



RESEARCH ARTICLE

ORAL HEALTH STATUS OF RURAL SCHOOL CHILDREN BETWEEN 6-11 YEARS – A CROSS SECTIONAL STUDY

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ABSTRACT

Background: Oral disease prevention, health promotion and access to care are important aspects of oral health in a global setting. The following study was taken up with the aim to evaluate the oral health in the rural school children of Melmaruvathur, Tamilnadu. **Methods:** A total number of 300 children between the age group of 6-11 years were clinically examined for oral hygiene status based on WHO criteria. Results – Average for good oral hygiene status is 33.5% and fair oral hygiene status is 64.9% and poor oral hygiene status is 1.3%. Data shows boys were better compared to girls. **Conclusion:** This study substantiated the need to develop preventive school health programs along with the improvement of dental health services for school children.

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INTRODUCTION

Oral health is integral to general health and that it is essential for general well being. Despite numerous efforts, the improvement of oral health still remains a challenge in both developed and developing countries (Saha *et al.*, 1996). Oral health in children and adolescents was recognized as a priority action area and countries were encouraged to develop preventive approaches through health education in schools, through partnerships between families, schools, oral health professionals and communities and by improving access to preventive and curative oral health services. Among the common oral diseases, dental caries and periodontal diseases are the two foremost conditions that remain widely prevalent and affect all populations throughout their life span (Klein *et al.*, 1938). Oral diseases continue to have high prevalence despite the decline in dental caries in developed countries. The caries experience varies greatly among countries and even within small regions of countries. It varies with age, sex, socioeconomic conditions, ethnicity, diet, medical conditions of the patients etc, and even within oral cavity, all the teeth and surfaces are not equally susceptible to caries (Frencken *et al.*, 1986).

Knowledge of dental health and treatment needs of school children is important for developing appropriate preventive approaches, anticipating utilization pattern and planning effectively for organization and financing of dental resources.⁴ The purpose of the current study was to assess the oral health status of rural school children aged 6-11 years of Melmaruvathur city, Tamilnadu by investigating the prevalence of dental caries and periodontal disease.

MATERIALS AND METHODS

A cross sectional study was carried out to assess the oral health status among rural school children in Melmaruvathur city, Tamilnadu, India. Approval from a chief executive officer, concerned school head masters and written informed consent from parents/guardians of school children were obtained prior to the study. The survey was carried out for a period of 2 months. A list of government schools from Melmaruvathur taluk was obtained from the deputy director of school education office. Four schools were selected by lottery method from the list. From each school, all the children between the age group of 6-11 years who were present on the day of examination were included in the study. Mentally, physically and sensory handicapped, developmental defects of teeth, medically compromised patients and subjects with fixed orthodontic treatment were excluded. The fluoride level of drinking water was analyzed in these areas and was found to

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be well within the optimum level. Calibration sessions were conducted before the start of the study that consisted of examination of 25 children. As per WHO guidelines oral hygiene status was assessed by OHI-S index and dental caries by DMFT/dmft index. Single examiner carried out the clinical examination with sufficient instruments under natural illumination. After the clinical examination, oral health education was given and tooth pastes and brushes were distributed to all the children. Data were entered in Microsoft excel and analyzed using SPSS windows version 16.0. Results were subjected to statistical analysis using descriptive statistics.

RESULTS

Total sample size of 300 children, comprising 150 males and 150 females were included in the study. Average score for 6 years is 71, 7 years is 101, 8 years is 100, 9 years is 107, 10 years is 91 and for 11 years is 58.

