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A cross-sectional evaluation of the incidence of dental decay among school children aged 10-16 years

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doi: [10.33472/AFJBS.6.Si3.2024.5936-5941](https://doi.org/10.33472/AFJBS.6.Si3.2024.5936-5941)**ABSTRACT:**

Background: The present study was undertaken for assessing the prevalence of dental caries among school-going children of age group 10-16 years.

Materials and methods: A total of 2000 school-going children were included in this observational research. A comprehensive clinical examination was conducted. The clinical examination was conducted using a mouth mirror, probe, and explorer. The investigation was performed during a period of 3 months. Each participant was placed on a chair with a straight back and had a clinical examination. The incidence of dental caries was documented.

Results: The incidence rate was 30%. Out of the youngsters with dental caries, 52.50% were between the ages of 14 and 16, while the remaining 47.50% were between the ages of 10 and 13. The incidence of dental caries was much greater in females (75%) compared to men. Moreover, the occurrence of dental caries was notably higher among those who brushed their teeth less than once a day, with a prevalence rate of 45%.

Conclusion: To lower the number of tooth cavities, it is suggested that people brush their teeth better, change what they eat, and have oral health education programs in schools. Students who have oral cavities should get care and be checked up on a regular basis.

Keywords: Caries, dental, school children

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1. INTRODUCTION

Dental cavities are the most common long-term illness in people of all ages, genders, races, and social backgrounds.¹ About 90% of school-age kids and most people have had cavities, which is why it's been called the biggest problem in oral health around the world.² It's important to use epidemiological studies to keep an eye on changes in tooth cavities and figure out what people need in terms of dental care.³

The World Health Organisation (WHO) says that identification of tooth caries in surveys has been done at the cavitation level because inspectors often can't trust spots that aren't cavitated. But it's important to include non-cavitated caries sores because they can be stopped with some preventative steps, which lowers the cost of therapeutic treatment.⁴

Shafer (1993) said that dental caries is an incurable bacteria disease of the hardened tissues of the teeth. It causes the metal part of the tooth to lose minerals and the organic part to break

down, which often results in cavitation.⁵ This year, tooth cavities have been getting worse in most growing countries around the world. It's possible that this is mostly because people are eating more sugar and less fluoride. So, there has been less of a focus on the fact that cavities are a disease that kids have, and we still haven't been able to stop the disease in its tracks.⁶ Children of all ages can get dental caries, which means they need either restorative treatment or even pulp therapy. Not only are these methods very hard on a child's mind, but they are also not very cost-effective. Because of this, stopping cavities seems like the best and most cost-effective thing to do. Since this is the case, gathering information about how common cavities are and what kind of treatment is needed seems even more crucial for planning a way to stop this disease.^{7,8}

The goal of this study was to find out how common tooth cavities are among school children between 10-16 years of age.

2. MATERIALS AND METHODS

The current research was carried out to evaluate the frequency of dental caries among school-aged children in the known population. The current research only included children aged 10 to 16 years.

There were a total of 2000 youngsters that were attending school. Comprehensive demographic and clinical information of all the participants was collected and documented in distinct Pro forma.

Methodology

A comprehensive clinical examination was conducted on all patients. The clinical examination was conducted using a mouth mirror, probe, and explorer. The whole investigation was conducted during a period of 3 months. All examiners who conducted clinical examinations received comprehensive training in a one-day session specifically designed for identifying dental caries. The subjects were sat on wooden chairs in a straight manner and underwent clinical examination. The assessment was conducted outside during daytime hours, following the guidelines established by the World Health Organisation (WHO).⁹

The data were documented in a Microsoft Excel spreadsheet and analysed using SPSS software version 22 (IBM, Armonk, New York). The chi-square test was used to assess the statistical significance.

3. RESULTS

Table 1: Prevalence of dental caries

Parameters	No. of Children %
Total children	2000 (100%)
Prevalence of dental caries	600 (30%)

In the present study, analysis, a total of 2000 school-going children were done. Among these participants, dental caries was found to be present in 30% of the children (600 children).

