

# Prevalence of common dental diseases in 6–15-year-old children visiting Saveetha Dental College and Hospitals

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## ABSTRACT

**Aim:** This study aims to find out the prevalence of common dental diseases in 6–15-year-old children visiting Saveetha Dental College and Hospitals, Chennai. **Background:** Dental disease in primary teeth has been widely studied in many countries worldwide. Since it is known to be one of the most common oral diseases of childhood, there are insufficient studies that prove information's on dental diseases that are common in children. **Materials and Methods:** The samples were composed of 108 subjects of both sexes and data were collected in the Department of Preventive and Pediatric Dentistry, Saveetha Dental College and Hospitals, Chennai. The study was gathered by clinical examination of the various pediatric patients. **Results:** The number of male participants in the study was 72 and the number of female participants was 36. From the given clinical study, the most common dental disease occurring between the ages of 6–15 years old is dental caries having a count of 36%. Gingivitis seen in children was found to be 24%. Malocclusion of teeth was a complaint in about 16% of participants, while broken teeth due to trauma add to 10% followed by mobility, which was diagnosed in about 8% of the participants. Stains of the anterior teeth region were found to be only 6%. **Conclusion:** From the present survey, it can be concluded that the most common dental diseases occurring are caries, while the least commonly occurring is the stains.

**KEY WORDS:** Caries, Dental diseases, Gingivitis, Pediatric patients

## INTRODUCTION

Children and adolescents are prone to several periodontal diseases. Although there is a much lower prevalence of destructive periodontal diseases in children than in adults, children too can develop severe forms of periodontitis (aggressive forms). In some cases, this destructive disease is a manifestation of a known underlying systemic disease.<sup>[1]</sup>

Gingivitis is the most common and mildest form of the oral or dental disease in the inflammatory and recurrent reaction of free gingival. It is seen formed by both by local stimulus and systemic factors. Gingivitis is often caused by inadequate oral hygiene, which leads to inflammation, bleeding of the gums, and plaque buildup. If not treated, it can progress to more serious gum diseases such as periodontitis and eventually to the destruction of bone and even to tooth loss.<sup>[2]</sup> In India, where the birth rate is still high

and there is less spacing between two births, mothers often fail in giving proper care to all the children. The unattended practice of children often leads to many problems, some of which can cause permanent damage. If dental caries develops after the eruption of permanent dentition and proper care is not taken, it may lead to permanent damage and spread of infection throughout the body can also occur. Important care must, therefore, be taken so that dental caries should not develop.

Dental caries is the most prevalent and chronic oral disease, particularly in childhood age. Dental caries is a progressive infectious process with a multifactorial etiology. Dietary habits, oral microorganisms that ferment sugars, and host susceptibility have to coexist for dental caries to initiate and develop.<sup>[3,4]</sup> Periodontitis as a manifestation of systemic disease in children is a rare case that often begins between the time of eruption of the primary teeth up to the age of 4 or 5.<sup>[5,6]</sup>

Dental caries is not only a medical problem but also many linked to sociodemographic factors. Usually,

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ISSN: 0975-7619

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Received on: 30-01-2017; Revised on: 26-02-2018; Accepted on: 22-04-2018

the habit of taking care of dental health is obtained from the parents and other senior members of the family.<sup>[7]</sup> In Hyderabad, Pakistan where the birth rate is still high and there is less time between two births, mothers often are unable to give proper care to all the children. If dental caries develops after the eruption of permanent dentition and proper care is not taken, it may lead to permanent damage and spread of infection throughout the body can also occur. Important care must thus be taken so that dental caries should not develop.<sup>[8]</sup>

It not only causes pain and discomfort but also, in addition, places a financial burden on the parent. The prevention of dental caries has been the most important aim of the dentist's scientific research continues to make progress in identifying the best practices for diagnosing, treating, and preventing dental caries. Traditional techniques for treating carious tooth in a surgical manner are being replaced by newer strategies that emphasize disease prevention and conservation of tooth structure.<sup>[9]</sup>

The disease occurs in localized and generalized forms. In the localized, affected sites exhibit rapid bone loss and minimal gingival inflammation.<sup>[10]</sup> In the generalized form, there is a rapid bone loss in nearly all teeth and marked gingival inflammation.

The purpose of the current study, therefore, was to carry a large-scale survey to assess the gingival health status and the caries index which occurs most commonly between the age group of 6–15 years old. The data were collected to provide information and a basic knowledge about dental caries and its treatment needs. They were also used for planning preventive and restorative oral health programs in the population studied.<sup>[11]</sup>

## MATERIALS AND METHODS

This study was carried out in the Department of Preventive and Paediatric Dentistry, Saveetha Dental College and Hospitals, Chennai. It was conducted in the month of December 2017–January 2018 in the department. A sample size of 108 school-going children was examined over a time span of 2 months. Intraoral examinations were made using a mouth mirror and an explorer. Instruments were disinfected with an antiseptic solution after every use. The age and sex of each child were recorded.

