



Television Advertising and Development of Dental Caries in Children Aged 6 to 12 Years

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Abstract

Introduction: Advertising today is increasingly seen to be targeting children as they can be easily persuaded. The influence on them is reinforced by children's difficulty in perceiving messages critically, in distinguishing the real from the imaginary, in their great confidence in messages from the media and popular characters and personalities, and in their inability to recognize risk and their propensity for imitation.

Aim: The aim of the study was to investigate the impact of television advertising on children's nutritional preferences and the intensity of dental caries in children aged 6 to 12 years.

Materials and methods: The study included 277 children (158 boys and 119 girls) aged 6 to 12 years from different schools in Sofia. A survey was used to assess the nutritional preferences of these children who are under the influence of watching television commercials. The DMF (T+t) index introduced by Klein, Palmer & Knutson (1938) was used to assess the intensity of dental caries. A correlation analysis was performed between the time spent watching TV and the development of dental caries.

Results: Many children buy on their own or ask their parents to buy advertised sweet candies, fizzy drinks and fruit juices, which are a risk factor for the development of dental caries. The results show that the longer they spend in front of the TV, the stronger the pronounced caries activity in children, supported by a statistically significant difference ($p < 0.001$), $Rho(277) = 0.438$.

Conclusions: The studied children aged 6 to 12 years have unhealthy dietary preferences for low molecular weight carbohydrate foods, increasing their oral risk profile. Prolonged standing in front of the TV screen correlated with an increase in the intensity of dental caries in half of the children.

Keywords

advertised products, eating habits, intensity of dental caries, oral health, TV ads (commercials)

INTRODUCTION

Television is the most modern channel for mass communication. The role of television as a source of human impact has increased in recent years. In Bulgaria, research shows that food and beverage ads are 124 (33.4%) of all ads, with

96.8% being for unhealthy foods.¹ It is stated that 57% of these ads are specifically aimed at children, with the most advertised products being salty and sweetened snacks, cereals, pastries, soft drinks and carbohydrate juices and salty foods.¹

Children watch TV most of their free time. They are exposed to advertisers' messages and are vulnerable to

complex food advertisements, often harmful to oral and general health.² Globally, television is considered the most widely used form of media for advertising food and beverages, especially those high in sugar, fat and salt, and therefore playing an important role in food choices.³ Thus, the time spent watching TV can be considered a risk factor for higher consumption of food and beverages of low nutritional quality, through the impact of advertising on food preferences⁴ and the consumption of unhealthy foods, especially when they are children and adolescents⁵.

Over the last 15 years, the correlation between the television and unhealthy eating habits has been well documented especially when it comes to children and adolescents; this contributes to the increase of overweight and obesity in them.⁶⁻⁸ A high-sugar diet is an important risk factor not only for the development of obesity, diabetes, but also for the dental caries which is one of the most common chronic non-infectious diseases with the second highest incidence in the world.^{9,10} It constitutes an important public health problem worldwide.² A diet containing foods rich in sugar is always associated with the development of caries.¹¹

AIM

The aim of the study was to investigate the impact of television advertising on children's nutritional preferences and the intensity of dental caries in children aged 6 to 12 years.

MATERIALS AND METHODS

The study included 277 children aged 6 to 12 years from different schools in Sofia. There were 158 boys and 119 girls in the study cohort. Some of the survey questions by Neeta Ghimire and Arathi Rao² were used. The DMF (T+t) index of Klein, Palmer & Knutson (1938) was used to assess the intensity of dental caries.

Statistical analysis

The results were statistically analysed using IBM SPSS Statistics 20 (IBM, USA). We used the following descriptive evaluation methods: variational analysis of quantitative variables and frequency analysis of qualitative variables (nominal and rank), which includes absolute and relative frequencies. To test the null hypothesis that there is no connection/association between television advertising, children's nutritional preferences and the intensity of dental caries, a χ^2 test of association was performed. The Spearman rank correlation coefficient was used to study the association between caries and time spent in front of the TV.

To calculate the size of the effect in those nominal variables, the Cramer V test (or Phi coefficient) was performed. Values of $V=0.06$ to 0.17 would refer to a small effect; $V=0.18$ to 0.29 to a medium effect, and $V>0.30$ would refer to a large effect size (Cramer, 2016).

