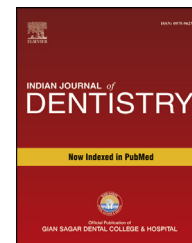


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## Original Article

# Prevalence of caries in anterior teeth in adults of Dakshina Kannada Indian population – An epidemiological study

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## ABSTRACT

**Background:** Anterior teeth caries have been found to affect quality of life because of aesthetic reasons and to be greater burden economically as compared to posterior teeth. Information on caries prevalence and severity forms the basis for the magnitude and quality of caries prevention programs and treatment needs in a population. The objective of this study was to find out the prevalence of caries in anterior teeth.

**Methods:** Study was conducted on 2000 patients reporting for treatment in A.B. Shetty Memorial institute of dental sciences and rural satellite centres. WHO criterion for caries detection was followed. All the data was then coded and the prevalence of carious anterior teeth was evaluated according to age, gender, diet and occupation using the SPSS 15.0 software package for statistical analysis.

**Results:** The overall prevalence of caries in anterior teeth was found to be 24.65% being more prevalent in males and in age group of 36–45 years. There was a strong correlation between age ( $p$  value = 0.0135), location ( $p$  value < 0.05), type of diet ( $p$  value < 0.05), oral hygiene habits ( $p$  value < 0.05), malalignment of teeth ( $p$  value < 0.05) and anterior teeth caries but no association between anterior decay and occupation ( $p$  value = 0.1834), gender ( $p$  value = 0.843) of the population. The most commonly affected teeth were found to be maxillary central incisors.

**Conclusion:** The anterior teeth caries has high prevalence and has a strong correlation with age, location, type of diet, oral hygiene habits and malalignment of teeth.

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## 1. Introduction

Dental caries can be thought of as a chronic infection of enamel or dentin in which microbial agents are members of normal commensal flora. Once the surface layer of enamel has been lost, infection progresses via dentin, with pulp first becoming inflamed and later necrotic.<sup>1</sup>

Dental caries is multi factorial, ubiquitous, plaque related chronic infection of enamel or cementum or dentin. Main factors involving development of dental caries are susceptible tooth surfaces, dietary carbohydrates, saliva and oral microflora.<sup>2</sup>

Earliest clinical evidence of dental caries is the white spot lesion which is reversible, cavitation however represents irreversible disease.<sup>3</sup> Some areas of enamel surface are more susceptible to demineralization than others as in case of mandibular incisors which are less susceptible to caries since large amount of saliva is produced by submandibular salivary glands whose ducts open behind these. Severe xerostomia predisposes to rapid wide spread dental caries.<sup>4</sup> Frequency of sugar intake is more decisive than total consumption in development of dental caries.<sup>5</sup>

*Mutans streptococci* especially *Streptococcus mutans* and *Streptococcus sobrinus* are implicated in initiation of high proportion of enamel and root surface caries (Specific plaque hypothesis). Dental caries can occur in relation to dental plaque that is free from *S. mutans* (Nonspecific plaque hypothesis).<sup>6</sup> *Lactobacillus species* are associated with extension of caries process into dentin rather than initiation phase of disease.

Information on caries prevalence and severity forms the basis for the magnitude and quality of caries prevention programs and treatment needs in a population and especially anterior teeth caries poses greater burden financially and negatively affects the aesthetics and quality of life in an individual.<sup>7</sup>

Thus the present study was aimed to determine the prevalence of dental caries in anterior teeth, the effect of age, gender, location, occupation and diet on the prevalence of dental caries.

## 2. Methodology

Study was conducted on 2000 patients over the period of 6 months from June 2010 to December 2010, to collect information on the prevalence of dental caries in the anterior teeth in the patients reporting for first time to the outpatient department of A.B. Shetty Memorial Institute of Dental Sciences, NITTE University and to the rural satellite centres.

- Ethical clearance was taken from the central ethical committee of the institution under NITTE University. Materials used in the clinical examination mainly consisted of explorers, dental floss, cotton rolls, mouth mirror, wedges to separate the teeth and illuminating light. The patients were examined for anterior carious tooth under good illumination.
- *Diagnostic criteria for clinical examination:*
- It was detected according to WHO Criteria<sup>8</sup> that "The caries was recorded as present when a lesion in a pit or fissure or

on a smooth surface had detectable softened floor, undermined enamel or softened wall. On Proximal surface it had to be certain that the explorer had entered the lesion. Where any doubt existed caries was not recorded as present."

- All the data was then coded and the prevalence of carious anterior teeth was evaluated according to age, gender, diet and occupation using the SPSS 15.0 software package for statistical analysis.

## 3. Results

All the data was statistically analysed and the result interpreted.

Table 1 shows that out of the 2000 patients examined 75.35% (1507) of the cases did not have carious anterior teeth whereas 24.65%(493) cases had carious anterior teeth. Thus the overall prevalence of caries in anterior teeth was 24.65%.

Table 2 gives the distribution of carious anterior teeth between the two genders. Amongst the 2000 patients 56% (1134 cases) were males and 44%(866 cases) were females. Prevalence of carious anterior teeth among males was 24.6% (279 cases) while among females it was 24.7% (214 cases).

On applying the chi square test, the difference between genders was not found to be statistically significant  $p > 0.05$  in this sample. Thus, there appears to be no association between gender and prevalence of caries in anterior teeth in this sample group.

Table 3 shows the distribution of anterior carious teeth among the various age groups. Out of the 2000 patients examined, maximum number of patients (514 cases – 26.3%) were in the age group 36–45 and the maximum number carious anterior teeth was also seen in the age group of those between 36 and 45 years (125 cases – 6.5%) but the prevalence was more in the age group 46–55 years (27.8%).

On applying the chi square test, the difference among various age groups was found to be statistically significant. Thus, there appears to be an association between age and prevalence of caries in anterior teeth.

Table 4 shows the prevalence of carious anterior teeth in the peri-urban and rural population. In the 2000 patients examined, 1000 cases (50%) were from the peri-urban population and 1000 cases (50%) were from the rural population. Prevalence of carious anterior teeth in peri-urban areas was 20.6% (206 cases) and in rural areas it was 28.7% (287 cases).

On applying the chi square test, the difference in locations i.e. peri-urban and rural was found to be statistically significant ( $p$  value  $< 0.0005$ ). Thus, there appears to be an

**Table 1 – Prevalence of carious anterior teeth.**

Carious anterior teeth	Frequency	Percentage
Yes	493	24.65%
No	1507	75.35%
Total	2000	100%

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