

Comparison of the Source of Introduction to Cariogenic Food Substance and Caries Prevalence in Children

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ABSTRACT

Introduction: Dental caries being a multi-factorial disease depends on lot of factors. Since awareness and exposure seems to have increased, in the present scenario it is difficult to assume that one particular source would increase the occurrence of dental caries. Children are exposed to different media sources and spend most of their free time watching them. They are attracted by messages of advertisers' and susceptible to stylish advertisements of foods often harmful to oral and general health.

Aim: To compare the effects of three different sources of introduction to cariogenic food substance among school children and their role in caries prevalence.

Materials and Methods: A total of 300 school children were selected for the study and a questionnaire was prepared

keeping in mind the various sources introducing cariogenic foods to children namely television advertisement, magazines/news paper, posters/banners. Following which oral examination will be done to determine the number of carious lesions in the subjects. The data will be acquired, computed and statistically analysed to compare the correlation between these sources and caries prevalence.

Results: Children who watched television advertisements and asked for food items and soft drinks were found to have more caries and DMFT/dmft index.

Conclusion: A total ban on advertisements would not be practically possible. A more realistic approach would be to limit the number of advertisements that feature potentially cariogenic and unhealthy food products, and also ensure that they ideally carry statutory warnings.

Keywords: Children, Television, Advertisement, Food Purchase, Caries, Oral Health

INTRODUCTION

Dental caries can be defined as the signs and symptoms of a localized chemical dissolution of the tooth surface caused by metabolic events taking place in the biofilm (dental plaque) covering the affected area. The destruction can affect enamel, dentin and cementum [1].

There are four main causes for dental caries is tooth surface (enamel or dentin); cariogenic (or potentially caries causing) bacteria; fermentable carbohydrates (such as sucrose); and time.

Higher sugar-rich foods have always been associated with dental caries [1].

Parents play an important role in shaping children's eating habits. A study was evaluated the influence of both parenting style and parenting practices on child outcomes such as dietary intake [2]. Children are clearly being targeted as a receptive market by the manufacturing industry. In 2006, 12 billion US dollar were invested in marketing strategies directly aimed at children [3]. Advertisements broadcast to children in 13 developed countries found that advertisers promoting food, toys, and entertainment were the most common. Foods advertised when children are most likely to be watching are high in fat and sugar and low in fibre, with relatively few nutrients [4]. Fast foods, high-fat foods, high-sugar foods, and sugar-sweetened beverages are heavily advertised during prime-time programs that target all age groups, including adolescents. Healthy foods, such as fruits, vegetables, whole grains, milk, and low-fat items, are rarely advertised on television banners and posters to increase in food promotion advertisements and children's preference, purchase behaviour, and consumption of the advertised product [5].

The purpose of this study was to compare the effects of three different sources of introduction to cariogenic food substances among school children and their role in caries prevalence.

MATERIALS AND METHODS

The study population comprised of 300 children in three age groups of six, seven and eight years respectively, who attended the dental camp in Seetha Kingston School Chennai, were recruited for the study. A letter of consent was utilized to obtain consent from the parents. The study plan was approved by Institutional Ethics Committee of Dr. M.G.R. Educational and Research Institute University, Chennai, India. Out of 300 children, 59.7% were male and 40.3% were female. Children were divided into three groups comprising of 100 children in each group. A questionnaire comprising of 15 questions was administered to each subject including 12 closed and 3 open-ended questions followed by oral examinations. All examinations were carried out in a well-lit room with additional light using mouth mirrors and standard explorers. Dental caries of all the participating children were recorded using DMFS/defs index for assessing the severity of dental caries in permanent and deciduous dentition respectively [Table/Fig-1].

D—Decayed teeth: Only carious cavities were considered as 'D'; Temporary restorations were considered as 'D'.

M—missing teeth due to caries

F—teeth that have been previously filled with permanent restoration

D—decayed teeth

E—extracted teeth due to caries

F—filled teeth

Data were analyzed using Statistical Package for Social Sciences, version 11.5. Frequencies of all the variables were determined. A chi-square test was used for comparison of categorical data. Pearson's correlation was used to compare the effects of three different sources of introduction to cariogenic food substance

[Table/Fig-1]: Recording form for DMFS and defs INDICES.

