

Junk Food And Dental Caries In School Children

IDREES H. SALEEMI, M. A. SAGHIR, A. ZULFIQAR, P. NAEEM S

ABSTRACT

Objective: To estimate the cases of dental carries in school children and to document association of dental carries with consumption of junk food.

Design: Case control study.

Place and Duration of Study: The study was conducted at Young Women Christian Association (YWCA) School at Fatima Jinnah Road, Lahore, from 1st May 2010 to 31st May 2010.

Patients and Methods: All the students (n=162) from class 1 to 10 were clinically examined as part of annual general physical examination for which informed consent was taken from parents. Dental oral hygiene; particularly dental caries was looked for. Children with caries were taken as cases and children without caries were controls. Every child was asked about the type of lunch they eat at school; lunch from home or food from school canteen; food from the canteen was taken as proxy for junk food consumption.

Results:

There were 100 males and 62 females. Average age was 9 years (range 4-17 years). 120 (74%) children ate junk food. 73 (45%) children had dental caries; 64 (88%) ate junk food while 9 (12%) ate food brought from home. Hence there were 73 cases and 89 matched controls within the same group. The children who consumed junk food, were four times more, likely to have dental carries with an Odd ratio of 4.19 (confidence interval of 1.84-9.1) and p-value of 0.000.

Conclusion: Dental caries is a common problem in school going children. The children consuming junk food are four times more prone to develop dental caries.

Key words: Dental caries. Junk food. School children.

INTRODUCTION

Dental caries is very common in children, and by 17 years, only 15-20% of children are free from dental caries. On average each child has 8 decayed, missing, or filled tooth surfaces. Prevention of dental caries involves decreasing the frequency of tooth exposure to carbohydrates (particularly frequency is more important than total amount), using fluoride, brushing the teeth, and using sealants^{1,2}. Frequent contact of cariogenic fluids (e.g., formula milk, juices and beverages-all contain high carbohydrate content) with teeth, particularly in infants after the age of one year are highly susceptible to the development of nursing caries who fall asleep with bottle or who are bottle fed too frequently at night^{3,4}. It is recommended that infants not be put to sleep with a bottle and cup feedings be introduced and promoted as early as 1 year of age.

Bacterial fermentation (by streptococcus mutans and lactobacillus) of sugar into acid which demineralizes the enamel plays a major role in the development of caries and fluoride inhibits this process as topical fluoride from tooth brushing is thought to increase the remineralization of enamel

by incorporating into the hydroxyapatite crystals of enamel, hence making it less soluble and less susceptible to erosion. Fluoride supplementation should continue until a child is 14-16 years of age, i.e. when the third molar crowns are completely calcified. However excessive exposure to fluoride (particularly < 8 years of age) during tooth development may damage the enamel itself, causing changes from mild lacy white markings to severe pitting, mottling and or striations.

Dental sealants may reduce the development of caries by up to 80% as compared with rates in untreated teeth. Although fluoride acts primarily by protecting smooth surfaces, dental sealants (bisphenol A and glycidyl methacrylate) act by protecting the pits and fissures of the surface, especially in posterior teeth. Reapplication may be needed every 2 years. As a preventive dental procedure, it is relatively underused.

First teeth are mandibular (lower) incisors to erupt, then maxillary (upper) incisors erupt by 5-7 months of age. After that 1 new tooth appears until 23-30 month of age and all 20 deciduous or primary teeth are erupted by this time. Last to emerge are upper maxillary second molars. Of the 32 secondary teeth, the central incisors appear

first between 5-7 years of age, and the third molars are in place by 17-22 years. The congenital absence of primary teeth is very rare⁵.

Dental caries lead to painful mastication, decrease intake and promote selective intake of softer food, mostly carbohydrates, all this lead to malnutrition. Caries of teeth act as foci of persistent infection and pain; causing hindrance to cleaning and may lead to gingivitis. Media is promoting junk food for better sales. Hence there is need to document the practices of taking junk food and to promote preventive strategies for better oral health.

PATIENTS AND METHODS

All the students (n=162) were examined by the doctors for dental decay by direct examination with the help of torch. Dental caries was defined as discoloration, pitting of enamel and decay/ missing tooth because of caries. There were 73 cases and 89 matched controls. The children were asked about the food intake at recess time; the source of food whether from home or canteen was enquired. The food taken from the school canteen was taken as proxy for the habit of taking junk food. The school is being run by a charity mission and students belong to low income group. The data was analyzed with the help SPSS 17. Odds ratio with confidence and p-value was calculated to measure the strength of association.