**Dental caries** - The teeth showing discoloration, chalky appearance of enamel, softened enamel, or broken surface by visual examination or probing has been defined as caries tooth.

**Gingivitis** - Bleeding from gum on visual examination or bleeding from sulcus on gentle probing and presence of deposits on teeth were diagnosed as gingivitis.

**Broken teeth** - Teeth with broken edges with no obvious evidence of caries were diagnosed as traumatic fractured teeth. This was confirmed by eliciting a history of trauma after diagnosing fractured teeth.<sup>[12]</sup>

**Malocclusion** - The presence of all varieties of malocclusion due to any cause was diagnosed as an orthodontic problem. Malocclusion is defined as any deviation from ideal occlusion.

## RESULTS

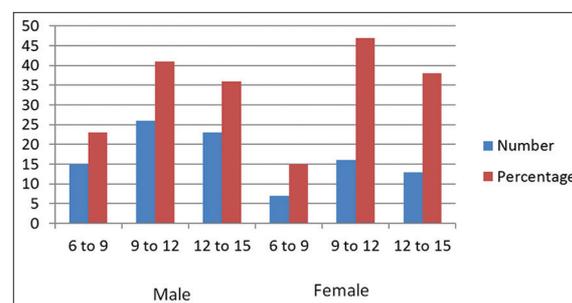
A total of 108 pediatric patients were diagnosed to complete the survey. 72 males and 36 females made up the population [Table 1 and Graph 1]. Out of the 108 children diagnosed, 38 (36.6%) showed evidence of dental caries.

16 (17.2%) showed evidence of gingivitis, 16 (17.2%) Showed evidence of orthodontic problems. Broken teeth with the count of 10 (10.8), mobile teeth with the count of 8 (8.6), and finally, stains had a count of 7 (7.5).

Students were asked about their brushing habits and their techniques. It is seen that 47.4% of the students who used to brush twice a day had dental caries as compared to the 76% of the students who brushed only once daily. This difference is statistically significant. 56% of the students have the habit of mouth washing after taking food always or most of the time had the presence of dental caries. 80% of students who rarely used to wash mouth after taking food have increased prevalence. This difference is again statistically significant. 95.5% of the students having toothache were suffering from dental caries; on the other hand,

**Table 1: The age and the sex distribution of the children surveyed**

Sex group	Age	n (%)
Male	6–9	15 (23)
	9–12	26 (41)
	12–15	23 (36)
Female	6–9	7 (15)
	9–12	16 (47)
	12–15	13 (38)



**Graph 1: Age and sex distribution of the subjects examined**

those did not have a toothache, 39.6% of them were suffering from dental caries, and this difference is again statistically significant.

It is observed that dental caries as the most prevalent common dental disease occurring in children. This is followed by gingivitis, broken teeth, mobility, and stains on the teeth [Table 2 and Graph 2].

## DISCUSSION

Dental caries is the most common dental problem encountered. The prevalence observed in this study was 36.4%. As the age advances, there was a rise in proportion affected by caries. Both males and females were almost equally affected by caries with slightly higher prevalence among males. Among 100 children having caries, only 12.18% had dental fillings. In other words, the proportion of children getting medical attention for caries is very minimum. It is interesting to see that among all children with caries, more boys have dental filling than girls. 65% of those with fillings are boys. The 8–9-year-old schoolchildren had higher caries prevalence in primary teeth because caries is a cumulative process and children were observed to have a preference for caries prone foods available near the school premises. The overall prevalence of dental caries in the permanent teeth was 44.3%, this was found to be on the higher side compared to the study conducted in Tamil Nadu and lower compared to another study where the prevalence was 65.8%.<sup>[13]</sup> Varying level of prevalence of caries is reported among 12-year-old children from different places of India 34.3% in Ambala and Bharatpur city around 53%, 41.4% in Hyderabad, and 32.6% in Shimla. This

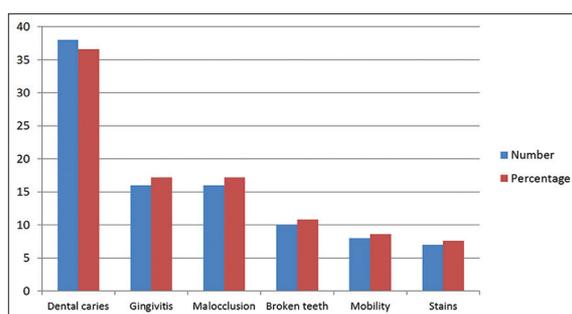
indicates other factors such as availability of dental services and awareness level could be the reason for the wide variation in the level of disease in same age group.

