health and Medical Education), and artistic technique were assessed. For variable comparison in groups a chi squared test and t-tests were used via SPSS software.

Results: Frequency of food advertisements (14.9%) were less than non-food advertising. Non-cariogenic food advertisements had higher frequency (12.09% (compared to cariogenic food (2.8%). Rational appeal in advertising of non-cariogenic food had the most frequency (64.9%). In contrast emotional appeal for cariogenic food was used more frequently (85.5%). For cariogenic foods, a soft-sell approach was used more frequently (95.5%). The most common artistic technique used in food advertising was music. Chemical and mechanical dental plaque control materials had a very low frequency (0.2%).

Conclusions: Advertising of cariogenic foods in Iran TV has low frequency.

Citation: Movahhed T, Seifi S, Rashed Mohassel A, Dorri M, khorakian F, Mohammadzadeh Z. Content Analysis of Islamic Republic of Iran Television Food Advertising Related to Oral Health: Appeals and Performance Methods. J Res Health Sci. 2014; 14(3): 205-209.

Introduction

Social media play a key role in shaping an individual's mental and behavioral patterns. Today, television (TV), radio, press (e.g. newspapers) and internet are the commonly known media resources. It is speculated that TV has the strongest effect on shaping social and individual life style¹. TV advertisements influence the choice of food for consumers, especially children²⁻⁸. Furthermore in an investigation, power of food advertising to prime automatic eating has been confirmed⁹. Although in most cases parents are not willing to buy the advertised food chosen by their child, children can override parents by insisting on having a certain food¹⁰. Unfortunately, a large number of food related TV advertisements encourage children to consume cariogenic foods¹¹⁻¹⁴.

In Iran, a few studies investigated the impact of TV advertisements on food choices by children¹⁵⁻¹⁷. Amini et al.,

in 2005, reported that the mean duration of snack advertisements in Iranian National TV was more than other advertisements. Furthermore, the frequency of innutritious TV food advertisements was higher than healthy food choices¹⁸. Majority of children in Iran were heavy viewer of TV¹⁹. This indicates the extent of Iranian children's exposure to TV advertisements.

The food related TV advertisements could largely influence children's and family food choices. There is overwhelming evidence supporting the direct relationship between food choices and health¹³. These, therefore, suggests the content of TV food advertisements can have an important impact on health¹¹. For example, TV advertisements promoting foods containing high amounts of acids and sugars could negatively affect oral health, as sugar and acidic foods can cause dental caries and tooth wear, respectively.

Therefore, in order to improve the public's oral health the TV advertisements promoting these types of foods should be banned or at least reduced. There is no known study which investigated the frequency and duration of food advertisement related to oral health on Iranian national TV.

The present study aimed to evaluate the frequency and duration of food advertisements related to oral health on 4 major channels of Islamic Republic of Iran Broadcasting (IRIB). Furthermore, we examined what messages related to oral health were transmitted (appeals) on food advertisements and how they were transferred (performance methods & artistic techniques) in IRIB. The results of this study provide information on the public's exposure to TV non-cariogenic and cariogenic food advertisements. This could in turn inform national and local health policy makers.

Methods

In this cross-sectional study, the televised programs on four major channels of IRIB (including three national channels of 1, 2 and 3, and one local channel for the Khorasan Razavi Province) were recorded from 8 am to 12 pm during one week (in May 2012). There were no national, religious or political events during this period, as these events could affect the TV's routine schedule for different programs or advertisements. The programs were recorded by Soroush Multimedia Corporation, on a 750 GB silicone power hard disk (Silicon Power Corporation, Taiwan). The duration of each advertisement was calculated with an AVS Video Recorder version 2.5.1.75 (Taiwan) by an observer.

The advertisements were grouped as non-food, non-cariogenic food, and cariogenic food. For each advertisement, the day and time of broadcasting, the duration, and the group of advertisements were recorded in a checklist. Chocolates, lollipops, cakes, biscuits, sugary drinks, such as juice, carbonated or non-carbonated soft drinks and energy drink, crisps, and puffed cheese were grouped as cariogenic foods. Water, eggs, milk and dairy products were grouped as non-cariogenic foods ^{14,20-21}.

