

A RELATIONSHIP BETWEEN DENTAL CARIES STATUS, GINGIVAL STATUS AMONG 5 YEARS AND 12 YEARS OLD SCHOOL CHILDREN IN KANCHIPURAM DISTRICT: A CROSS-SECTIONAL STUDY

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ABSTRACT

The commonly affected diseases in children are dental caries and gingival diseases, because of poor oral hygiene, which leads to a range of various gingival, periodontal, and dental caries. Epidemiological studies have shown dental caries and gingivitis of varying severity in children and adolescents. Early Diagnosis and treatment of these diseases, followed by oral hygiene practices results in a good prognosis. The purpose of this cross-sectional study is to assess the relationship between dental caries status and gingival status among 5years and 12years old schoolchildren in the Kanchipuram district. The study population consisted of 640 school children in 16 schools, which had been randomly selected in and around the Kanchipuram district. It has been concluded that a high increase in dental diseases like dental caries, gingivitis, and urge in need of treatment for these conditions, followed by dental health education, school- based treatment camps, and preventive programs in the future.

Keys Words: Dental Caries Status, Gingival Status, School Dental Education, Oral Hygiene

Introduction: Dental caries has been referred to as a “Disease of Civilization” reflecting the fact that the prevalence of this disease traditionally was high in industrialized countries and low in developing countries. The prevalence of gingivitis in developed countries was about 73% among children between 6 and 11 year old. This rate rises with an increase in age from 6-11years. ^{1, 2}

This cross-sectional study aims to

1. To assess the gingival condition using a modified version of simplified oral hygiene index in 5years and CPI in 12years old children.
2. To correlate OHIS versus dmft and CPI versus DMFT

Materials and Methods: This study was conducted to assess the gingival condition, dental caries status for 5 years and 12 years old school-going children in the Kanchipuram district.

1. Study population consists of sixteen schools randomly selected in the Kanchipuram district
2. Forty children in each school were selected and out of forty, twenty were 5years and twenty were 12 years old. The total number of children examined was 640, in that 320 were 5 years and 320 were 12years age group.
3. The survey was based on WHO Oral

Health Assessment 1999. The survey was carried out between January 2020 to February 2020.

Results: A total number of 640 school- going children in the age group of 5 years and 12 years of Kancheepuram district were studied.

Table 1 shows dental caries assessment of 5 and 12 years. It was observed that caries prevalence of 12 years age group was higher compared to the 5 years age group in both male and female

Graph 1 shows the percentage distribution of caries affected and caries-free among 5 years male and female, caries affected male – 84.6% and 78.6% were female. Graph 2 shows the percentage distribution of caries affected and caries-free among 12 years males and females, 75.5 % of males and 82.7% of females were affected by

caries in 12 years age group.

Table 2 shows that there was no statistically significant difference between dmft/DMFT of boys and girls in both age groups.

Table 3 shows the gingival assessment using Green and vermillion index modified for 5 years age group. Above 80% are having good oral hygiene and 9.6% are having poor oral hygiene.

Table 4 shows the gingival and periodontal assessment using CPI for the 12-year age group, 10% of children had a score of 0 (Healthy - gingival and periodontal status).

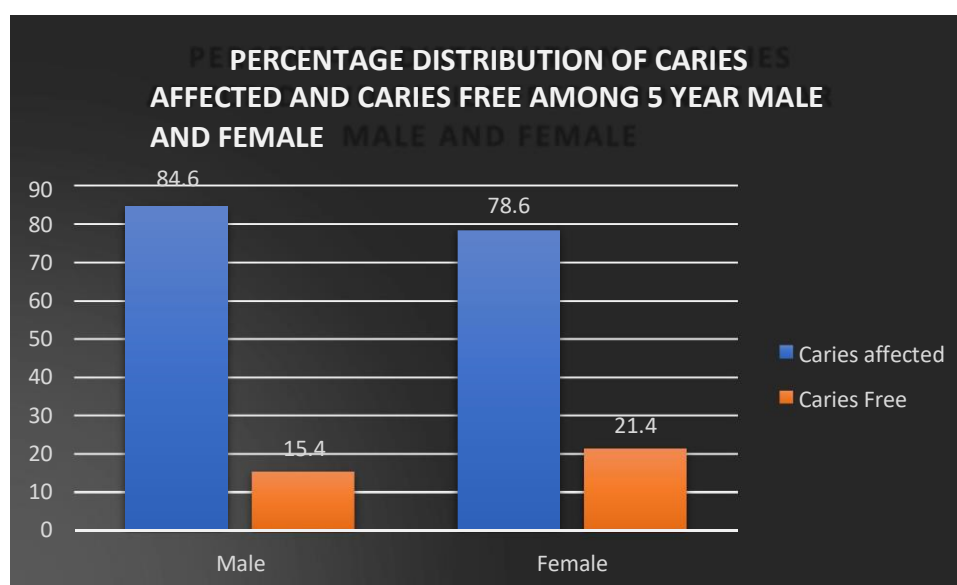
Table 5 shows a correlation between the green and vermillion OHIS modified and dental caries status for 5 years in both male and female, it is observed that there is a correlation between CPI and DMFT status in both male and female among 12 years.