RESULTS

The results of the survey are presented in **Tables 1** and **2**. In order to determine whether there is a difference in the eating habits and watching TV commercials for girls and boys in different age groups, χ^2 analyses were performed and the Pearson ratio was calculated. Where there was statistical significance, the magnitude of the effect was calculated.

The results of the survey show that all surveyed children watch TV. Approximately half of them watch TV at any time, and the rest do it in the afternoon and evening.

Most of the children watch TV for more than an hour and a half a day, which is a worrying fact, as research shows that spending more than an hour a day in front of a TV or computer is a predisposing factor for obesity.

The majority of children prefer to watch movies and music programs, and the rest - cartoons, popular science films, and series. Almost equal numbers are the children of both genders who watch commercials and others who do not. As a reason not to watch commercials, the majority of children indicated a prohibition from parents. Another reason given by one-third of the surveyed children is that the ads are boring. The rest of the respondents noted that they watch other channels during the broadcast of advertisements.

It is noticeable in the children's answers that most of them ask their parents to buy advertised sweet treats, carbonated drinks and fruit juices, which are a risk factor for the development of dental caries.

On the last question, most of the children's answers show that the reason for buying the advertised products is the attractive advertising with color and music. The answers of the other children, who indicated other reasons for buying advertised products, are almost equally distributed. These are the habit of buying the advertised products and advertising presented by a favourite character or actor.

The results in **Table 1** show that there is a statistically significant difference in the answers to questions 1, 2, 4, 5, 9 by children of both sexes.

The results (**Table 2**) suggest that there is significant difference between the answers to all questions from the children in both age groups. We have found in our study that the most commonly purchased advertised foods are sweet treats - chocolate, candies, cookies, cakes and others, as well as soft drinks - carbonated drinks and fruit juices, which have a high cariogenic potential. There are fewer toys and oral hygiene products that are bought after watching advertisements.

Fig. 1 presents the results of the children's answers, how much time they spend in front of the TV screen during the day. Half of the children watch TV for more than 90 minutes a day. Prolonged TV watching is harmful to health, increases the risk of obesity, diabetes, cardiovascular diseases, hypertension, and decreases visual acuity.

The results show that the longer children spend in front of the TV, the stronger the pronounced caries activity in them, supported by a statistically significant difference ($p<0.001$), $Rho(277)=0.438$ (**Table 3**). After applying

Table 1. Distribution by sex of answers to the children's questions

Questions	Girls (n=119)	Boys (n=158)	<i>p</i>
1. When do you watch TV?			
In the morning	0	0	
In the afternoon	32	28	<0.001
In the evening	25	57	V=0.256**
Anytime	62	73	
2. How many minutes do you watch TV?			
< 30 min	16	15	
30 – 60 min	19	41	0.005
60 – 90 min	12	33	V=0.214**
> 90 min	72	69	
3. What kind of program do you watch regularly?			
Cartoons	9	16	
Popular science films	12	14	
Music programs	31	35	0.350
Movies	47	52	
Series	20	41	
4. Do you like watching TV commercials?			
Yes	67	68	0.019
No	52	90	φ=0.131*
5. If not, what is the reason for not watching ads?			
The ads are boring	2	31	
My parents don't let me	44	58	<0.001
I watch other channels during commercials	6	1	V=0.329***
6. You buy yourself or ask parents to buy advertised products?			
Yes	73	46	0.503
No	98	60	
7. Most frequently bought advertised products			
Sweet treats - chocolate, candies, cookies, cakes; chips, snacks, sticks, etc.	80	104	
Carbonated drinks and fruit juices	21	35	0.751
Oral hygiene products	7	7	
Toys	11	12	
8. Reason for buying advertised products			
The ad is very attractive with color and music	59	76	
The ad has a favourite actor/character	21	41	0.200
Habit of buying advertised products on television	39	41	
9. Do you consume food while watching TV?			
Yes - specify what: chocolate, candies, biscuits, chips, snacks, sticks, carbonated drinks or fruit juices, fruits or vegetables	91	126	<i>p</i> <0.001
No	28	32	V=0.408***

*Small, **medium, ***large size effect according to Phi coefficient (for 2×2 table) and Cramer's V (larger than 2×2 table)