TV advertisements were also categorized with regards to the following criteria:

1. Appeal: This type of TV advertisement has rational, emotional, and humorous content. Rational appeal works on the viewer's logic. Thus, it tries to convince that the advertised object is of high quality, economic and valuable. Emotional appeal tries to encourage the viewer to purchase rather than mentioning the product benefits.
2. Performance method: including hard-sell, soft-sell, presenting confirmation of Ministry of Health and Medical Education. In the soft-sell method, the advert has an indirect manner and shows the consumer or consumers who is eating advertised food. In the hard-sell method, the advert has a direct manner and the advertiser encourages the viewer to purchase the product.
3. Target group: including children, adolescents, adults, and public.
4. Artistic techniques: including music, animation, close ups, and ret scope ²².

The adverts were coded by two observers. Inter-rater reliability was 0.75. To calculate the intra-rater reliability, 10% of the adverts were observed and coded for a second time after ten days by the same observer. The intra-rater reliability was 90%. After evaluation of the records, the quantitative variables were presented by frequency and central indices. The qualitative variables were presented using frequency of distribution and chi-square tables respectively. For intra-group comparisons, chi-square and t-test analysis were used.

Results

In total, 2167 TV adverts were recorded during the week which was approximately equal to hours in the four channels of 1, 2, 3, and Khorasan Razavi. The difference between frequency of food and non-food adverts was statistically significant ($P<0.001$). The frequency of non-cariogenic food adverts was significantly more than cariogenic food adverts ($P<0.001$) (Table 1).

Table 1: The frequency of non-cariogenic food, cariogenic food, and non-food adverts on four TV channels

Advertisement category	Channel 1 Number (%)	Channel 2 Number (%)	Channel 3 Number (%)	Khorasan Razavi Channel Number (%)	Channels 4 Number (%)
Non-cariogenic food	145 (24.1)	24 (9.1)	67 (8.6)	26 (8.3)	262 (12.1) ^a
Cariogenic food	8 (1.3)	14 (8.2)	40 (5.2)	0 (0.0)	62 (2.8) ^a
Non-food	447 (74.5)	445 (92.1)	666 (86.2)	285 (91.6)	1843 (85.0) ^a

^a P value: <0.001

The mean duration of adverts was 16.5 ± 12.07 minutes in the food group (non-cariogenic and cariogenic) and 28.28 ± 29.4 minutes in the nonfood group. The difference in the mean duration of adverts between the food and nonfood groups was statistically significant ($P<0.001$).

Table 2: The frequency distribution of appeal in non-cariogenic and cariogenic food adverts

Advertisement category	Rational Number (%)	Emotional Number (%)	Humor Number (%)	Total Number (%)
Non-cariogenic food	170 (64.9)	77 (29.4)	15 (5.7)	262 (100.0)
Cariogenic food	1 (1.6)	53 (85.5)	8 (12.9)	62 (100.0)
Total	161 (51.3)	130 (41.4)	23 (7.3)	324 (100.0)

Overall, 324 adverts were related to foods; however only in 126 of the adverts could the performance method be deter-

mined. The adverts that presented a confirmation by the Ministry Of Health And Medical Education were grouped as

'presenting confirmation'. The method of presenting confirmation was used more than other methods (hard-sell and soft-sell) in the food adverts in total (non-cariogenic and cariogenic) (Table 3). However, in the cariogenic food adverts group, the most common method was the soft-sell method. The frequency distribution of adverts performance method was significantly different between non-cariogenic and cariogenic food groups ($P<0.001$).

Music was the artistic technique used most in the adverts (68.4%). There was a significant difference in the frequency

Table 4: The frequency of artistic techniques in non-cariogenic and cariogenic food adverts

Advertisement category	Music Number (%)	Close up Number (%)	Retoscope Number (%)	Animation Number (%)	Total Number (%)
Non-cariogenic food	185 (70.9)	9 (3.4)	18 (6.9)	49 (18.8)	261(100.0)
Cariogenic food	29 (46.8)	25 (40.3)	0 (0.0)	8 (12.9)	62(100.0)
Total	214 (68.4)	34 (10.9)	18 (5.8)	47 (15.0)	323(100.0)

