

Prevalence of Dental Caries Among School Children

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ABSTRACT

Background: Dental caries is the single most prevalent chronic childhood disease worldwide. It affects 60-90% of school going children in most developed countries and in several developing countries the prevalence rates are increasing. Dental caries is a multi factorial disease. Some socio-demographic and behavioral indicators that prone an individual to increased caries experience include: presence of plaque, poor oral hygiene, increasing age, gender, inadequate tooth-brushing habits, frequency and timing of consumption of sugar-containing drinks.

Aim: To know the determinants of dental caries in primary school going children of Lahore.

Methods: It was cross-sectional descriptive study in which 152 primary school going children of union council Samanabad Lahore were included. Data was collected through questionnaire, which was entered in to computer using SPSS 16.0.

Results: Among 152 children, 75.7% were male and 38.8% were 9-10 years old. Majority (89.5%) brushed their teeth regularly while 69.9% brushed their teeth once a day. 99.3% used toothpaste to clean their teeth. 12.5% chewed pan/supari daily. Most of the children (97.4) consumed meat, fruit and vegetables. 82.9% children used sweet and toffees. Majority (74.3%) did not use toothpick after meal and 80.3% children were not habitual of nail biting. A mainstream (96.7%) had knowledge about oral hygiene. A major proportion (52.4%) acquired knowledge from parents. 42.8% children had complaint regarding toothache. Majority (86.2%) and (87.5%) had no gingivitis and calculus deposits respectively. Similarly most of the children had no bleeding gums (93.4%). Oral hygiene was found satisfactory among 86.8% children. Among children who brushed their teeth regularly, 84(55.3%) had dental caries. The children who had satisfactory oral hygiene, 80 (52.6%) had dental caries.

Conclusion: Regular brushing practices were found satisfactory among primary school children. Knowledge about oral hygiene was satisfactory. Overall oral hygiene of children was observed satisfactory. Majority had staining of teeth.

Keywords: Dental caries, Children, Calculus, Gingivitis, Oral hygiene, Eating habits

INTRODUCTION

Dental caries is defined as an infectious microbiologic disease of the teeth in which *Streptococcus mutans* is considered to be the main etiological agent, which leads to localized dissolution and destruction of the calcified tissues^{1,2,3,4}. It is the most commonly seen oral disease which shows a striking geographic variation, socioeconomic patterns and severity of distribution all over the World⁵⁻¹⁴. Many studies show status of dental caries in the Pakistani population. In Pakistan, access to dental health services has increased in the urban areas during the past decade, with a resulting decrease in the prevalence of dental caries. In Pakistan, the government is a major employer of dentists as well as a major provider of low cost oral health services for the general population. This activity is accomplished through an

extensive network of clinics in both urban and rural areas. Private dental care, on the other hand, is mostly urban-based. Prevention programs for dental diseases do not exist.¹³⁻²¹ Significant numbers of children are being affected in Pakistan as there is limited recent information about dental caries prevalence and oral health habits among children. So it is pertinent to study the determinants of dental caries in primary school going children of Lahore. The study will help policy makers and planners to take corrective measures to improve the oral health of the children to prevent them from dental caries.

SUBJECTS AND METHODS

This was cross-sectional descriptive study and included 152 primary school children. The place of study was schools operating in Union Council Samanabad Lahore. According to the 1998 census, Lahore's population was 6,310,000. A 2010 government estimate now puts the population at 10,000,000. It is ranked 25 in the most populated urban areas in the world. A structured questionnaire was used to determine the prevalence of dental caries and its factors. Dental Caries was defined as a

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destructive process causing decalcification of the tooth enamel and leading to continued destruction of enamel and dentin and cavitation of the tooth. Following determinants were included in the study Sugar by use sweet toffee, presence of visible plaque, Bottle feeding Oral hygienic condition i.e. non-brushing of teeth, Smoking, The education level of parents, Lower prevalence of dental caries and lower mean DMFT (decayed, missing, filled tooth) score have been associated with higher levels of parental education. Children born into low-income families are more likely to have low birth-weight which impact on oral health.

RESULTS

Among 152 children, 75.7% were male and 38.8% were 9-10 years old. Majority (89.5%) brushed their teeth regularly while 69.9% brushed their teeth once a day. 99.3% used toothpaste to clean their teeth. 12.5% chewed pan/supari daily. Most of the children (97.4) consumed meat, fruit and vegetables. 82.9% children used sweet and toffees. Majority (74.3%) did not use toothpick after meal and 80.3% children were not habitual of nail biting. A mainstream (96.7%) had knowledge about oral hygiene. A major proportion (52.4%) acquired knowledge from parents. 42.8% children had complaint regarding toothache. Majority (86.2%) and (87.5%) had no gingivitis and calculus deposits respectively. Similarly most of the children had no bleeding gums (93.4%). Oral hygiene was found satisfactory among 86.8% children. Among children who brushed their teeth regularly 84 (55.3%) had dental caries. The children who had satisfactory oral hygiene, 80(52.6%) had dental caries.