Table 2. Distribution by age of answers to the children's questions

Questions	6-8 years (n=152)	9-12 years (n=125)	<i>p</i>
1. When do you watch TV?			
In the morning	0	0	
In the afternoon	39	21	<0.001
In the evening	38	44	V=0.930***
Any time	75	60	
2. How many minutes do you watch TV?			
< 30 min	25	6	
30 – 60 min	40	20	<0.001
60 – 90 min	26	19	V=0.265***
> 90 min	61	80	
3. What kind of programs do you watch regularly?			
Cartoons	21	4	
Popular Science films	9	17	
Music programs	13	53	<0.001
Movies	57	42	V=0.499***
Series	52	9	
4. Do you like watching TV commercials?			
Yes	23	112	<0.001
No	129	13	$\phi=-0.741^{***}$
5. If not, what is the reason for not watching ads?			
The ads are boring	0	7	
My parents don't let me	100	2	<0.001
I watch other channels during commercials	29	4	V=0.793***
6. You buy yourself or ask parents to buy advertised products?			
Yes	59	112	<0.001
No	93	13	$\phi=-0.520^{***}$
7. Most frequently bought, advertised products			
Sweet treats - chocolate, candies, cookies, cakes; chips, snacks, sticks, etc.	83	101	
Carbonated drinks and fruit juices	40	16	<0.001
Oral hygiene products	7	7	V=0.323***
Toys	22	1	
8. Reason for buying advertised products			
The ad is very attractive with color and music	15	47	
The ad has a favourite actor/character	111	24	<0.001
Habit of buying advertised products on television	26	54	V=0.539***
9. Do you consume food while watching TV?			
Yes - specify what: chocolate, candies, biscuits, chips, snacks, sticks, carbonated drinks or fruit juices, fruits or vegetables	110	107	<0.001
No	42	18	$\phi=0.077^*$

*Small , **medium, ***large size effect according to Phi coefficient (for the 2x2 table) and Cramer's V (larger than the 2x2 table)

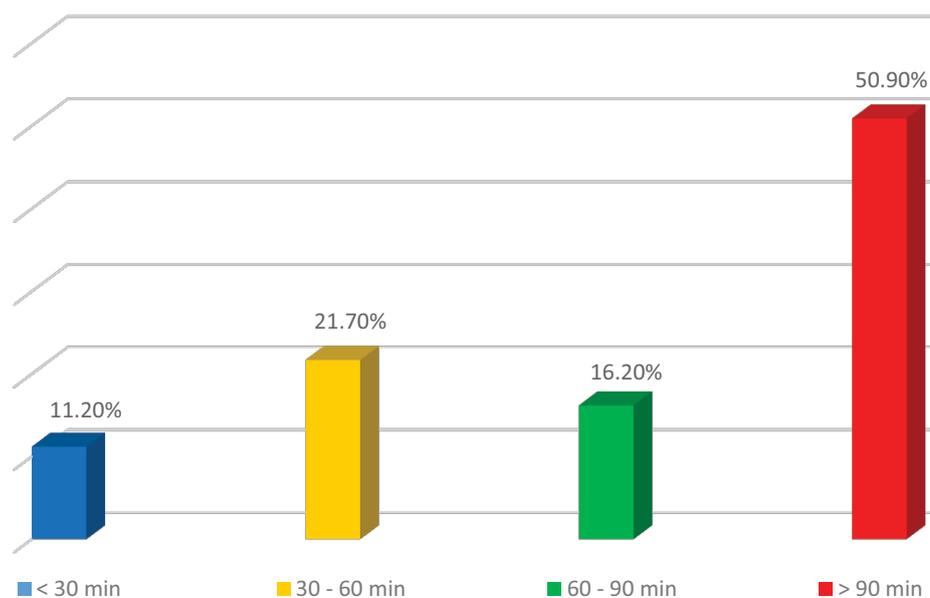


Figure 1. Watching TV by children aged 6-12 years.

Table 3. Correlation between watching television and dental caries

DMF (T+t) TV time	0.0 – 1.1	1.2 – 2.6	2.7 – 4.4	4.5 – 6.5	≥6.6	Total	<i>p</i>
< 30 min	10	21	0	0	0	31	
30 – 60 min	8	24	28	0	0	60	Rho=0.438
60 – 90 min	1	13	17	12	2	45	<0.001
> 90 min	3	20	52	48	18	141	

Cohen's guide (Cohen, 1988) we found that the magnitude of the effect was close to average. Our study demonstrates a strong relation between the times spent watching TV and the results of dental caries.

