ORIGINAL ARTICLE

PREVALENCE OF DENTAL CARIES AMONG 12-15 YEAR OLD SCHOOL CHILDREN IN NIZAMABAD CITY, INDIA

Sai Krishna H.V.N[1], Arun Shyam. M[2]

[1]Sr. Lecturer, [2]Reader Department of Public Health Dentistry, Meghna Institute of dental Sciences, Nizamabad, Telangana, India.

ABSTRACT:
Objective: To assess the prevalence of dental caries among 12-15 year old school children in Nizamabad city, Telangana state. Materials and methods: A cross-sectional study was carried out among 2487, 12–15 year old children attending various schools in Nizamabad city (urban & semi urban) India. Twenty schools were selected at random and dental caries was recorded using the decayed, missing, filled teeth (dmft/DMFT) index. Chi-square tests were used to find significant differences. $P < 0.05$ was considered as statistically significant. Results: The prevalence of dental caries in the study population was found to be 65.6 % (n=1641). The prevalence of dental caries was significantly higher among females than males but it was not statistically significant (p=0.57). Conclusion: The prevalence of dental caries among children was high in this population (65.6%). There is a need to generate awareness about oral health and the prevention of dental caries and to institute measures for the provision of dental care services at the primary level.
Key words: Dental caries, Prevalence, Children.

Corresponding author: Dr. Sai Krishna H.V.N, Senior lecturer, Department of Public Health Dentistry, Meghna Institute of Dental Sciences, Nizamabad. 503001, India, Email: haridas.saikrishna@gmail.com

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INTRODUCTION

India is a home to more than one billion people, of which 13 percent are children[1] Oral health is an integral component of general health and is essential for wellbeing. Although enjoying good oral health includes more than just having healthy teeth, many children have inadequate oral and general health because of active and uncontrolled dental caries.[2] Dental caries is the most common oral disease that affects significant number of Indian population. Dental caries is the major oral health condition in developing countries, affecting 60-90% of the school children and the vast majority of adults. Dental health is often neglected by a vast majority of population. Caries is the product of man's progress toward civilization, has a very high morbidity potential and thus, is coming into focus of the mankind. 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 patient, oral hygiene practices, etc., and even within oral cavity all the teeth and surfaces are not equally susceptible to caries.[3]

Dental caries not only causes damage to the tooth, but is also responsible for several morbid conditions of the oral cavity and other systems of the body. High prevalence of dental caries results in the absenteeism of school hours and loss of working hours and economic loss for the parents. This has further caused an increase in tooth loss before time, resulting in malocclusion, inferiority complex and subsequently leads to malnutrition. If a high risk group of children with caries can be identified and characterized, it would be useful to apply preventive measures to children with elevated risk.[4]

Determining the prevalence of dental caries in high school students will provide us a baseline data that is necessary for planning of intervention programs in schools. Preventing or reducing prevalence of dental caries among students will assist in improving the quality of life. So the present study was planned to assess the prevalence of dental caries

among high school children in Nizamabad city, India.

MATERIALS AND METHODS

A cross-sectional study was undertaken to assess the prevalence of dental caries among school going children of Nizamabad. The study was carried out in urban & semi urban schools of Nizamabad, Telangana state, India. Prior permission was obtained from ethics committee, school authorities and the parents. Twenty schools were selected at random. The children were examined in their respective schools seated on an ordinary chair in a broad day light facing away from direct sunlight; with the help of dental explorer and mouth mirror. All examinations were carried out by qualified examiners. Initially, they were trained in the department of public health dentistry, Meghna Institute of dental Sciences on 10 subjects. Calibration was done on 20 subjects who were examined twice using diagnostic criteria on successive days, and then the results were compared to know the diagnostic variability. Agreement for assessment was 90 percent. Using World Health Organization (WHO) diagnostic criteria, the number of decayed, missing and filled teeth (dmft/DMFT) was recorded. The inclusion and exclusion criteria were as follows.

INCLUSION CRITERIA:

1. School children aged 12-15 years.
2. School children who were residents of Nizamabad since 5 years.

EXCLUSION CRITERIA:

1. Individuals suffering from systemic illness
2 .Individuals who were not willing to participate in the study.
3. Individuals with orthodontic brackets and severe extrinsic stains on teeth.

The collected data was entered into Microsoft excel 2007 and subjected to statistical analysis using statistical package for social sciences (SPSS Version 18.0). The quantitative data was summarized using means and standard deviations. Chi-square test was used to find significant gender wise differences. P value < 0.05 was considered as statistically significant.