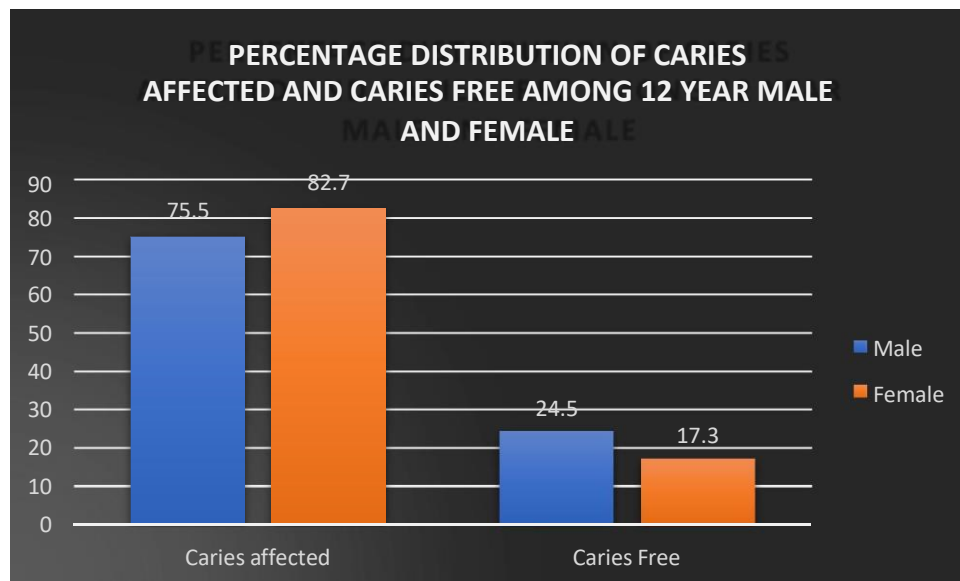
Table: 1 – Dental caries status of 5 years and 12 years school going children

Dental caries status in 5 years (dmft)							
Sex	No of children	Caries affected	Caries free	5 years dmft	Decayed teeth (d)	Missing teeth (m)	Filled teeth (f)
Male	156	132	24	569	520	49	0
Female	164	129	35	483	421	59	3
Total	320	261	59	1052	941	108	3
Dental caries status in 12 years (DMFT)							
Sex	No of children	Caries affected	Caries free	12 years DMFT	Decayed teeth (D)	Missing teeth(M)	Filled teeth (F)
MALE	158	120	38	601	585	16	0
FEMALE	162	134	28	581	571	5	5
TOTAL	320	254	66	1182	1156	21	5

Table 2 -Dmft/DMFT status of 5 years and 12 years school going children

		Decayed teeth (d)	Missing teeth (m)	Filled teeth (f)	i-square value	P-value
5 year	Male	520	49	0	3.14	0.832 (Not significant)
	Female	421	59	3		
12 year	Male	585	16	0	2.36	0.723 (Not significant)
	Female	571	5	5		

**Graph 1 – Percentage distribution of caries affected and caries-free among 5 years male and female**



Graph 2 – Percentage distribution of caries affected and caries-free among 12 years male and female

Table 3 - GINGIVAL STATUS – MODIFIED OHIS 5 YEARS

SCORE	MALE	FEMALE	TOTAL
Good - 0.1 – 1.2	124 (79.4%)	147 (89.6%)	271 (84.7%)
Fair - 1.3 – 3.0	12	6	18 (5.7%)
Poor - 3.1 – 6.1	20	11	31 (9.6%)
TOTAL	156	164	320

