



Original Article

Prevalence of dental caries among primary school children in Poonamallee, Chennai

Shilpa A^{1*}, *Mahalakshmi.K*²

^{1*}Private Dental Practitioner, Teynampet, Chennai-600018

² Post Graduate Student, Department of Public Health Dentistry, Saveetha Dental College & Hospitals, Saveetha Institute of Medical and Technical Sciences, Chennai – 600077

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Abstract

Background: The two most prevalent oral diseases are dental caries and periodontal disease. Humans of all ages suffer from dental caries, but school children represent the highest priority risk group. The aim of the current study was to utilize the dft/DMFT (DMFT : Decayed missing filled teeth, dft : decayed filled teeth) index to assess the prevalence of dental caries among primary school-aged children in Poonamallee, Chennai.

Methodology: Before the study, examiners underwent a series of clinical training to calibrate them. After gathering demographic data which included name, gender, age and socio-economic class, a clinical examination for dental caries was conducted and the results were documented on a pro forma.

Results: The study's findings suggest that caries prevalence was more in females than males and also primary dentition had higher prevalence of caries.

Conclusion: The research shows that dental caries is still a major public health problem even in urbanized areas such as Poonamallee, Chennai.

Keywords: primary dentition, dental caries, school children

Address for Correspondence:

Shilpa A,
Private Dental Practitioner,
Teynampet,
Chennai-600018.
Email-Id: ajaishilpa@gmail.com

INTRODUCTION

Since its inception, oral health has always been integral to overall health and has a bearing on people's wellbeing. In the majority of developed nations, dental caries continues to be a serious public health concern, especially in those nations without established prevention measures ((1,2). Despite significant gains in the oral health of populations in many countries, the WHO recently published a global overview of oral health that underscored ongoing global issues.(1).

Dental caries can be described as a multifactorial illness that is a consequence of a complex process that involves a number of variables, including saliva, food, microbes, trace elements, genetic vulnerability, and morphology of the tooth. These are only a few; there are plenty others, including personal, social, environmental, and cultural influences.(3)(4)(5)(6).

Humans of all ages suffer from dental caries, but schoolchildren are the highest priority risk group. The term "school years" refers to the time from childhood to puberty. Important oral health-related attitudes and habits are formed during these crucial junctures in people's lives. During this time, children are very susceptible, and the earlier the habits are formed, the longer the effects endure.(7). Children with poor dental health are 12 times more likely than those without to experience restricted activity days, which includes missing school.(8). Due to oral ailments, close to 50 million hours are wasted from school hours each year (7,9).Studies have linked increased number of decayed teeth in both the primary as well as permanent teeth with missing school days, toothaches, and many impairments of daily life activities. Similar results have been observed for Brazilian preschoolers and Native American students in a school survey (10).

The burden posed by dental caries has seen a steady rise in youngsters owing to the unrestricted use of sugars in diet, bad oral hygiene practises, and insufficient use of healthcare services, even though the trend is unclear in developing nations (11). Studies showed that urban children had a increased prevalence of dental caries (12). In a similar vein, a study carried out in Ethiopia revealed that 36.5% was the prevalence of dental caries in urban school-aged children (13). Albeit dental caries is common in school-aged children, no information on the current trends of prevalence among primary school students in Poonamallee, Chennai city and related factors is present. The aim of this study was to assess dental caries prevalence in primary school students, Poonamallee, Chennai.

MATERIALS & METHODS

A list of the primary schools in Poonamallee was gathered, and 607 students between the ages of 3 and 12 years from the four chosen Poonamallee schools had their dentition status checked. The Institutional Ethics Committee gave its approval before the project got underway. The head of the schools granted approval in advance. School children in the age group 3-12 years and who were lifelong residents of Poonamallee, Chennai were included in the study. Children suffering from systemic illness and with orthodontic brackets and with severe extrinsic stains on their teeth excluded from the study.

Before the study, the examiners were trained and calibrated by clinical training sessions at the institution. After gathering demographic data including name, age, gender, and socioeconomic class, a pro forma was used to record the dft/DMFT index of each participant. The patient underwent a dental examination while seated in a regular dental chair. For the examination, a mouth mirror and explorer were utilized. The explorer was utilised particularly to confirm the caries diagnosis and with extreme caution to avoid damaging the sound, unbroken enamel surface. After the screening, the pupils received oral health education. SPSS software was used to evaluate data that were transferred into a Microsoft Excel spreadsheet (version 23). Descriptive

statistics were carried out. P value less than 0.05 was set to be statistically significant. Independent t-test was used to evaluate the mean differences set at 5% significance level ($P < 0.05$).

