



PREVALENCE OF DENTAL CARIES AMONG CHILDREN OF AGE GROUP 8 TO 16 YEARS IN HYDERABAD: A CROSS SECTIONAL STUDY

Dental Science

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ABSTRACT

Background: All age groups are impacted by dental caries; however, children are more severely affected. Due to an increase in the consumption of sugary foods, improper teeth brushing practices, and lack of oral health knowledge, dental caries is becoming more common in children in developing nations. **Aim:** The aim of the study is to determine the prevalence of dental caries in school-going children in the region of Hyderabad. **Materials and Methods:** This study was conducted by OroGlee Solutions Private Limited, Hyderabad. A total of 5291 subjects aged 8 to 16 years were examined. Oral examination was done using an intraoral camera. **Results:** Prevalence of dental caries in the 8 to 10 year age group is 43.6%. In 11 to 13 year age group the prevalence is 41.5% and in the 14 to 16 year age group it is 42.3%. **Conclusion:** The prevalence of dental caries among Indian school-going children is high in all age groups in both, primary and permanent dentition. A consistent, population-specific dental health promotion programme is thus necessary for prevention of dental caries in children.

KEYWORDS

Dental caries, Intra oral camera, School going children, Hyderabad, Cross sectional study

INTRODUCTION

According to WHO Global Oral Health Status Report (2022), it was estimated that oral diseases affect close to 3.5 billion people worldwide, with 3 out of 4 people affected living in middle-income countries. Globally, estimated 2 billion people suffer from caries of permanent teeth and 514 million children suffer from caries of primary teeth.^[1] Dental caries is defined as an irreversible microbial disease of the calcified tissues of the teeth, characterized by demineralization of the inorganic portion and destruction of the organic substance of the tooth, which often leads to cavitation.^[2]

Dental caries is a chronic and highly prevalent disease worldwide. It affects not only oral health but also impacts overall health by interfering with nutrition intake, speech, and quality of life.^[3]

Despite scientific advances and caries being preventable, the disease is still a global oral health burden.^[4] The prevalence of dental caries is declining in developed countries, due to improved dental services and greater awareness of oral hygiene. Whereas in developing countries reported prevalence of dental caries shows an unprecedented increase due to changes in dietary habits, poor oral hygiene, and the absence of adequate dental services.^[5]

The aim of the present study was to determine the prevalence of dental caries among school-going children aged 8 to 16 years in the city of Hyderabad. The finding of this study will be helpful in planning oral health education and awareness in school going children, and incorporating preventive measures.

MATERIALS AND METHODS

A cross-sectional survey was conducted by OroGlee Solutions Private Limited in the city of Hyderabad, among the school-going students (aged between 8 to 16 years) of different schools in the city of Hyderabad. A total of 5291 students were examined at their schools. A survey questionnaire was prepared to acquire details such as age, gender, and relevant dental and medical history. An oral examination was carried out by the dentist using an intraoral camera. The intraoral camera is very useful in recording the minute details of the oral cavity. Approval from school administration was taken for the same.

Inclusion Criteria

Students from the age group of 8 to 16 years were included in the study.

Exclusion Criteria

Participants below the age of 8 years and above the age of 16 years were excluded from the study.

RESULTS

The total of 5291 school going children, aged 8 to 16 years were

examined to find out prevalence of dental caries among them. They were divided into three groups; with 1455 (27.4%) children belonging to 8 to 10 years age, 2881 (54.5%) belonging to 11 to 13 years of age, and 955 (18.0%) children belonging to 14 to 16 years age group.

In the 8 to 10 year age group, 820 (56.4%) children were found to be caries-free, while 635 (43.6%) showed to have one or more carious lesions.

In the 11 to 13 year age group, the prevalence of dental caries was found to be 41.5% (1196 children) whereas the remaining population of 1685 (58.5%) children in the same age group were without any carious lesion. A total of 404 (42.3%) of the children in 14 to 16 year age group had caries-involved teeth and 551 (57.7%) had caries-free teeth.

