



Original Research Article

Oral Health Status and Prevalence of Gingivitis among 6-14 Years Old School Children in Tumkur City - A Cross Sectional Study

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ABSTRACT

Background: Oral health is an essential component of general health throughout the life. Gingivitis is a common oral disease among the school children worldwide. The study was taken up with the aim to evaluate oral health status, practices & assess the prevalence of gingivitis among 6-14 old school going children in Tumkur city.

Materials and methods: A total of 504 Children, comprising of 252 children from government schools and 252 from private schools were selected for the study. The children were divided into 3 age groups 6-8, 9-11 and 12-14. Oral hygiene practices were assessed based on the self-prepared questionnaire & examined for oral health status & gingivitis by using oral hygiene index simplified & gingival index.

Results: Oral health status was statistically better in private schools compared to government schools. A significant increase in the prevalence of gingivitis was observed with age but there was no difference among the genders. Children with better knowledge about oral hygiene practices had good oral hygiene compared to others.

Conclusion: Prevalence of gingivitis was associated with the awareness about oral hygiene practices. Hence, health education given at an early age will minimize the skills and manpower required to treat the dental diseases at later ages.

Key words: Gingivitis, Awareness, Oral health status, Prevalence.

INTRODUCTION

Health is a universal human need. General health cannot be attained or maintained without proper oral health. Mouth is regarded as the mirror of the body and the gateway to good health. However millions of individuals suffer from dental caries and periodontal diseases. ^[1] In India, with limited resources and manpower, the

most feasible and cost effective method of preventing rising trend of oral diseases should be community based which are directed toward school children. ^[2]

If a disease can be prevented or intercepted at an early stage, it will minimize the impact on the cost and methods of treatment. Positively influencing the knowledge, attitude and behaviours of

children towards sustainable good oral health requires an integrated health education and health promotion approach. [3]

Accumulation of bacterial plaque at the gingival margin results in the development of gingivitis and can be reversed with the implementation of oral hygiene measures. [4]

Hence this study was undertaken to evaluate

1. Oral hygiene practices among 6 -14 year old school children & its association with
2. Oral health status & prevalence of gingivitis among the same in Tumkur city.

MATERIALS AND METHODS

A total of 504 school going children participated in the study. Four government and four private schools located in the urban areas of Tumkur district were randomly picked in such a way that each group has 252 students. These 252 children were divided into three age groups 6-8, 9-11, and 12-14 years. The children in each age group were equally divided into boys and girls.

A questionnaire containing questions regarding oral hygiene practices was used to record their practices.

The examination consisted of assessing the oral hygiene status by

1. OHI'S Index (GREENE AND VERMILLION - 1964)
2. Gingival Index (LOE & SILNESS - 1963)

Examination was conducted by seating the subjects on an ordinary chair with a back rest under available natural light

with aseptic precautions at the school premises with a mouth mirror and an explorer.

Instruments were disinfected with an antiseptic solution after every use. The children were examined by a single examiner. Teeth which were being shed and teeth which were not fully erupted were excluded. The findings were recorded in a predesigned format. [5]

The observations recorded were subjected to statistical analysis using a chi square test and t test.

RESULTS

Table 1 shows oral health practices assessed based on the self administered questionnaire which revealed 62% of children from private schools brushed twice daily using tooth brush & tooth paste compared to 30 % Of government school children. 76% of the private school children used soft brush compared to 41% of government school children. Hardly 30 – 36% of children from both the schools practiced brushing circularly and majority brush by horizontal method (60-65%). There was no clear idea of when to change the brush among all the children even though majority of private school children reported it to be once in 3 months and govt. school children once it is flared. And hardly few children from private school said to use dental floss where as none reported from government school. And majority of children said to rinse their oral cavity after each meal in private school compared to government school.

Table 1: Percentages of Good oral hygiene practices among children

S. No.	Oral hygiene practices	Government school children (%)	Private school children (%)
1	Brushing twice daily with brush & toothpaste.	30%	62%
2	Use of soft bristled tooth brush to clean the tooth.	41%	76%
3	Brushing by using circular motion.	30%	36%
4	Frequency of changing the tooth brush is when the bristles flare & usually within 3 - 6months duration.	25%	68%
5	Using Dental floss to remove food in between the teeth.	0%	6%
6	Mouth rinsing after each meal.	52%	82%

Table 2: Distribution of oral hygiene status among children.

OHI status	Number	Percentage
Good	186	36.91%
Fair	299	59.33%
Poor	19	3.77%
Total	504	100%

After examination of 504 children using OHI-S revealed that 37% of them had good, 59% fair, and 4% had poor oral hygiene status (Table 2). Oral hygiene status & gingival status was significantly better in private school children compared to government school children (Table 3). There was no statistically significant difference in oral hygiene status & gingivitis between boys and girls (Table 4). There was significantly better oral hygiene & gingival status in the lower age group when

compared to the higher age group (Table 5).