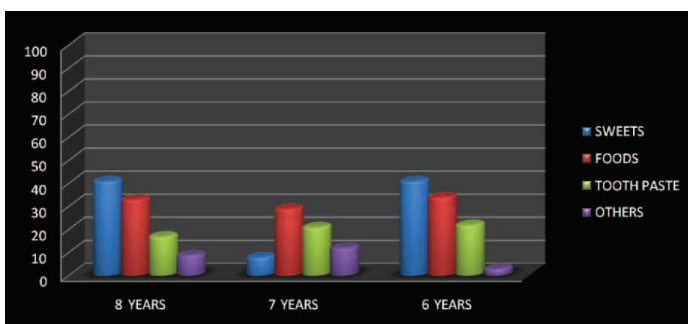
RESULTS

1. Do you like to watch television? Yes/No
2. How many minutes do you watch TV continuously?
 - a. 30 min
 - b. 30–60 min
 - c. 60–90 min
 - d. >90 min
3. Do you like to watch the advertisements in between the Programs? Yes/No
4. Which kind of program do you watch regularly?
 - a. Cartoons (Pogo Channel/Chutti TV)
 - b. Music
 - c. Movies/Serials
 - d. Any others
5. Items you brought or asked your parents to buy after watching advertisements on TV?
 - a. Sweets/Chocolates
 - b. Food/Soft Drinks
 - c. Toothpaste/Toothbrush
 - d. Any others
6. What you like to read?
 - a. Comics
 - b. Magazines
 - c. Others
7. If yes, what is the reason?
 - a. Entertainment
 - b. Colourful
 - c. Advertisements
 - d. Others
8. If no, what is the reason?
 - a. Parents do not allow you to read them
 - b. You are not interested
 - c. Lack of time
 - d. Others

The commercialization of children's television programs, banners, and posters are the several concerns raised by child health professionals, regarding the impact of advertisements on children's wellbeing [6]. The current study was done to evaluate the influence of television advertisements, comics/magazines and banners/posters on children and the impact on oral health. Children who watched television advertisements had a greater defs/DMFS score. Increase of DMFS and defs score was more among children who asked for the purchase of advertised products (sweets, foods, soft drinks). Marshall et al., identified that on average, young people spend 6.5 hours a day interacting, often multitasking, with various forms of media, and the majority of time is spent with television and music [7]. Pine et al., revealed that fruits, vegetables, protein-rich foods (i.e. meat, fish, poultry, beans, nuts, and eggs), and dairy products were rarely advertised. Whereas foods rich in fats and sweets were advertised frequently, with candy being the most commonly advertised food [8]. Mazur et al., found that 71.4% of foods advertised on Polish television are high in fat and sugar; 14.3% of these are soft drinks, and only 14.3% of advertised products can be called healthy (reduced sugar drinks, bio-yogurts). Among adolescents, soft drinks, chips, and snacks are associated with pleasure, being with friends, independence, affordability, and convenience [9]. Most of the advertisements showed lean children or adults eating high-calorie foods, and a maximum number of children (28.3%) were tempted to buy the advertised product due to presence of favourite models or actors in the advertisements [10]. Children are fond of trying new things, and this is another reason they are tempted to buy the products. Actors and models were present in a majority of the advertisements in the present study. Advertisements were made more attractive by adding music and songs. Free gifts were another method of attracting children to buy the products [11]. These commercials are also misleading because slender, healthy kids were shown gleefully and frequently snacking on high-calorie, low nutrient foods without consequences typically seen in real life (e.g. obesity, dental caries) [12].

9. Items you brought or asked your parents to buy after reading Comics/Magazines?
 - a. Sweets/Chocolates
 - b. Toothpaste/Toothbrush
 - c. Food/Soft Drinks
 - d. Any others
10. Do you find Banners/Posters attractive? Yes/No
11. Where do you commonly find Banners/Posters?
 - a. While going to school
 - b. While going out with parents
 - c. While going to Malls/Shopping Complexes
 - d. Others
12. What kinds of Banners do you like the most?
 - a. Food items
 - b. Movies
 - c. Toys
 - d. Others
13. Which of these do your parents encourage the most?
 - a. Television
 - b. Comics/Magazines
 - c. Banners/Posters
14. Have you ever visited dentist for any treatment? Yes/No
15. If yes, can you write for what treatment you had been to a dentist?
 - a. Filling
 - b. Cleaning
 - c. Tooth removal
 - d. Others

[Table/Fig-2]: Questionnaire



[Table/Fig-3]: Items you asked your parents to buy after watching advertisement.

CONCLUSION

Television watching children are more prone for dental caries and having high caries index value. A total ban on advertisements would not be practically possible. A more realistic approach would be to limit the number of advertisements that feature potentially cariogenic and unhealthy food products, and also ensure that they ideally carry statutory warnings. Strategies such as advertisements for healthy food, education, and health-related information should be encouraged on children's favourite channels during their favourite shows. Health education measures such as video clips demonstrating oral hygiene maintenance and prevention of dental caries. Along with this oral hygiene, practice methods should be briefly explained in comics or magazines. Parents should motivate their children to adapt positive things from such advertisements and work towards a healthy future.

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