DISCUSSION

Television appeared on the advertising market in the United States in 1943, when television advertising was first broadcast. In the early 60's, television advertising entered the life of almost all developed countries.^{12,13} It uses color, sound, different characters, actions, plots, rhymes, brevity and clarity of messages to attract children's attention. Expressive means influence their emotional choice. Television advertising has a great power to persuade and inform children and influences not only the choice of the child and his parents, but also forms patterns of behavior, creates stereotypes, preferences and attitudes.

Children are becoming a very attractive object for the advertising business because they consume many products that are designed specifically for them, but also because they also influence the choice of their parents.

There is still little evidence in the scientific literature on the link between watching television, particularly TV advertisements, and dental caries. Oliveira et al. point out that account must be taken of the fact that children and adolescents watch television an average of 2 hours a day, as well as the fact that dental caries is associated with frequent carbohydrate intake and the presence of free sugars, which are metabolized to acids by microorganisms in dental biofilm, leading to demineralization of enamel¹², as this process continues throughout life¹⁴. The high content of sugar in the diet is a serious risk factor for the development of dental caries, which is one of the most common diseases and the second most common one in the world, but also for obesity, diabetes and other chronic non-infectious diseases.^{8,9} This has an impact on the health budget in low-income countries and covers approximately 60%–90% of school-age children in the world.¹⁵

In 2015, the World Health Organization recommended a new direction in the prevention of these diseases by reducing the consumption of free sugars, as they are less than 10% of the total caloric intake of children and adults in a way that can lead to even larger reduction of up to 5% of total calorie intake.¹⁶

Children today spend many hours watching television, and working parents spend less time with their children, which is why the media enter children's lives very early. Most TV programs are often interrupted by commercials. Under the influence of advertising, children put pressure on parents to buy advertised products and very often they are a source of conflict between children who want to buy a product and the refusing parents.

The people responsible for the children - parents, teachers, paediatricians, and dentists - need to know where the dangers lie and react to them accordingly.

The role of advertisements in the overall health of children is an issue that has been carefully studied by paediatricians, with an emphasis on the impact of these advertisements on children's eating habits and the role they play in the development of obesity.^{17,18} Legal analysis of the content of television channels and the role they play in the promotion of oral health and the marketing of products considered both harmful and beneficial to oral health.¹⁹⁻²²

According to Galcheva et al.¹, one-thirds of the advertisements of products watched by Bulgarian children are food and drinks, supporting the results of previous surveys.²²⁻²⁴ Almost all food advertisements recorded by researchers do not support the Bulgarian dietary recommendations for healthy and balanced nutrition of children, optimal health and avoidance of obesity (www.mh.government.bg/norm_acts.php).¹ The obtained results confirm the results of international research projects.²⁵⁻²⁹

Dentists should be aware of the effect of these advertisements and advise parents about the dangers of targeted advertising of high-sugar products on the Internet.

Greater exposure of children to unhealthy advertising in the morning on weekends, when children are not at school, resting at home and watching certain television programs (cartoons, shows) that do not require parental supervision, should be considered as a smart marketing method.

Children need to be protected from aggressively targeted unhealthy food promotions during children's television programs.^{7,30} In the Hawkes report³¹ and in the WHO Global Strategy³² for diet, physical activity and health is stated, food advertisements should not take advantage of children's trust and mislead them by encouraging the overconsumption of unhealthy foods that may be harmful to their physical and mental health.

Today, some of the world's market leaders in food and beverage companies began announcing self-regulatory actions to combat childhood obesity such as processing products to reduce calories, fat and sugar and adding vitamins, offering smaller portion sizes; clear labeling and advertising and promotion of training programs in the field of nutrition and physical activity.³³

Our results are in support of the results reported by authors such as Ghimire N et al.², Silva et al.¹³, and Zeng et al.³⁴ that television can influence children's eating habits by stimulating the consumption of cariogenic foods and contributing to the development of dental caries.