The average decayed tooth in mixed dentition is 39.9%, missing is 3.5%, filled is 0.5%, 7.9% is caries free and no missing and filled tooth. The average DMFT index in mixed dentition is 88%. Decayed tooth accounted for the greatest percentage compared to missing and filled components. There was no significant difference in DMFT index. Among the girls 74.6% has fair oral hygiene status, 24% has good oral hygiene and 1.3% has poor oral hygiene. In boys 55.3% has fair oral hygiene, 43.3% has good oral hygiene and 1.3% has poor oral hygiene. Average for good oral hygiene is 33.5% and fair oral hygiene is 64.9% and poor oral hygiene is 1.3%. Data shows boys were better compared to girls. Oral hygiene status and prevalence of dental caries was good among 6 years of age compared to other groups.

DISCUSSION

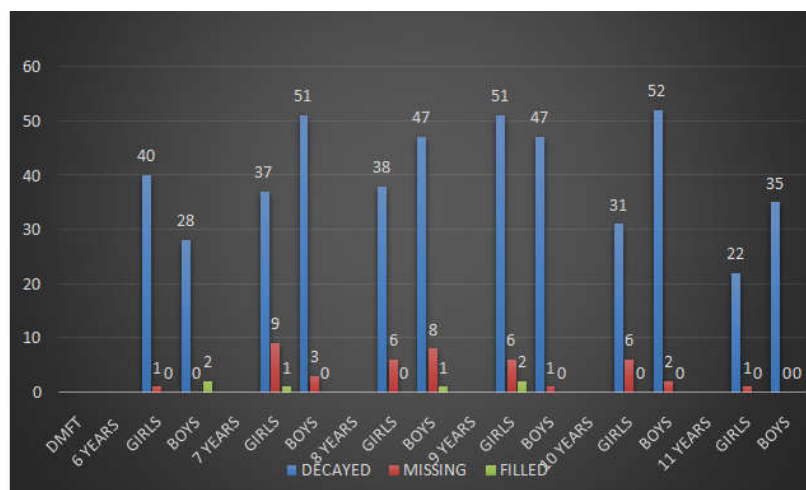
Oral health is affected by a multitude of pathological conditions, one of the most common conditions being dental caries a multifactorial disease.

Table 1. Dmft index in mixed dentition

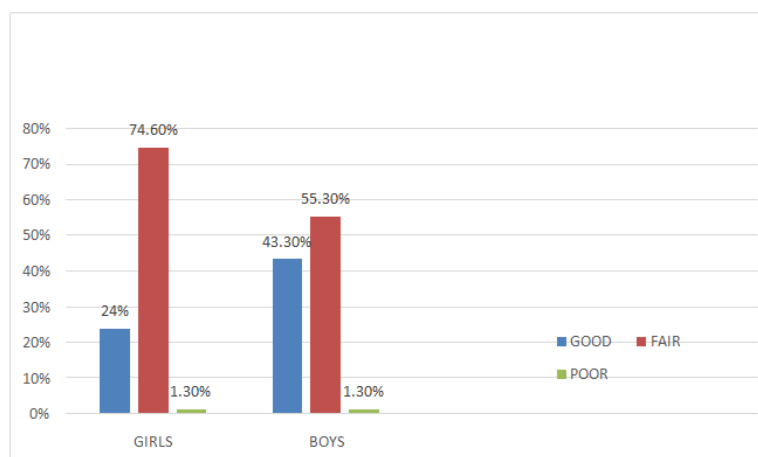
DMFT	DECAYED	MISSING	FILLED	NONE	TOTAL
6 YEARS					
GIRLS	40	1	0	10	41
BOYS	28	0	2	11	30
7 YEARS					
GIRLS	37	9	1	6	47
BOYS	51	3	0	6	54
8 YEARS					
GIRLS	38	6	0	6	44
BOYS	47	8	1	6	56
9 YEARS					
GIRLS	51	6	2	8	59
BOYS	47	1	0	10	48
10 YEARS					
GIRLS	31	6	0	9	37
BOYS	52	2	0	6	54
11 YEARS					
GIRLS	22	1	0	10	23
BOYS	35	0	0	7	35
AVERAGE	39.9%	3.5%	0.5%	7.9%	44%