RESULTS

A total number of 2487 children were examined, out of them 45.4% (1128) were males and 54.6% (1359) were females. (Table 1) The prevalence of dental caries was 69.7% among females and 61.5% among males, and the overall prevalence was 65.6%. (Graph 1) The analysis of dental caries by gender showed that there was no statistically significant difference found between males and females (Table 2) the untreated caries accounted for 96.4% of the score, while filled teeth were only 2.1% and extracted teeth accounted for 1.5%. The mean dmft/DMFT score for females was 2.89 and males were 2.82.

Graph 1: Dental caries prevalence

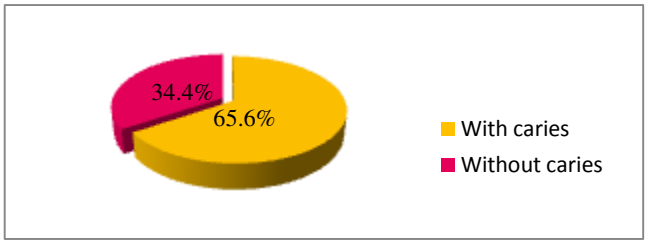

Table 1: Distribution of children according to age & gender

Age	Number of children		Gender		
	N	%	Male	1128	45.4%
12 years	557	22.3%	Female	1359	54.6%
13 years	567	22.7%			
14 years	785	31.5%			
15 years	578	23.2%			

Table 2: Distribution of children with and without caries by gender

Gender	Number of children with dental caries (%)	Number of children without dental caries (%)	Total
Female	947 (69.7%)	412 (30.3%)	1359
Male	694 (61.5%)	434 (38.4%)	1128
Total	1641 (65.6%)	846 (34.4%)	2487

(p=0.57)

DISCUSSION

Dental caries is a multifactorial disease. Factors affecting the onset of carious lesions include oral hygiene, diet composition and frequency, socioeconomic status, salivary immunoglobulin's, bacterial load, and fluoride intake.[5] Recent evidence has shown that the importance of oral health in the management of systemic health, and many of diseases have been linked to indicators of oral disease.[6] In the present study there were more number of females (54.6%) when compared to males (45.4%) and prevalence of caries was slightly higher (69.7%) in females when compared to males (61.5%). But this difference was not statistically significant. This finding is consistent with the studies done by Al Shammery et al[7], Salapatal et al[8]. This may be due to the fact that females are more prone to caries due to some risk factors such as different salivary composition and flow rate, dietary habits, genetic variation etc and teeth erupt earlier in females than males which lead to prolonged exposure of the teeth to the oral environment in females. The results of our study are in contrast with the studies done by Saravanan et al[9], Gaikwad et al[10] where more number of males were affected than females. They attributed this difference to diet, geographical location and cultural differences seen in some societies where males are given more priority. In the present study the final sample comprised of 2487 children with age group of 12 to 15 yr old. It is likely at these ages all permanent teeth, except third molars, will have been erupted; and these age groups are considered the global monitoring age for caries for international comparisons and monitoring. Hence, this age group was selected for the study. In the current study, the overall prevalence of caries was 65.6% .This finding is in constant with the studies done by Mishra et al[11] (60.41%) & Chopra et al[12] (61.88%). In our study, mean dmft/DMFT in the youngest age group (12 years) was 2.30 and highest in the age group (15 years) was 2.74. Similar results have been reported by Simratvir et al[13], Mohebbi[14] et al. Similar to other studies, this study too showed that caries prevalence increased with age. This might be due to the longer duration for which teeth are exposed to cariogenic factors, which increases the likelihood of caries development; also, as children grow older there is a change in the dietary habits and hygiene practices.

In the present study, the decayed part contributes to 96.4% which indicate lack of knowledge, positive attitudes and affordability to the dental facilities available. This overview points towards developing immediate and effective oral health promotional and interventional strategies to combat the disease on regional scale.

LIMITATIONS

Since the data was cross sectional, causal relationships cannot be established and the observed association could be due to other unexplored factors (Hereditary). Caries detection was carried out visually, without taking any radiographs. Secondly, there were multiple investigators involved in collecting the data and carrying out the oral examinations; though they were all trained to carry out the procedures, some amount of interobserver variation cannot be ruled out. Therefore, the interpretation of the results of this study should be made keeping the above limitations in mind.

CONCLUSION

This study showed that the prevalence of dental caries remains high among high school children. Females had higher caries prevalence than males but it was not statistically significant. Awareness among children can be generated by the school teachers because they are the role model for the students. Parents should be aware of the dental health of their children. Parent/teacher meetings should be regularly organized during which parents are educated on the importance of good hygiene practices in disease prevention and health education should be incorporated within the regular activities of the school.

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