Table 4 - GINGIVAL AND PERIODONTAL STATUS USING CPI SCORES – 12 YEARS

SCORE	MALE	FEMALE	TOTAL
0 – Healthy	11 (6.9%)	24 (14.8%)	35
1 – Bleeding	80	81	161
2 – Calculus	67	57	124
TOTAL	158	162	320

Table 5 – Correlation of OHIS Vs dmft and CPI Vs DMFT

		OHIS	dmft	r value	p-value
5 year	Male	1.3 ± 0.6	3.7 ± 1.7	0.23	0.0023
	Female	1.2 ± 0.5	4.1 ± 1.2	0.22	0.012
		CPI	DMFT	r value	p-value
12 year	Male	1.7 ± 0.45	3.4 ± 1.43	0.42	0.001*
	Female	1.42± 0.3	3.3 ± 1.2	0.38	0.018*

*-significant

Discussion: Dental caries remains one of the most prevalent dental diseases for both children and adults. In may 1981, W.H.O. had proposed that by the year 2000, all the children of 12 years should not have more than three decayed, missing, or filled permanent teeth. This according to WHO was marked as the first global indicator of oral health status. Various prevalence studies had been conducted in different parts of the world, indicating that in developed countries dental caries have shown a marked decline from

1980. This is mainly due to the appropriate use of fluorides and proper oral hygiene measures.

Among developing countries like India, dental caries have shown a marked increase. Very few epidemiological studies were done to evaluate the oral health status of Kancheepuram district children. This study was undertaken to evaluate the oral health status and make them aware of these problems and give guidelines to improve their oral health.

Six hundred and forty children of the 5

& 12-years age group were evaluated. In this study out of 320 children among 5 years, 156 were boys and 164 were girls. In 12 years among 320 children, 158 were boys and 162 were girls. In this study to assess the oral health status of children we have evaluated the OHI-S modified for 5 years and CPI for 12 years and correlated with oral hygiene practices. It was observed that the OHI index modified for the 5 years showed that 79.4% of boys and 89.6% of girls were having good oral hygiene. This could be attributed to their healthy oral hygiene practices. Oral hygiene (CPI index) for 12 years showed that 14.8% of girls and 6.9 % of boys were having healthy gingiva. It is observed in our study that oral hygiene scores are increasing with age and boys were more affected. This observation is contradictory with the findings of Subrata Saha Subrata Sarkar 1996.⁴ The reason could be mixed dentition period, varied food habits, shedding of primary teeth, oral hygiene practices may not be proper and not supervised by parents, pubertal changes in girls. All these factors can lead to increase gingival bleeding.

Even though in our study the children were having good oral hygiene, caries prevalence is high, which can be attributed to other factors like faulty feeding habits, lack of awareness, and lack of access to professional dental care. It was observed that caries prevalence of 12 years age group was higher as compared to 5 years age group in both among male and female. Similar findings seen in a study conducted by Retna kumari in 1999³ has reported the highest level of caries experience in the permanent dentition among 12 years. Rao et al 1999¹ reported that the caries prevalence was low in permanent teeth when compared to the primary teeth. In our study, it was noted that the further segregation of DMF component, revealed that decayed component was maximum and children were seen losing their teeth from 12 years of age. It was seen that dental treatment was sought only in conditions of acute pain and abscess formation.⁵

The correlation of modified Green and Vermillion OHIS score with dental caries for 5 years depicts the dental caries status of 320 school children was statistically significant. However, in this study, girls have increased caries rate when compared to boys, the reason could be a change in dietary habits. The correlation between CPI and dental caries

among 12 years male and female depicts the dental caries status of 320 children, in which boys show increased dental caries when compared to girls.

Conclusion: Dental caries is the most prevalent dental disease in the oral cavity inclusive of both primary and permanent dentition. It was concluded that the caries rate is high in permanent dentition than in primary dentition, the reason could be because permanent tooth is exposed to a cariogenic diet from the time of eruption till the tooth is in situ. The correlation between modified Green and Vermillion OHIs score with dental caries for five years, girls have increased caries rate when compared to boys. The correlation between CPI and dental caries for 12 years depicts boys showing increased dental caries when compared to girls.

Conflict of interest: Nil None

Financial support: Nil

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