Table 3: Comparison of oral health status & Gingivitis among two types of schools

OHI status	Type of school		Total	p- value
	Government	Private		
Good	85	101	186	0.01996 Significant
Fair	152	147	299	
Poor	15	4	19	
Gingivitis Status				
Mild	141	180	321	0.00030 Highly significant
Moderate	111	72	183	

Table 4: Distribution of oral health status & Gingivitis among gender

OHI status	-S	Female (n)	Male (n)	Total	p-Value
Good		83	103	186	0.06214 Not significant
Fair		162	137	299	
Poor		7	12	19	
Gingivitis Status					
Mild		163	158	321	0.6433 Not significant
Moderate		89	94	183	
Total		252	252	504	

Table 5: Distribution of oral health status & Gingivitis among different age groups

OHI-S status	Age group in years			Total	p - Value
	6-8 (n=168)	9-11 (n=168)	12-14 (n=168)		
Good	86	65	35	186	0.00000280 Highly Significant
Fair	78	99	122	299	
Poor	4	4	11	19	
Gingivitis Status					
Mild	141	102	78	321	0.0001 Highly Significant
Moderate	27	66	90	83	

DISCUSSION

School going children were selected in this study because gingivitis is a reversible condition that can be prevented by proper oral hygiene measures at an early age.

Both oral hygiene status and gingival status were significantly better in the private school children when compared to the government school children. This could be because of the better socioeconomic status and education of the parents of private school children when compared to that of parents of government school children. [6] Same findings were observed in the studies conducted by Kumar P et al. [7]

Matsson et al [8] reported markedly fewer plasma cells in inflamed gingival

tissue from young children than from adults. A similar difference was found between Juvenile and adult dogs during a period of developing experimental gingivitis. These studies may suggest a more limited involvement of the humoral immune system in gingival lesions in young individuals. [8]

The prevalence of gingivitis which increased with age was similar to studies by Jose et al, [9] Kumar P et al [7] and Dhar et al. [10] Studies conducted by various authors have shown that tendency to develop gingivitis is low among pre-school children compared with young adults. [8]

Histologically, ulceration of the sulcular epithelium and inflammatory cell infiltration of the underlying connective tissue characterizes gingivitis. At the

microscopic level, T lymphocytes predominate in children whereas B-cells predominate in adults. [11]

In our study no significant difference was observed among genders for the prevalence of gingivitis. This was in contrast to a study by Saha and Sarkar where girls were affected more which was attributed to hormonal changes. [12]

The present study revealed that there is a direct relation between the incidence of gingivitis and oral hygiene state. The same findings were observed by many researchers, Taani D. S. et al, [13] Astrom A. N. et al, [14] Rajab L. D. et al. [15]

Plaque-induced chronic gingivitis is commonly found in young children and can be managed by mechanical removal of plaque and high levels of oral hygiene. The etiologic nature of plaque in gingivitis was demonstrated by experimental gingivitis studies in humans. Therefore, dentists and dental hygienists must educate parents and their children about the importance of oral hygiene in the prevention of caries and periodontal diseases. [11]

The present study revealed that school children's response to frequency of brushing and the objective evaluation of oral hygiene state do not coincide. Even if it is stated, that teeth are brushed regularly, twice a day, index of oral hygiene is between 1, 1-2, score, i.e. fair state of oral hygiene. That proves that school children do not pay due attention to the quality of brushing teeth.

Thus, after evaluation of the results of our study, it is recommended to pay greater attention to the "quality" of teeth cleaning. It is necessary to explain to school children how important it is to eliminate the deposits from the dental surface. Another important point is awareness about the interdental floss.

Many school children do not know about the use and never used floss for interdental cleaning. This was similar to a study

by Mythri et al. [16] 57% of school children gargle their mouth after a meal & only 18% from the examined school children have visited dentist for professional oral hygiene. The school children do not know much about periodontal diseases, their affects, though they know more about caries, its complications and possibilities of prevention. So it is necessary to stress the prevention of gingival diseases, to explain the importance of oral hygiene, and the elimination plaque and calculus.

CONCLUSION

Oral health status was significantly better in private school children compared to government schools children. A significant increase in the prevalence of gingivitis was observed with age. No significant difference was observed among gender for the prevalence of gingivitis.

Proper brushing techniques, use of floss and knowledge about gingival and periodontal diseases should be rendered to the school children in order to prevent dental diseases at later ages.

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