Table 1: Distribution Of Study Subjects According To Age-group And Presence Or Absence Of Dental Caries

Age group (in years)	Number of children examined in each age group N	Percentage of children examined in each age group %	Number of children free of caries N	Percentage of children free of caries %	Number of children with caries N	Percentage of children with caries %
8-10	1455	27.5	820	56.4	635	43.6
11-13	2881	54.5	1685	58.5	1196	41.5
14-16	955	18.0	551	57.7	404	42.3

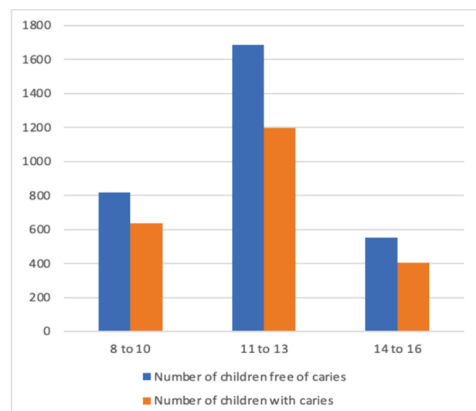


Figure 1: Graphical Representation Of Prevalence Of Dental Caries Based On Age-group

DISCUSSION

Dental caries is characterized as a multifactorial, contagious, infectious oral illness that develops over time from the complicated interplay of fermentable food carbohydrates on the tooth surface with cariogenic oral flora (biofilm).^[2]

There are several factors that contribute to dental caries, including age, gender, socioeconomic status, location, food habits, especially sugar consumption, and oral hygiene practices.^[6]

Dental caries develops over time. The acid produced by bacterial metabolism of sugars contained in food and drinks causes loss of tooth substance (enamel and dentin). Early stages of dental caries sometimes go unnoticed, but later stages can cause discomfort, pain and impaired quality of life, including difficulty in eating and sleeping, and in its advanced stages may result in infections, abscess, and even sepsis.^[7]

Prevalence of dental caries in children is closely linked to areas with insufficient dental treatment resources, low socioeconomic status, people with poor oral hygiene, and lower parental education levels.^[8]

Most of the studies on dental caries were carried out among children in two age ranges: less than or equal to 6 years and 12 years or more.^[9] The current study has provided information on the prevalence of dental caries among school-going children aged 8 to 16 years with mixed dentition (Both primary and permanent teeth present in the oral cavity).

According to our study, in the age group of 8 to 10 years, 43.6% children have carious lesions in their teeth and 56.3% have caries-free teeth. 41.5% of children in the age group of 11 to 13 years are affected with dental caries whereas 58.5% of the same group are free of any kind of carious lesion. Lastly, in the age group of 14 to 16 years, 42.3% of the children have decay in their teeth whereas 57.7% have no decay.

According to the study done by Goenka et al, children between the age group of 5 - 13 years were divided into three age groups 5 - 7, 8 - 10, and 11 - 13 years. Age groups 5 - 7, and 8 - 10 years show the presence of both deciduous and permanent teeth. Exfoliation of the deciduous teeth can interfere with oral hygiene practices. 11 - 13 years old age groups have mostly permanent dentition. Children in this age group spend longer time outdoors which leads to greater consumption of in-between meals snacks, and a cariogenic diet. In the 5 to 7 year age group, 109 (34.9%) children were found to be caries-free, while 203 (65.1%) showed one or more carious lesions. In the 8 to 10 year age group, the prevalence of dental caries was found to be 56.7% and 45.4% of the children in the 11 to 13 year age group had caries involved teeth.^[4]

Somewhat different results were found in the study done by Nithya et al to find caries prevalence and associated risk factors in school children at Kannur in Kerala, where the caries occurrence with age group was more in 6–8 years of children with 55.4%, followed by 9–11 years of age group with 48.8% caries prevalence and least in 12–15 years of age group with 42.5%.^[6]

According to another study done by Ebinezer et al among children in Indian population, the prevalence of dental caries among Indian school-going children in primary dentition ranges from 64 to 78%, and in permanent dentition, the value ranges from 18 to 67%.^[8]

CONCLUSION

The overall prevalence of dental caries is high in school-going children and the findings of this study indicates that children of all age groups are at high risk. There is negligible difference in the prevalence among the age groups that are studied here. It is anticipated that the information gathered through this survey will be beneficial to the relevant authorities in dealing with dental caries, a biosocial illness with roots in the society's technology and economy. Periodic monitoring and preventive programmes could lower the likelihood of dental cavities and lessen the need for invasive, uncomfortable and more expensive treatments.

Conflict of Interest: There is no conflict of interest.

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