Regarding the target group, most of the adverts addressed of the all public. There was a significant difference between

Table 5: The frequency distribution of target groups in non-cariogenic and cariogenic food adverts

Advertisement category	Children Number (%)	Adolescents Number (%)	Adults Number (%)	All public Number (%)	Total Number (%)
Non-cariogenic food	12 (4.6)	5 (1.9)	19 (7.3)	226 (86.3)	262 (100.0)
Cariogenic food	0 (0.0)	9 (14.5)	0 (0.0)	53 (85.5)	62 (100.0)
Total	12 (3.7)	14 (4.3)	19 (5.9)	279 (86.1)	324 (100.0)

In total, only five out of 2167 (0.2%) of the adverts recorded during the experiment week were adverts of chemo-mechanical plaque control merchandises, which only included chewing gums.

Discussion

This study showed that the frequency of TV food adverts was less than TV non-food adverts (15% to 85%). We also found that the mean duration of food adverts was less than non-food adverts. These findings are in conflict with previous studies in Iran regarding the content of TV food adverts. In previous studies, food adverts had the highest duration comparing to other TV adverts and their frequency was reported as one of the highest frequencies of advertisements^{17,22}. In comparison with other studies, the frequency of food adverts in the IRIB is low²³⁻²⁹.

Previous studies in Iran reported that most of the food adverts in the IRIB channels had low nutritious value and contained high amounts of fat, simple sugar, and salt^{13,17,22}. Fortunately, the findings of the present study showed that, the frequency of non-cariogenic food adverts was higher than cariogenic food adverts (80.9% to 19.1%). It is worth noting that this difference may partly be related to the difference in the definitions used for non-cariogenic and cariogenic foods in this study and previous studies. In the present study, only the amount of sugars and acids, and not fats and salt, were considered for distinguishing between non-cariogenic and cariogenic foods. However, there is still the promising assumption that the IRIB has taken an effective supervising policy on the content of food adverts.

Neville et al. reported that half of the TV food adverts in Australia introduced food with high amounts of sugar and fat¹⁴. In 2005, 95.3% of food adverts in England were related to potentially cariogenic or erosive products²³. In 2012, 57% of food adverts in Singapore were related to cariogenic food²⁴. In comparison, the Iranian TV adverts have a lower

of artistic techniques between non-cariogenic and cariogenic food adverts ($P<0.001$) (Table 4).

Table 3: The frequency distribution of advert performance method in non-cariogenic and cariogenic food groups

Advertisement category	Soft-sell Number (%)	Presenting confirmation Number (%)
Non-cariogenic	38 (36.5)	66 (63.5)
Cariogenic	21 (95.5)	1 (4.5)
Total	59 (46.8)	67 (53.2)

the target groups in non-cariogenic and cariogenic food adverts ($P<0.001$) (Table 5).

number advertising cariogenic food content. In Iran, there are no private TV channels, and television is exclusively run by the authority. On private channels, advertising which may also contain cariogenic food adverts is necessary for survival. This may force the TV executive to compromise the content of their TV adverts. The IRIB, as a state medium supported by authority, does not merely rely on advert revenue.

Different advertising policies may be adopted by different TV channels. In our study, the highest frequency of cariogenic food adverts was related to channel 3 (37.4%). This channel broadcasts all types of programs aimed at young adults, including sports, movies, and TV series.

Regarding advertisement appeals, in non-cariogenic and cariogenic food adverts, rational (64.9%) and emotional (85.5%) appeal had the highest frequency, respectively. Considering that emotional appeal only deals with senses, it is the best way to convince consumers to choose the product³⁰. When the advertised object is non-cariogenic, rational appeal can be appropriately used to introduce the advantages.

Regarding the performance method, presenting confirmation had the highest frequency in food adverts (53.2%). In cariogenic food group, the highest frequency of performance method belonged to the soft-sell method (95.5%). As cariogenic food cannot be directly advised, the soft-sell method is subtly used to unconsciously persuade consumers. Undoubtedly, this method acts more effectively on the audience especially children and adolescents. Our search indicated previous studies about food adverts had not evaluated this aspect. The most frequent artistic technique used in food adverts was music (68.4%). Guran et al. showed that 30% of cariogenic fattening food adverts in Turkey aimed at children used audio-visual techniques³¹. Music is a communication tool. Music can impede rejective logics by mild distraction³². This artistic technique also acts as a good reminder. Whilst shopping, the music is recalled comes back to mind

immediately by seeing the product, and the consumer will be encouraged to buy it.