Table 1: Relationship between brushing practices and dental caries among children

Brush teeth regularly	Dental caries		Total
	Yes	No	
Yes	84 (55.3%)	52 (34.2%)	136 (89.5%)
No	10 (6.5%)	6 (4.0%)	26 (10.5%)
Total	94 (61.8%)	58 (38.2%)	152 (100.0%)

Table 2: Relationship between use of sweets & toffees and dental caries among children

Use of sweet & toffee	Dental caries		Total
	Yes	No	
Yes	84 (55.3%)	42 (34.2%)	136(89.5%)
No	10 (6.5%)	6 (4.0%)	26 (10.5%)
Total	94 (61.8%)	58 (38.2%)	152 (100%)

Table 3: Relationship between oral hygiene and dental caries among children

Oral hygiene	Dental caries		Total
	Yes	No	
Satisfactory	80 (52.6%)	52 (34.2%)	132 (86.8%)
Unsatisfactory	14 (9.2%)	6 (4.0%)	20 (13.2%)

Table 4: Relationship between staining of teeth and dental caries among children

Staining of teeth	Dental caries		Total
	Yes	No	
Yes	71 (46.7%)	28 (18.4%)	99 (65.1%)
No	23 (15.1%)	30 (19.8%)	53 (34.9%)

Table 5: Relationship between calculus deposit and dental caries among children

Calculus deposit	Dental caries		Total
	Yes	No	
Yes	15 (9.8%)	4 (2.7%)	19 (12.5%)
No	79 (52.0%)	54 (35.5%)	133 (87.5%)

DISCUSSION

Dental caries effects preschool and school going children throughout the world, leading to pain, chewing difficulties, speech problems, general health disorders, psychological problems, and lower quality of life. Dental caries is the single most prevalent chronic childhood disease worldwide, and it causes significant economic loss due to heavy expenses of dental treatment^{8,9}. Regarding the etiology of dental caries, four main factors have been identified namely bacteria, fermentable carbohydrates, a susceptible tooth surface and time. Additionally, some socio-demographic and behavioral indicators that prone an individual to increased caries experience include: presence of plaque, poor oral hygiene, increasing age, gender, inadequate tooth-brushing habits, frequency and timing of consumption of sugar-containing drinks⁵⁻¹².

During the past two decades many industrialized countries have experienced a dramatic reduction in the prevalence of dental caries and this is ascribed to improved changing living conditions, adoption of healthy lifestyles, improved self-care practices, effective use of fluorides and establishment of preventive oral care programs while increasing levels of dental caries has been observed in developing countries^{10,11,12}.

As estimated by the World Health Organization, 5 billion people of the world's 6.5 billion populations are affected by dental caries. Dental caries affects 60-90% of school going children in most developed countries and in several developing countries the prevalence rates are increasing. Twelve-year-old children represent a standard age category used by the World Health Organization to assess and compare dental caries levels in the permanent dentition of children worldwide. Approximately 70% of the world countries have succeeded in achieving WHO goal of decayed, missing and filled teeth (DMFT) index 3 for 12 year olds. While WHO global data showed an increase in DMFT of 12 years old Pakistani children from 0.9 to 1.38⁸ in developed

countries like Australia, Ireland, Finland, US, UK, Denmark, Germany etc. have early low DMFT scores, ranging from 0.8 to 1.9 in 12 year olds. Brazil has a significant drop in caries prevalence i.e. from 8.3 to 2.8. DMFT index in French children at the age of 12 is 2.59. In Tehran DMFT index dropped from 1.67 to 0.77 among students. Mean DMFT index for UAE 12 year olds is 1.6⁹.

Dental caries is the single most prevalent chronic childhood disease worldwide, and it causes significant economic loss due to heavy expenses of dental treatment.¹²⁻¹⁸ Dental caries affects 60-90% of school going children in most developed countries and in several developing countries the prevalence rates are increasing^{19,20,21}. Present study was conducted to know the determinants of dental caries in primary school going children of Lahore. To acquire appropriate outcomes a group of 152 primary school children (Grade 1-5) was included in the study and found that majority (86.2%) of the children was more than 6 years old. A study done on prevalence of dental caries among school children by Abdullah and coworkers¹⁵ also confirmed that most of the children were more than 6 years old (94.7%). This study revealed that majority (75.6%) of male children had dental caries while the study conducted by Umer and Umer⁸ elucidated that dental caries were found among most of the female children (59%).

Brushing teeth is a useful method that prevents children from dental caries. It is worth-mentioning here that a major proportion (89.5%) brushed their teeth regularly. The results of our study exhibited scenario than the study conducted by Umer and Umer⁸ who reported that only 24% children brushed their teeth regularly⁸. Similarly among children who brushed their teeth regularly, majority (69.9%) brushed once daily.

CONCLUSION

Regular brushing practices were found satisfactory among primary school children. Knowledge about oral hygiene was satisfactory. Overall oral hygiene of children was observed satisfactory. Majority had staining of teeth. Prevalence of dental caries was observed among 61.8% children. Seminars should be conducted at school level regarding importance of personal hygiene and dental caries to further enhance the awareness among students. Health department should held regular dental check up on schools to prevent children from dental caries.

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