

Evaluation of Oral Health Status in 5-Year-Old Children in Sangareddy: A Cross Sectional Study

Sridhar. M¹, K. Bhagyasri Krishna², Naseemoun Shaik³, G. Snehika⁴,
Sravanthi J⁵, Burma Aishwarya⁶, Hiba Tazeen⁷

¹Professor & Head of the Department, Department of Pedodontics & Preventive Dentistry, MNR Dental College, Sangareddy.

^{2,6,7}Post graduate student, Department of Pedodontics & Preventive Dentistry, MNR Dental College, Sangareddy.

³Associate Professor, Department of Pedodontics & Preventive Dentistry, MNR Dental College, Sangareddy.

^{4,5}Senior Lecturer, Department of Pedodontics & Preventive Dentistry, MNR Dental College, Sangareddy.

Corresponding Author: Naseemoun Shaik

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ABSTRACT

BACKGROUND/AIM: Children play a pivotal role in the present and future of the nation. Therefore, understanding the oral health status and treatment requirements of children is imperative. Given the limited information available on children's oral health, this study focuses oral health status of 5-year-old children in Sanga Reddy schools. To evaluate caries prevalence, gingival status, dental erosion and dental fluorosis in 5-year-old children in Sanga Reddy.

METHODOLOGY: A total of 1000 students were randomly selected from schools in Sanga Reddy, and oral health status was evaluated using the modified WHO oral health assessment form in 2013.

RESULTS: The result revealed a 68% prevalence of caries, and several other findings like dental fluorosis, gingival bleeding and dental erosion are seen.

CONCLUSION: The study concludes that oral health status among 5-year-old school going children in Sanga Reddy was poor, with a caries prevalence of 68 percent. This reflects oral health neglect among children, and there is an urgent need for an increase in awareness among parents and children.

Keywords: Oral health status, dental caries, dental fluorosis, gingival bleeding, dental erosion.

INTRODUCTION

Oral health is a vital component of overall well-being, as the ability to chew and swallow food is essential for obtaining the necessary nutrients that support general health (American Dietetic Association, 1986)¹. Dental caries is one of the most common oral health problems with prevalence of 64% to 78% in primary dentition and 18 to 67% in permanent dentition among Indian school-going children². Periodontal disease, dental fluorosis, dental erosion are the other prevalent oral health issues. Untreated oral diseases in children can lead to severe general health issues, significant pain, difficulty eating, and lost school time¹.

The World Health Organization's Global Oral Health Status Report (2022) presents a stark reality: nearly 3.5 billion people worldwide are affected by oral diseases, with a significant majority occurring in middle-income countries. Of particular concern is the widespread prevalence of dental caries, affecting approximately 2 billion individuals in their permanent teeth and 514 million children in their primary teeth. These

findings underscore the urgent need for global efforts to address oral health disparities and improve access to quality care. In response to these alarming statistics, the report advocates towards achieving universal health coverage for oral health by 2030³.

The global increase in major oral diseases is driven by urbanization and shifting living conditions. Key contributors include inadequate fluoride exposure from water supplies and dental products like toothpaste, the easy availability and low cost of sugary foods, and limited access to dental care services.

Several prevalence studies have been reported but not much recent data is available on the oral health status of school children in Sanga Reddy. Hence the present study was undertaken to evaluate the oral health status of school going children aged 5 years in Sanga Reddy. The age of 5 years is recommended by the WHO as an ideal benchmark for oral health surveys⁴. This study examined the prevalence of dental caries, gingival health, dental erosion, and enamel fluorosis.

MATERIAL AND METHODS

After obtaining ethical committee clearance a cross-sectional study was conducted to evaluate the oral health status of 5-year-old children in Sanga Reddy district. 20 schools were selected in and around the Sanga Reddy district. From each school 50 children of 5-year-old were randomly selected. A total of 1000 children were screened. The age group of 5 year is selected to screen the primary

dentition. Informed written consent was obtained from school authorities and parents of participating children. All children enrolled were given a parent introduction letter with an attached consent form. All children present on the day were examined. Children with any developmental anomalies or systemic diseases were excluded. Oral examination was done for all participating children using a mouth mirror and a probe according to the WHO oral health assessment form for children (2013) by a single examiner and codes were entered on the survey form. The acquired data was entered into microsoft excel and the percentages were calculated using the spss software.

RESULT

An epidemiological survey was conducted on 1,000 children in the 5-year age group in Sanga Reddy. Out of the total sample, 537 were girls and 463 were boys. A cross-sectional clinical study aimed at determining the oral health status of these children revealed several key findings.