Table 2. Comparison of oral hygiene index-simplified among genders

GENDER	GOOD	FAIR	POOR
GIRLS	36[24%]	112[74.6%]	2[1.3%]
BOYS	65[43.3%]	83[55.3%]	2[1.3%]
AVERAGE	50.5[33.5%]	97.5[64.9%]	2[1.3%]



Graph 1. DMFT index in mixed dentition



Graph 2. Comparison of oral hygiene index-simplified among genders

Major factor known to be concerned with its initiation and progress are the nature and the availability of suitable nutrients for the oral microorganisms. A number of factors have been put forward to explain the variation in prevalence and severity of dental caries and periodontal disease, not only between developing and developed countries, but also between rural and urban populations. In general, these factors can be divided into local intraoral factors associated with plaque accumulation, metabolism and fluoride exposure or general factors such as age, sex and socio-cultural variables (Omar *et al.*, 1991). The school age is regarded as the most important phase of child's life as it plays vital role in the education and development at the crucial stage of childhood and adolescence. Parents, teachers, administrators, students and health professionals must be informed and motivated to develop core values, visions, goals and activities and to provide new direction for health education and promotion of optimal school learning and health.

If the child does not maintain adequate health, the benefits of education will be lost because of absenteeism or lack of attention due to ill health (Saravanan *et al.*, 2008). The survey was conducted to assess the need to start a local campaign to raise the public awareness for oral hygiene and the need to modify policies for early access to preventive dental services among school children. It is of utmost importance in this age group (mixed dentition stage) for those school children to be closely assessed in order to provide dental age, enhance dental awareness and to allow different preventive measures to be implemented (Chinmaya *et al.*, 2011). A considerable amount of children in the studied population had never been to a dentist nor had access to preventive hygiene practices. This study provides the information of oral hygiene status in a representative sample of 300 rural school children. The prevalence of caries in our study was higher in boys (32.6%) than girls (30.6%). The increased prevalence of caries in the boys may be due to the marked preference for the sons, which manifests in preferential feeding compared to daughters and due to snacking habit among boys during the longer outside stay (Mandal *et al.*, 2001). The results of the present study was in contraindication with the study conducted by Kumar *et al.* who found increased prevalence of dental caries in girls than boys (Kumar *et al.*, 2010). But our results are in accordance of study conducted by Bhatia *et al.* (2012). In permanent dentition the prevalence of dental caries increased with age and the difference was statistically highly significant.

The reason for the increase in caries with age in permanent dentition may be due to longer exposure of the tooth with age (Ingle *et al.*, 2014). The caries prevalence in the deciduous teeth decreased from 6-11 years and the difference was statistically significant. This may be due to the fact that by 12 years most of the deciduous teeth exfoliate and this study showed increased DMFT in the age group of 12 years. This finding was in accordance with the study conducted by Antia *et al.* (1962). Evaluation of the oral health status of these children revealed, dental caries to be a highly prevalent disease affecting both permanent and primary dentitions. The increase in caries would be due to lack of dental awareness, improper dietary habits, ignorance and lack of motivation (Damle *et al.*, 1993). A high caries prevalence rate which can be attributed to the lack of school health programs in these schools earlier in addition to other factors stated above and indicates a need to conduct preventive and oral health awareness programs in these areas to create awareness and motivation. The dental caries in deciduous dentition decreased with age whereas in permanent dentition, there was an increase (Dash *et al.*, 2002). In the present study, the total dmft/DMFT represented only untreated decay and not the missing or filled components which showed that rural children did not have access to any restorative dental treatment due to insufficient dental services in the surrounding region. Further studies are required based on sugar consumption, socio economic factors, and fluoride exposure which plays an important role in caries development (Grewal *et al.*, 2011).

Conclusion

This epidemiological survey has provided baseline information to underpin the implementation of oral health programmes. Provision of oral health education in the schools with proper instructions on oral hygiene practices and school based preventive programs with probably be important for the maintenance and further improvement of oral health in rural school children.

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