CONCLUSIONS

The studied children aged 6 to 12 years had unhealthy dietary preferences for low molecular weight carbohydrate foods, increasing their oral risk profile. Prolonged standing in front of the TV screen correlated with an increase in the intensity of dental caries in half of the children. Dentists, parents and teachers must work actively to change the harmful eating habits in children. The school is a very suitable environment for the promotion of oral health and the development of healthy eating habits and preferences.

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Consent for publication

Written informed consents for publication of any associated data and accompanying images were obtained from all patients.

REFERENCES

- Galcheva S, Iotova M, Stratev K. Television food advertising directed towards Bulgarian children. *Arch Dis Child* 2008; 93(10):857-61.
- Ghimire N, Rao A. Comparative evaluation of the influence of television advertisements on children and caries prevalence. *Glob Health Action* 2013; 6(1):20066.
- Cairns G, Angus K, Hastings G, et al. Systematic reviews of evidence on the nature, extent and effects of food marketing to children. A retrospective summary. *Appetite* 2013; 62:209-15.
- Boylund J, Halford C. Television advertising and branding. Effects on eating behavior and food preferences in children. *Appetite* 2013; 62:236-41.
- Oliveira S, Barufaldi A, Abreu A, et al. ERICA: Use of screens and consumption of meals and snacks by Brazilian adolescents. *Revista de Saúde Pública* 2016; 1:7-11.
- Jenkin G, Madhvani N, Signal L, et al. A systematic review of persuasive marketing techniques to promote food to children on television. *Obesity Reviews* 2014; 15(4):281-93.
- Lobstein T, Dobb S. Evidence of a possible link between obesogenic food advertising and child overweight. *Obesity Reviews* 2005; 6(3):203-8.
- Mennella A. Ontogeny of taste preferences: Basic biology and implications for health. *Am J Clin Nutr* 2014; 99(3):704-11.
- Vos T, Abajobir A, Abbafati C, et al. Global, regional, and national incidence, prevalence, and years lived with disability for 328 diseases and injuries for 195 countries, 1990-2016: A systematic analysis for the Global Burden of Disease Study 2016. *Lancet* 2017; 390(10100):1211-59.