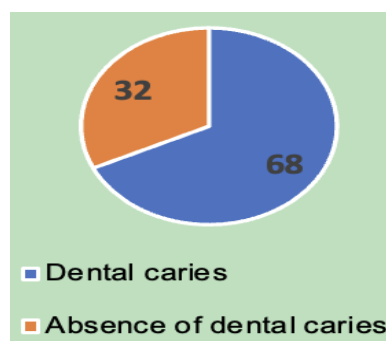
The prevalence of dental caries among the children was notably high, with 68% affected. This indicates that more than two-thirds of the surveyed children have experienced dental caries. (Graph-1)

16% of the children presented with features of enamel fluorosis. . (Graph-2)

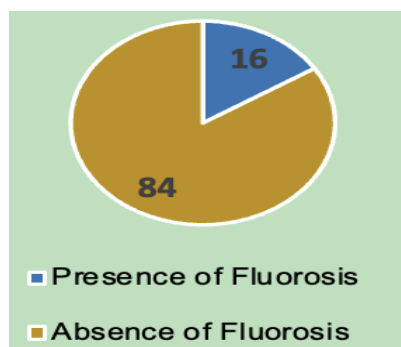
Gingival bleeding was present in 12% of the children when probed. (Graph-3)

4% of the children exhibited features of dental erosion.

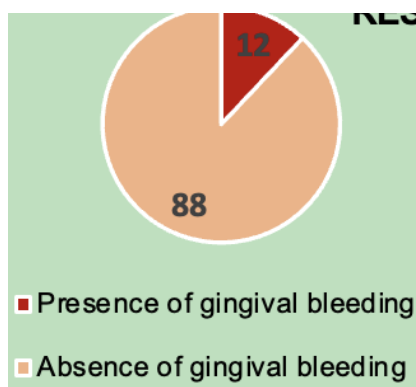
(Graph-4)



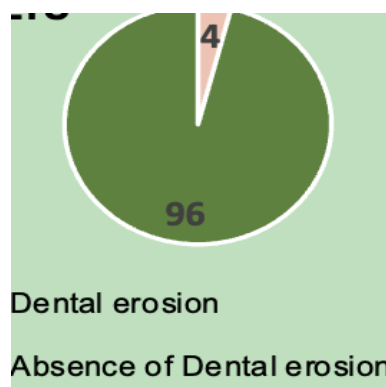
Graph -1. Prevalence of dental caries



Graph-2. Prevalence of fluorosis



Graph -3-Percentage of Children showing gingival bleeding on probing



Graph-4-Percentage of children affected by dental erosion

DISCUSSION

The results of this cross-sectional study provide valuable insights into the oral health status of 5-year-old children in the Sanga Reddy district. The age of 5 group is selected as it is an index age group recommended by WHO for oral health surveys⁴. The high prevalence of dental caries, gingival bleeding, dental fluorosis, and dental erosion among these children underscores the urgent need for targeted oral health interventions. The study found that 68% of the children were affected by dental caries, a figure that aligns with the global prevalence range of 64% to 78% for primary dentition among children as reported by Ebinezer J et² and similar findings were obtained (by Murgaboothy Vinkneshan et al⁵, Shivananda Gudal Sowmya et al⁶ Mittal M et al⁷)

According to Shitie A. et al⁸ this high prevalence can be attributed to multiple factors, including poor oral hygiene practices, high consumption of sugary foods, and limited access to preventive dental care. Gingival health also emerged as a concern, with 12% of the children experiencing gingival bleeding upon probing. This indicates early signs of gingivitis and potential periodontal disease, emphasizing the importance of instilling good oral hygiene practices from a young age to prevent the progression of such condition.

Dental fluorosis was present in 16% of the children, reflecting exposure to elevated fluoride levels during tooth development. As reported by Whelton et al.,⁹ this condition is characterized by hypomineralization and

increased porosity of enamel, which is often associated with the ingestion of fluoride from multiple sources, including drinking water, toothpaste, and dietary supplements. A study conducted by Sarvaiya et al¹⁰, suggests that dental fluorosis is a common condition in regions with high fluoride levels in water supplies, and the Present study findings are consistent with this literature. Similar results were obtained in a study conducted by shivananda gudal sowmya et al⁶, Efforts to monitor and manage fluoride exposure are essential to prevent fluorosis while still reaping the caries-preventive benefits of fluoride.

The prevalence of dental erosion in this study was 4%, which is relatively low compared to dental caries and fluorosis. According to Kreulen CM et al.¹¹, However, this finding is still significant as dental erosion can lead to severe tooth wear and damage over time. The thin and less mineralized enamel of primary teeth makes them more susceptible to erosion from dietary acids and other environmental factors. Whereas in a study conducted by deshpande et al¹² 28.7 % of dental erosion is seen which is higher than present study. Preventive measures, including dietary counseling and the use of protective dental products, are essential to mitigate the risk of erosion in young children. Limitation of the present study is the sample size and selection criteria may not provide a comprehensive representation of the entire population of 5-year-old children in the Sanga Reddy district.

CONCLUSION

This study emphasises the urgency for implementing effective preventive strategies, through community-based oral health programs and educational initiatives to promote better dental hygiene practices. Utilizing Pit and fissure sealants can serve as preventive measure.

Addressing the issue at its primary level is crucial. Providing comprehensive and impactful health education is essential to prevent problems from arising initially. Integrating dental health education into the school curriculum is vital for achieving this purpose.

Declaration by Authors

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