RESULTS

607 children aged 3-12 years formed the study sample out of which 44% (n=267) were males and 56% (n=340) were females as illustrated in Figure 1. Table 1 demonstrates the mean dft and DMFT values with respect to gender. On the whole, the children exhibited a mean dft score of (1.05 ± 3.70) . The mean dft score was higher among females (1.01 ± 1.80) than males (0.08 ± 1.86) . The mean DMFT score of the study population was (0.15 ± 0.82) . The mean DMFT score of females (0.12 ± 0.49) was higher than that of males (0.06 ± 0.34) . Table 2 depicts the comparison of mean dft and DMFT score between males and females. No statistically significant difference in mean dft between genders could be established. However, a statistically significant difference in mean DMFT between genders was established using independent t-test.

Figure 1: Distribution of study subjects according to gender

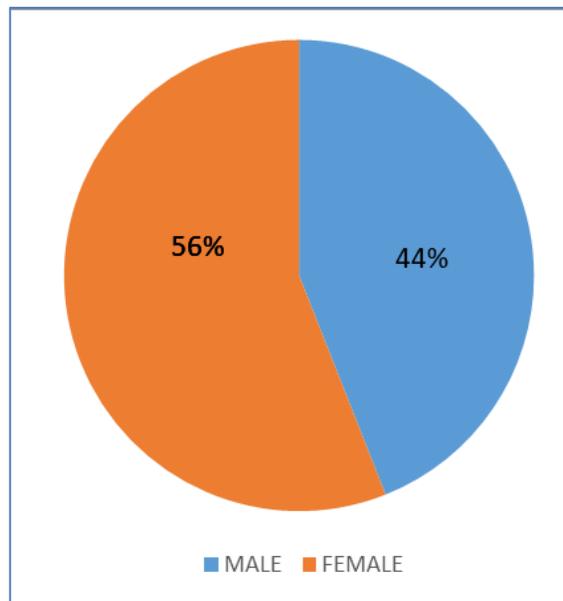


Table 1: Mean value of dft and DMFT component according to gender

GENDER	n	Mean dft \pm SD	Mean DMFT \pm SD
Male	267	0.08 \pm 1.86	0.06 \pm 0.34
Female	340	1.01 \pm 1.80	0.12 \pm 0.49
Total	607	1.05 \pm 3.70	0.15 \pm 0.82

Table 2: Comparison of mean dft and DMFT based on gender using independent T test

Caries index	Male	Female	Overall	P
dft	0.08±1.86	1.01±1.80	1.05±3.70	0.70
DMFT	0.06±0.34	0.12±0.49	0.15±0.82	0.000

DISCUSSION:

Since it can enhance overall health status and quality of life, as well as self-esteem and social engagement, good dental health offers significant health benefits. Epidemiologic research may be useful for determining the frequency of diseases, identifying patterns in the progression of diseases, and investigating potential causes of disease patterns. In the current study, girls made up 56% of the children and boys made up 44%.

In the current study the number of decayed, missing, filled teeth was much higher in primary dentition (1.05±3.700) than in permanent dentition (0.15±0.82). This is in line with a study conducted on school children in Telangana where prevalence of dental caries was seen to be much more in primary dentition (mean dft 1.49, 64.2%) in comparison to permanent dentition (mean DMFT 0.57, 26.6%)(8). This might be explained by the fact that dental caries is less likely to affect permanent teeth. Additionally, youngsters under the age of 12 may have recently finished replacing their dentition. It might also be brought on by structural variations that make deciduous teeth more susceptible to caries and the reduced calcium content of those teeth.(14) (15).

In our study, females had a higher prevalence of decay (mean dft:1.01±1.80,mean DMFT: 0.12±0.49) than males (mean dft: 0.08±1.86,mean DMFT:0.06±0.34) which is in accordance with other studies(16)(17).However in contrast, prevalence of caries in a study conducted by Reddy et al was higher in boys than girls(8). The authors justified this result by stating that this could be due to discernible preference for sons which is common in India and is expressed as favoured feeding in comparison to daughters and due to higher frequency of snacking in boys attributed to the longer duration spent outside by them.

CONCLUSION:

Females had a significantly higher prevalence of decay than males. Dental caries is a consequential public health problem in this population. An elaborate system for the provision of primary oral health care has to be initiated in this area. Further studies exploring the role of diet, culture, fluoridation, and oral hygiene practices are necessary to establish solid causal relationships for better framework of health policies.

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Conflicts of interest

There are no conflicts of interest

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