Table 2: Characteristics of children with dental caries

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Parameter	Number of children (%)	P
Age group (years)		
10-13	950 (47.5%)	0.350
14-16	1050 (52.5%)	
Gender		
Male	500 (25%)	

Female	1500 (75%)	<0.05
Tooth brushing frequency		
Less than once a day	900 (45%)	<0.05
Once a day	700 (35%)	
Twice per day	400 (20%)	
Plaque accumulation		
Yes	1500 (75%)	<0.05
No	500 (25%)	

Out of the youngsters with dental caries, 52.50% were between the ages of 14 and 16, while the remaining 47.50% were between the ages of 10 and 13. The incidence of dental caries was much greater in females (75%) compared to men. Moreover, there was a notable increase in the occurrence of dental caries among those who brushed their teeth less than once a day, with a prevalence rate of 45%. Furthermore, it was shown that children who had plaque buildup were much more likely to have dental caries.

4. DISCUSSION

Globally, there has been a rise in the occurrence of dental caries, particularly in developing nations. In industrialized nations, the prevalence of oral health issues is declining as a result of enhanced oral hygiene practices and the adoption of preventative initiatives at the community level.¹⁰ However, the rise in caries prevalence is mostly attributed to the absence of an oral health care system that primarily emphasizes curative treatment, with a lack of regular implementation of community health preventive and oral health promotion.¹¹ The current research was conducted to evaluate the frequency of dental caries among school-aged children between the ages of 10 and 16 years.

Dental caries is a prevalent dental condition that often affects children and remains a significant issue in public health.¹² The World Health Organization (WHO) has classified it as the third most significant chronic non-communicable illness that requires global focus on prevention and treatment.¹³

Dental caries, a disorder characterized by the gradual demineralization of teeth, is primarily produced by the interaction of many variables such as nutrition, host characteristics, and microbial flora under optimal circumstances. The development of dental caries may be attributed to the advancement of human civilizations, and it has lately gained more attention because to its significant potential for causing illness. The prevalence of dental caries varies among countries and across various areas of the same nation. The occurrence of dental caries is influenced by several factors such as age, sex, socioeconomic level, dietary habits, ethnic beliefs, general medical condition, and oral cleanliness. Additionally, the incidence and distribution of dental caries might vary among different teeth and their surfaces. The incidence of dental cavities was 30%. Our results were consistent with the findings published by other writers, who also observed comparable effects. Misra and Shee, as well as Saimbi et al., found that girls had a greater incidence of caries prevalence. Shetty and Tandon, as well as Addo-Yobo et al., did not detect any notable variation in the prevalence. The observed variations in various surveys and research may be attributed to the varying distribution of age groups and geographical areas.¹⁴⁻¹⁷

The current research found that those who brushed their teeth less than once a day had a considerably higher prevalence of dental caries (45%). Furthermore, it was shown that children who had plaque buildup were much more likely to have dental caries. Hiremath et al. conducted cross-sectional research with school-going youngsters aged 6-11 years. The frequency of

severe tooth decay was found to be 78.9%. The calculated values for mean dmft and mean DMFT were 2.97 ± 2.62 and 0.17 ± 0.53 , respectively.¹⁸

Unaddressed oral disorders often result in the loss of significant school hours for children owing to the emergence of serious overall health issues, intense discomfort, and difficulty with eating. The judicious use of fluorides has contributed to a reduction in instances of tooth caries in developed countries.^{19,20}

5. CONCLUSION

The suggestions for reducing the incidence of dental caries focus on improving brushing habits, modifying nutrition, and implementing oral health education programs in schools. Students who have dental caries should have regular follow-up for treatment and maintenance. A considerable percentage of school-age children are impacted by dental caries. Therefore, it is essential to organise oral health examination camps for school-going youngsters in order to effectively manage the condition at a young age.

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