



A CROSS SECTIONAL STUDY ON DENTAL CARIES AMONG SCHOOL CHILDREN IN A PRIMARY CARE SETTING

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**ABSTRACT** Collecting data on prevalence is needed for planning and evaluating health programmes, and also for making earlier diagnosis and prompt intervention . As the data on dental caries prevalence was few in Tamilnadu, the present study was carried out with the objective of determining dental caries prevalence among Government school children of 7th-10th std aged 12-15 years in Kallendiri block of Madurai district, Tamilnadu. A total of 300 students (169 boys & 131 girls) were interviewed separately and dental caries was measured based on WHO criteria of DMFT (Decayed, Missed, Filled Tooth). **SUMMARY:** The prevalence of caries was 82.7% with mean DMFT of 2.02. Among them, 78% were males and 75.6% were females. Dental caries was significantly inversely related to mother's education.

**KEYWORDS :** Dental caries, DMFT, school children

INTRODUCTION

Dental caries is defined as an infectious microbiological disease of the teeth that results in localised dissolution and destruction of the calcified tissues<sup>1</sup>. According to WHO, it is a serious public health problem and affects 60-90% of school children with highest priority risk group being 11-15 years of age <sup>2</sup>. Dental caries leads to morbidity like sleeping, eating and behavioural problems and loss of school/working hours due to pain. It also poses a financial burden on the parents because of expensive treatment and loss of working hours. A cross sectional study in Belgaum, India (2005) had reported a mean DMFT of 2.41 in 13-15 year old school children <sup>3</sup> and data from national oral health survey in India(2000-2003) revealed a dental caries prevalence of 53.8% and the mean DMFT score of 1.8 in children aged 12 years <sup>4</sup>. Collecting data on prevalence is needed not only for planning and evaluating oral health programmes, but also for making earlier diagnosis and prompt intervention and identification of high risk groups. It was found that data on dental caries prevalence was few in Tamilnadu .Hence the present study was carried out with the objective of determining dental caries prevalence among Government school children of 7th-10th std aged 12-15 years in Kallendiri block, Madurai district.

MATERIALS AND METHODS

This community based cross sectional study was conducted among 7<sup>th</sup>-10<sup>th</sup> std (12-15 years ) Government school children in Kallendiri block, Madurai, Tamilnadu. Sample size was calculated as 300 based on previous studies. Cluster sampling method was used. Study participants in each selected school were recruited randomly using the roll numbers in the attendance register. Approx 50 students were selected in each school. .Consent from the parents were obtained by sending an introduction letter with an attached consent form in Tamil through school authorities. Those not willing to participate and absent on the day of survey were excluded from the study. A questionnaire was used to collect data on sociodemographic details . Dental caries was measured based on WHO criteria of DMFT index <sup>5</sup> (Decayed, Missed, Filled Tooth) using mouth mirror and probe. The instrument was disinfected using dettol solution after each examination and totally 3 mouth mirrors and probes were used in turns. A tooth was diagnosed as DECAYED when it had discoloured lesion in the pits/fissures or smooth surface -softened floor or wall, definitely catching the explorer/probe tip, as FILLED when it had adequate permanent restoration with no decayed areas. as MISSING when it had been extracted because of caries only. DMFT score was computed for each student. The DMFT score for any individual can range from 0 to 32, in whole numbers. Lower the score, the better the dental health of the population.

Analysis and interpretation:

Statistical analysis was done using SPSS software version 16.0. Chi

square test were performed. P value <0.05 was taken as significant value.

RESULTS

A total of 300 students belonging to 7<sup>th</sup>-10<sup>th</sup> standard participated in the study. The study population comprised of 56.3% and 43.7% of boys and girls respectively. The age ranged from 12 to 15 years with mean age of 13.6 years and Std. Deviation of 1.12. Socio demographic background is shown in table 1

Table: 1 Socio demographic details of the study population (N=300)

Variables	No.	Percentage
<b>Gender</b>		
Boys	169	56.3
Girls	131	43.7
<b>Age</b>		
12-13 years	134	44.7
14- 15 years	166	55.3
<b>Level of education</b>		
7th std	60	20
8th std	60	20
9th std	85	28.3
10th std	95	31.7
<b>Socioeconomic class</b>		
Upper(class I to III)	33	11
Lower( class IV & V)	267	89