RESULTS

There were 100 males and 62 females. Average age was 9 years (range 4-17 years). 120 (74%) children ate junk food. 73 (45%) children had dental caries; 64 (88%) ate junk food while 9 (12%) ate food brought from home.

Table: Showing different categories of children with their state of teeth and type of food they took at school.

Children Categories	Males n=100	Females n=62
Good dental hygiene & food from home	17	16 (26%)
Good dental hygiene & Junk food	32	24 (37%)
Caries & food from home	5	4 (6%)
Caries & Junk food	46	18 (31%)

Hence there were 73 cases and 89 matched controls within the same group. 50 (50%) males had caries against 23 (37%) females. Lunch box was brought by 42 (26%) children, 22 males against 20 females. 64 (53%) children had caries who ate junk food against 9 (21%) children who did not eat junk food. The children who consumed junk food, were four times more, likely to have dental carries with an Odd ratio of 4.19 (confidence interval of 1.84-9.1) and p-value of 0.000.

DISCUSSION

The present study was carried as a part of annual school examination by the team comprising of a consultant pediatrician and medical staff from the Department of Social and Preventive Pediatrics, Fatima Jinnah Medical College, Lahore. The class teacher was present at the time of collection of data and physical examination. Things available in the school canteen were candies, potato chips, samosas, burgers and fizzy drinks⁶. The current investigation revealed that 120 children (74%) consume junk food while at school⁷.

The comparison between junk food eaters and abstainers showed that dental caries is more prevalent in those who ate junk food. Similar findings were reported by Okiegbeman. The studies conducted in different parts of world are in conformity with the results of present study. We did not ask about the type of junk food. However there were number of children (n=56) who ate junk food but had good dental hygiene. Therefore other factors like tooth brushing habits, genetic predisposition, frequency of junk food intake might also be needed to be looked at^{8,9}. Concern is that, Pakistan being a developing country- this trend of junk food consumption not only increase the economic burden on the individual families but also lead to other health related problems due to substandard quality of food^{10,11}.

Dental treatment and management is quite expensive, that may result in delay, and seeking treatment from quacks. It is therefore suggested that counseling about good eating habits, awareness about dental hygiene should be part school health education sessions. Teachers should be trained to inspect oral cavity as part of routine cleanliness on regular basis.

CONCLUSION

Dental caries is common in school going children. Children who eat junk food are four times more prone to develop dental caries.

REFERENCES

1. Lambardo Y B, Dargo S, Chico A, Fanstein-Day P, Gutman R, Gagliardino JJ, Gomez Dumm CL. Long term administration of a sucrose rich diet to normal rats-what causes tooth decay. *Metabolism* 1996; 45(12):1527-32.
2. Steven JS, John FK, Louis K, Heather E. Dental caries prevalence in children with a diet free of refined sugar. *Am J Public Health*. 1983;73: 1196-99.
3. Van Wymelbeke V, Beridot-Therond ME, de La Gueronniere, Fontino M. Influence of repeated consumption of beverages containing sucrose or intense sweeteners. *Eur J Clin Nut* 2004; 58(1): 154-61.
4. Shenkin JD, Heller KE, Warren JJ, Marshall TA. Soft drink consumption and dental caries risk in children and adolescents. *Gen Dent*. 2003; 51(1):30-36.
5. Saleemi M A, Jaleel F , Kalberg J, U Hagg. Early child health in Pakistan: XIII. Primary teeth emergence. *Acta Paediatrica Int J of Paed* 1993 Vol 83 Aug Sup 390:159-167.
6. Okiegbeman S A. The prevalence of dental caries among 12-15 year old school children in Nigeria: a report of a local survey and campaign. *Oral Health Prev Dent* 2004; 2(1):27-31.
7. van Wyk W, Stander I, van Wyk I. The dental health of 12 year old children whose diets include canned fruit from local factories: an added risk for caries. *SADJ* 2001 Nov;56(11):533-7
8. . Hassell TM, Harris EL. Genetic influences in caries and periodontal diseases. *Crit Rev Oral Biol Med*. 1995; 6(4): 319-64.
9. Amin TT, Al-Abad BM. Oral hygiene practices, dental knowledge, dietary habits and their relation to caries among male primary school children in Al Hassa, Saudi Arabia. *Int J Dent Hyg* 2008 Nov; 6(4):361-70.
10. Rao SP, Bharambe MS. *Indian Pediatr*. Dental caries and periodontal diseases among urban, rural, and tribal children. 1993; 30(6): 759-64.
11. Caplan DJ, Wemtraub JA. The oral health burden in the United States; a summary of recent epidemiologic studies. *J Dent Educ*. 1993; 57(12): 853-62.