Limitations of our study were time consuming of advertising record and short period of recording (a week). It is suggested that future studies be done in different seasons and longer time periods. We did not have access to media psychologist advisor in Mashhad City, it is better to use the consultant in future study.

This study showed that most of the adverts addressed all of the public (all ages). Amini et al. showed that the adverts broadcast during children's and adolescent's TV programs would mostly address children (54%) while at other times, all ages of the public were addressed¹³.

Conclusions

The frequency and duration of food adverts were lower than other adverts on the IRIB channels. Non-cariogenic food adverts were more frequent than cariogenic food adverts. The most used appeal, performance method and artistic technique in food adverts were: rational appeal, presenting confirmation and music, respectively. Most of the TV food adverts, addressed all ages of the public.

The findings of this study showed a promising decline in frequency and duration of cariogenic food adverts on Iranian TV. TV food adverts should be in line with the public's health. Cariogenic food adverts should be limited, if not banned, and the disadvantages of such products should be mentioned. The IRIB should be encouraged to broadcast more adverts regarding plaque control products which can both increase knowledge and direct people to use these products. Further research is necessary to change the health behaviors and choice of food towards a non-cariogenic diet, for children and adults.

Acknowledgments

This study has been approved by the Research Council of Mashhad University of Medical Sciences, Mashhad, Iran. We would like to thank Helen Price for her assistance with drafting this paper. The results presented in this study have been taken from a student thesis (no: 2571).

Conflict of interest statement

This study has no conflict of interest.

References

1. Esmi R, Saadipour E, Asadzadeh H. The relationship between watching TV commercials and consumption pattern of Tehran's children and adolescents. *Quarterly Journal of Communication Research*. 2010; 17(1 (61));93-117. [Persian]
2. Cairns G, Angus K, Hastings G, Caraher M. Systematic reviews of the evidence on the nature, extent and effects of food marketing to children: a retrospective summary. *Appetite*. 2013;62:209-215.
3. Halford JC, Boyland EJ, Hughes GM, Stacey L, McKean S, Dovey TM. Beyond-brand effect of television food advertisements on food choice in children: the effects of weight status. *Public Health Nutr*. 2008;11(9):897-904.
4. Schmitt J, Voilquin JP, Aubrege A, Langinier D. Television, advertising, and nutritional behavior in children. *Bull Acad Natl Med*.1989;173(6):701-706.
5. Donkin AJ, Neale RJ, Tilson C. Children's food preferences: television advertising vs. nutritional advice. *Br Food J*. 1989;94:946-949.
6. Woodward DR, Cumming FJ, Ball PJ, Williams HM, Hornsby H, Boon JA. Does television affect teenagers' food choices? *Journal of Human Nutrition and Dietetics*. 1997;10(4):229-235.
7. Hitchings E, Moynihan PJ. The relationship between television food advertisements recalled and actual foods consumed by children. *J Hum Nutr Dietet*.1998;11:511-517.
8. Muller MJ, Koertzing L, Mast M, Langnasa K, Grund A. Physical activity and diet in 5 to 7 years old children. *Public Health Nutr*. 1999;2(3A): 443-444.
9. Harris JL, Bargh JA, Brownell KD. Priming effects of television food advertising on eating behavior. *Health Psychol*. 2009;28(4):404-413.
10. Kelishadi R, Hashemipou M, Roohafza HR, Sadeghi M. The relationship between commercial messages Television and food choices by children and adolescents. *J Isfahan Univ Med Sciences*. 2004;22:71. [Persian]
11. Galbraith-Emami S, Lobstein T. The impact of initiatives to limit the advertising of food and beverage products to children: a systematic review. *Obes Rev*. 2013;14(12):960-974.
12. Story M, French S. Food advertising and marketing directed at children and adolescents in the US. *Int J Behav Nutr Phys Act*. 2004;1(1):3.
13. Amini M, Mohsenian Rad M. What foods aimed at kids on TV advertisement? *Iranian Journal of Nutrition Sciences and Food Technology*. 2007;2(1):49-57. [Persian]
14. Neville L, Thomas M, Bauman A. Food advertising on Australian television: the extent of children's exposure. *Health Promot Int*. 2005;20(2):105-112.
15. Karami K, Cheraghi M. A glance of children health related food advertisements on channel 2 and News network of Iran. *Pak J Nutr*. 2011;10(11):1029-1031.
16. Karimi-Shahanjarini A, Omidvar N, Bazargan M, Rashidian A, Majdzadeh R, Shojaeizadeh D. Iranian female adolescent's views on unnon-cariogenic snacks consumption: a qualitative study. *Iranian J Publ Health*. 2010;39(3):92-101.
17. Assadi Beygi K. *Book articles of the first conference of Iran advertising industry*. Tehran: Ministry of Culture and Islamic Guidance; 1998. [Persian]
18. Amini M, Mohsenian-Rad M, Kimiagar M, Ghaffarpour M, Omidvar N, Mehrabi Y. Food advertising on Iranian children's television: a content analysis and: an experimental study with junior high school students. *Ecology of Food and Nutrition*. 2005;44(2):123-133.
19. Nazari MR, Hj Hassan MS, Parhizkar S, Abu Hassan M. Correlation between children's television advertising exposure and their food preference. *J Media Commun Stud*. 2011;3(8):263-268.
20. Bligh M, Hoolihan L. *Simplistic nutrition recommendations: unintended consequences*. California: Nutrition Dimension, Inc & Dairy Council of California; 2010. Available from: http://www.nutrition411.com/ce_pdf/SimplisticNutritionRecommendationsUnintendedConsequences.pdf
21. National Health & Medical Research Council. *Dietary guidelines for children and adolescents in Australia incorporating the infant feeding guidelines for health workers*; April 2003. Available from:

- http://movewelleatwell.tas.gov.au/___data/assets/pdf_file/0006/78810/Dietary_Guidelines.pdf
22. Aghakianat H, Salehi Sade Z, Dibaji F. TV audience and advertising. *J Media*. 1998; 9(4):90-93. [Persian].
 23. Rodd HD, Patel V. Content analysis of children's television advertising in relation to dental health. *Br Dent J*. 2005;10;199(11):710-712.
 24. Huang L, Mehta K, Wong ML. Television food advertising in Singapore: the nature and extent of children's exposure. *Health Promot Int*. 2012;27(2):187-196.
 25. Scully P, Macken A, Leddin D, Cullen W, Dunne C, Gorman CO. Food and beverage advertising during children's television programming. *Ir J Med Sci*. 2014: In press.
 26. Mejía-Díaz DM, Carmona-Garcés IC², Giraldo-López PA, González-Zapata L. Nutritional content of food, and nonalcoholic beverages advertisements broadcasted in children's slot of Colombian national television. *Nutr Hosp*. 2014;29(4):858-864.
 27. Guran T, Turan S, Akcay T, Degirmenci F, Avci O, Asan A, et al. Content analysis of food advertising in Turkish television. *J Paediatr Child Health*. 2010;46(7-8):427-430.
 28. Powell LM, Szczypka G, Chaloupka FJ. Exposure to food advertising on television among US children. *Arch Pediatr Adolesc Med*. 2007;161(6):553-560.
 29. Morgan M, Fairchild R, Phillips A, Stewart K, Hunter L. A content analysis of children's television advertising: focus on food and oral health. *Public Health Nutr*. 2009;12(6):748-755.
 30. Mohebi SF. TV commercial advertisements (methods, techniques, dos and don'ts). *Communication Research*. 2008;29:375-387. [Persian]
 31. Guran T, Turan S, Akcay T, Degirmenci F, Avaci O, Asan A, et al. Content analysis of food advertising in Turkish television. *J Paediatr Child Health*. 2010;46:427-430.
 32. Pratkanis A, Aronson E. *The age of propaganda*. 5th ed. Tehran: Soroush Publications; 2006. [Persian]