Table: 2 Dental caries prevalence in the study population

	DMFT Score	No.	Percentage
Dental caries present	≥ 1	248	82.7
Dental caries absent	0	52	17.3

As shown in table: 2, dental caries prevalence in this study was 82.7%

Table : 3 Dental Caries and its relationship to socio demographic background

Variables	Dental caries No.	%	Mean DMFT	Chisqu are Value	Degree of freedom	P value
<b>Gender</b>				0.2676	1	0.605
Boys	132	78	1.8962	0.1066	1	0.9178
Girls	99	75.6	2.2051			
<b>Age</b>						
12-13 years	108	80.6	1.924	2.104		
14- 15 years	133	80.1	2.104			

Socioeconomic status				1.423	1	0.233
Upper(class I to III)	30	90.9	2.058			
Lower( class IV & V)	221	82.7	2.024			
Mothers education				57.33	2	0.000
Illiterate	125	90.6	2.472			
1st -5th standard	82	68.3	2.026			
Above 5th standard	14	33.3	1.758			

The caries prevalence in boys was 78% (mean DMFT-1.8962) and in girls, it was 75.6% (mean DMFT-2.2051). This difference was not statistically significant. The prevalence in the age group of 12-13 yrs and 14-15 yrs were 80.6% and 80.1% respectively with no significant difference. Since mothers play a important role in child rearing, their educational status was analysed with caries. It was observed that lesser the mother's education level, higher the caries prevalence among their children which was highly significant ( P value of <0.0000001)

## DISCUSSION

Among the 300 students participated in this study, the prevalence of dental caries was 82.7% which is almost similar to the prevalence of 78.2% in a study conducted among Iraqi adolescents of 13-17 years in 2009<sup>6</sup>, 68% in a Mumbai study conducted among 12-15 years<sup>7</sup> and 66.24% in a study among same age group of 12-15 years in sharjah<sup>8</sup>. However, the present study prevalence is higher than the prevalence reported by few studies conducted among the same age groups namely a study by Joyson Moses et al in Chidambaram in 2011<sup>9</sup> reported a prevalence of 60%, a study in rural kerala in 2003 by Jose A et al<sup>10</sup> revealed a prevalence of 54.3% and 56.35 % by Chandra Shekar et al in Andhra Pradesh, Nalgonda<sup>11</sup> This increased prevalence could be attributed to changes in the life style and eating habits such as increase in the frequency of consumption of sweetened foods, chocolates etc. It could also be compounded by a lack of interest in dental health care and preventive measures, and difficulties in obtaining professional dental care. Both sexes were equally affected with slightly higher prevalence among boys ( 78% Vs 75.6% in girls) and the difference was found to be insignificant as seen in few other studies by Jose A et al in kerala<sup>10</sup> and by Dhar V et al in rural Udaipur

The mean DMFT index noted in this study was 2.02 with standard deviation of 1.73. A mean DMFT index of 2.41 among 13-15 years by Hedge PP et al in Belgaum, India(2005)<sup>3</sup> and 2.1 by El-Nadeef MAI et al in UAE<sup>12</sup> were comparable to the present study. However, a study among 12-15 years private school students in sharjah(2008)<sup>8</sup> among the same age group had reported higher DMFT index of 3.27 and 3.7 respectively. Lowest mean DMFT score was recorded in 12 years (1.900) while the highest in 15 years (2.20) as similar to a study in Mumbai by Rodrigues JS et al<sup>7</sup>

The study observed a significant inverse relationship between dental caries in children and their mothers education(P=<0.0000001)(shown in table 3)i.e. prevalence was higher among children of illiterate mother's (46%).

## Conclusion:

The study reported a high prevalence of dental caries with almost equal prevalence among both the genders. There was significant inverse relationship between dental caries and mother's educational status.. Findings of the present study suggests that oral health knowledge needs to be improved through systematic community based oral health programmes and at the same time, behaviour change communication is also needed to bridge the gap between knowledge and actual practise. Moreover, oral health education should be a lifelong practise and incorporated into school environment with the help of both teachers and parents.

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