Unattended oral conditions in children frequently lead to serious health, pain, and interference with eating and lost school time. One of the factors to be considered when planning for the growth is the prevalence of the diseases and the treatment.

Gingivitis shows an increasing trend as age advances. More females are affected by gingivitis, particularly among 12- and 13-year-old children. Sutcliff survey shows high prevalence among females.<sup>[14]</sup> In our study also, 26% of those affected are females. They reported that the plaque and gingival bleeding scores had an overall trend to increase from social Class I through to social Class V. The girls, in particular, showed progressively increasing and significantly different mean plaque and gingivitis scores.<sup>[1]</sup> The study from Madhya Pradesh reports no significant difference in the prevalence of gingivitis among males and females. Carranza reported from the US National sample surveys 1986–1987 among 12–17 years old that there is 58.8% prevalence of gingivitis.<sup>[15]</sup> Mild gingivitis was more prevalent in the 5–7 years age group and moderate and severe gingivitis were more prevalent in the age groups of 8–10 and 11–14 years. This could be explained due to the presence of mixed dentition, varied food habits, shedding of primary teeth, improper and unsupervised oral hygiene practices, and malocclusions.<sup>[16]</sup> More females were affected by gingivitis, which could be related to pubertal changes and the fact that the girl child in rural areas is being given lesser oral hygiene facilities and priority compared to boys.<sup>[17]</sup> It was reported that in Kenya that brushing habit has no significant effect on the dental caries prevalence which is contradictory to the results of the present study. However, reasons show that 24% of children had the brushing habit more than once a day and overall prevalence of dental caries is less in their study as compared to the present study. Dental caries is not only a general problem but also a social problem. Awareness among students can be designed by the school teachers because they are the role model for the students.

**Table 2: The most common dental diseases occurring in children**

Dental conditions	n (%)
Dental caries	38 (36.6)
Gingivitis	16 (17.2)
Malocclusion	16 (17.2)
Broken teeth	10 (10.8)
Mobility	8 (8.6)
Stains	7 (7.6)



**Graph 2:** Distribution of dental diseases according to number and percentage

About 16.75% of those examined had orthodontic problems. A study conducted by Migalani *et al.* reports 19.6% prevalence of orthodontic problems in Chennai among 12–15 years age group.<sup>[18]</sup> However, Jacob from Trivandrum reported 44.97% of orthodontic problems among 12–15 age groups. In our observation children of 13 and 14 years, age group is the maximum affected.<sup>[19,20]</sup> The 12–13 years age group was chosen for the study as it is the global monitoring age for dental caries, international

comparisons, and monitoring of disease trends.<sup>[21]</sup> Our data showed that dental plaque coverage had a significant relationship with the prevalence of gingivitis, although not with dental caries. Although the subjects in this study had poor oral health behavior and oral hygiene, their relatively low sugar consumption may explain the absence of an observed relationship with dental caries. Gibson *et al.*<sup>[22]</sup> reported that there is a relationship between dental caries and sugar among children with poor tooth-brushing behavior. Thus, if the subjects in this study experience a future dietary shift toward the inclusion of more products with high sugar content, their generally poor oral hygiene may leave them vulnerable to increased incidences of gingivitis and dental caries.<sup>[6]</sup>

On the other hand, fractured teeth are more common among males. This may well be explained by the more aggressive eating habits of the boys.<sup>[19]</sup> Furthermore, chances of fights and falls are more common among them which also contribute to fractured teeth. Finn also reports a higher incidence of fractured teeth among boys.<sup>[23]</sup> Health education should be integrated with the systematic activities of the school. Health education should be integrated with the systematic activities of the school. The study found that prevalence of caries was higher in lower income class as compared to the upper income group. Usually, people belonging to lower income group are devoid of hygienic practice and they live in an unhygienic environment. These factors often lead to dental caries.<sup>[24]</sup> The prevalence of dental caries was significantly higher among children having more than one sibling. Usually, when the number of children increases, less care is given to each child by the mother and the elder ones suffer most. As a result, the widespread presence of diseases related to hygiene increases. Students were asked about their habit of brushing the teeth and it is revealed that those who used to brush twice a day had significantly less prevalence of dental caries as compared to those whose brushing habit is either once daily or not every day.<sup>[16]</sup>

## CONCLUSION

The prevalence of dental caries and oral hygiene status was assessed in 108 children; aged 6–15 years old. On the basis of the findings, it was concluded that a high proportion of diseases found in the children participants was dental caries. The prevalence of gingivitis was also high. Over 50% of the children were affected by a poor level of oral hygiene which increases with age. This study stresses the importance of preventive measures to improve the dental health for this group in the community. Oral health education is needed to increase dental hygiene, to reduce the current problems with dental plaque and gingivitis,

and to protect these children against future dietary shifts that may bring them into contact with high sugar food and increased risk of caries.

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Source of support: Nil; Conflict of interest: None Declared