10. Boyland J, Harrold A, Kirkham C, et al. Food commercials increase preference for energy dense foods, particularly in children who watch more television. *Pediatrics* 2011; 128(1):93–100.
11. Gatou T, Mamai-Homata E, Polychronopoulou A, et al. The extent of food advertising to children on Greek television: Focus on foods potentially detrimental to oral health. *Community Dent Health* 2014; 31:68–74.
12. Sheiham A, James W. Diet and dental caries: the pivotal role of free sugars reemphasized. *J Dent Res* 2015; 94(10):1341–7.
13. Silva RMT, Duarte DA, Gomes de Oliveira AM. The influence of television on the food habits of schoolchildren and its association with dental caries. *Clin Exp Dent Res* 2020; 6(1):24–32.
14. Broadbent JM, Foster Page LA, Thomson W, et al. Permanent dentition caries through the first half of life. *British Dental Journal* 2013; 215(7):E12.
15. Treerutkuarkul A, Gruber K. Prevention is better than treatment. *Bulletin of the World Health Organization* 2015; 93(9):594–5.
16. World Health Organization. Guideline: sugars intake for adults and children line. 2015 Geneva. Available from: <https://www.who.int/publications/i/item/9789241549028>.
17. Morgan M, Fairchild R, Phillips A, et al. A content analysis of children's television advertising: focus on food and oral health. *Public Health Nutr* 2009; 12:748–55.
18. Duggal MS, van Loveren LC. Dental consideration for dietary counseling. *Int Dent J* 2001; 51:408–12.
19. Russ SA, Larson K, Franke TM, et al. Associations between media use and health in US children. *Acad Pediatr* 2009; 9:300–6.
20. Brady J, Mendelson R, Farrell A, et al. Online marketing of food and beverages to children: A content analysis. *Can J Diet Pract Res* 2010; 71:166–71.
21. Sukumaran A, Diwakar MP, Shastry SM. A content analysis of advertisements related to oral health in children's Tamil television channels – a preliminary report. *Int J Paediatr Dent* 2012; 22:232–8.
22. Coon KA, Tucker KL. Television and children's consumption patterns. A review of the literature. *Minerva Pediatr* 2002; 54:423–36.
23. Neville L, Thomas M, Bauman A. Food advertising on Australian television: the extent of children's exposure. *Health Promot Int* 2005; 20(2):105–12.
24. Powell LM, Szczypka G, Chaloupka FJ. Exposure to food advertising on television among US children. *Arch Pediatr Adolesc Med* 2007; 161:553–60.
25. Gantz W, Schwartz N, Angelini JR, et al. Food for thought. Television food advertising to children in the United States. Menlo Park, CA: The Henry Kaiser Family Foundation 2007. Available from: <https://www.kff.org/wp-content/uploads/2013/01/7618.pdf>.
26. Gamble M, Cotunga N. A quarter century of TV food advertising targeted at children. *Am J Health Behav* 1999; 23:261–7.
27. Kotz K, Story M. Food advertisements during children's Saturday morning television programming: Are they consistent with dietary recommendations? *J Am Diet Assoc* 1994; 94:1296–300.
28. Hastings G, McDermott L, Angus KW, et al. The extent, nature and effects of food promotion to children: a review of the evidence. Geneva: World Health Organization, 2006. Available from: www.who.int/dietphysicalactivity/publications/Hastings_paper_marketing.pdf
29. Maryam A, Mehdi MR, Masood K, et al. Food advertising on Iranian children's television: A content analysis and an experimental study with junior high school students. *Ecol Food Nutr* 2005; 44(2):123–33.
30. Dibb S, Harris L. A spoonful of sugar. Television food advertising aimed at children: an international comparative study. London: Consumers International, Programme for Developed Economies; 1996.
31. Hawkes C. Marketing food to children: The global regulatory environment. Geneva, Switzerland: World Health Organization 2004.
32. WHO. Global strategy on diet, physical activity and health. Geneva: World Health Organization, 2004. Available from: www.who.int/diet-physicalactivity/en. [Accessed April 10, 2007].
33. Lang T, Rayner G, Kaelin E. The food industry, diet, physical activity and health: a review of reported commitments and practice of 25 of the world's largest food companies. London: Centre for Food Policy, City University, 2006. Available from: <http://www.city.ac.uk/press/The%20Food%20Industry%20Diet%20Physical%20Activity%20and%20Health.pdf> [Accessed July 4, 2006].
34. Zeng X, Sheiham A, Sabbah W. The association between dental caries and television viewing Chinese adolescents in Guangxi, China. *BMC Oral Health* 2014; 14:138–42.

Телевизионная реклама и развитие кариеса у детей от 6 до 12 лет

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Резюме

Введение: Сегодня реклама все больше нацелена на детей, поскольку их легко убедить. Их влияние усугубляется трудностями у детей с критическим восприятием информации, отличием реального от воображаемого, их большим доверием к сообщениям СМИ и известным персонажам, а также их неспособностью распознавать риск и их склонностью к подражанию.

Цель: Целью исследования было изучить влияние телевизионных рекламных роликов на пищевые предпочтения детей и интенсивность кариеса зубов у детей в возрасте от 6 до 12 лет.

Материалы и методы: В исследование были включены 277 детей (158 мальчиков и 119 девочек) в возрасте от 6 до 12 лет из разных школ Софии. Анкета использовалась для оценки пищевых предпочтений тех детей, на которых влияет просмотр телевизионных рекламных роликов. Индекс DMF (T + t), введенный Klein, Palmer & Knutson (1938), использовался для оценки интенсивности кариеса зубов. Был проведен корреляционный анализ между временем просмотра телевизора и развитием кариеса.

Результаты: Многие дети покупают сами или просят родителей купить им рекламируемые конфеты, газированные напитки и фруктовые соки, которые являются факторами риска развития кариеса зубов. Результаты показывают, что чем больше времени они проводят перед телевизором, тем более выражена кариозная активность у детей, что подтверждается статистически значимой разницей ($p < 0.001$), $Rho(277) = 0.438$.

Заключение: Исследуемые дети в возрасте от 6 до 12 лет имеют нездоровые диетические предпочтения в отношении низкомолекулярных углеводов, что увеличивает их профиль перорального риска. Продолжительное пребывание перед экраном телевизора коррелирует с увеличением интенсивности кариеса зубов у половины детей.

Ключевые слова

рекламируемые продукты, пищевые привычки, интенсивность кариеса зубов, здоровье полости рта, телереклама (рекламные ролики)
