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Prevalence of Dental Health Problems among School going Children in Rural Areas of Thane District, Maharashtra

Research Article

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Abstract

Background: Epidemiological studies are helpful in planning and implementing oral health programs in a given population. This initiative is a consequence of the absence of any information on any study being conducted in the past on the prevalence of dental diseases in the rural school going children of Thane district.
Aims: The aims were to (1) assess the prevalence of gingivitis, fluorosis, caries and malocclusion in the school-going children of rural areas of district Thane, Maharashtra and (2) evaluate the pattern of above-mentioned diseases in different age groups and genders.
Materials and Methods: A total of 638 school-going children comprising 282 boys and 356 girls were examined in the age groups of 4-7yrs, 8-12yrs and 13-16yrs.
Results: The prevalence of gingivitis, fluorosis, caries and malocclusion was 86.7%, 2.2%, 79.6%, and 14.9% respectively. The difference between age groups for the prevalence of gingivitis was highly significant. A significant increase in the prevalence of malocclusion was observed with age. No significant difference was found among genders for the prevalence of malocclusion. The difference in fluorosis was insignificant between boys and girls.
Conclusion: The data shows necessary dental health programs needs to be implemented to attain the required oral care among school children of rural areas of Thane district.

Keywords: Gingivitis; Caries; Malocclusion; Fluorosis; Prevalence.

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Introduction

Public Dental Health has been defined as "The science and art of preventing and controlling dental disease and promoting dental health through community effort" by the American Dental Association [1]. The unique characteristic of dental diseases is that they are universally prevalent and require technically demanding expertise and time consuming professional treatment. Common dental diseases tormenting mankind are gingivitis, caries, malocclusion and fluorosis. According to G. Dale if deciduous teeth are retained beyond time of exfoliation, they are known to cause delay in eruption of permanent teeth and thus lead to malocclusion and other orthodontic problems [2].

The purpose of the study was to determine prevalence of dental health problems in school children and to obtain objective data, which can be used for dental health programmes to be implemented in future course.

Materials and Methods

A total of 638 school going children in the age group of 4yrs-16yrs of rural areas of Thane district were included in the study. Written informed consent from the school authorities was obtained prior to the commencement of the study. A proforma was prepared to collect the data regarding general information and dental health problems. Children were grouped into different age groups. All children of respective age groups were gathered and given introductory health talk. Methods of healthy tooth brushing (fones circular technique for children up to 12yrs and modified bass technique for above 12yrs), and general oral hygiene were taught to all. A small brochure on dental hygiene was given to all. The children were examined by examiner for gingivitis, dental caries, malocclusion and fluorosis.

For purpose of this study following criteria for each condition were used.

1. Gingivitis: loe and silness index [3].
2. Dental caries: present/absent [4].
3. Malocclusion: present/absent [5].
4. Fluorosis: present/absent [1].

Each of the student was then given a report of the examination findings along with specific advice needed for the pathology detected. For any therapeutic procedure required they were advised to come to the dental OPD.

All data were compiled and subjected to statistical analysis for deriving results. Kruskal Wallis Test was used for analysis.

Results

282 male and 356 female children made up the study population (Table 1). Out of 638 children examined, 507 (79.6%) showed evidence of dental caries, 553 (86.7%) had gingivitis, 95 (14.9%) showed evidence of orthodontic problems and 14 (2.2%) had fluorosis (Table 2) It was observed that the gingivitis was most prevalent condition affecting the children. This was followed by caries, orthodontic problems and fluorosis.

Discussion

Oral health is a part of general health and hence affects the total well being of individuals. Assessment of oral health is important in deciding a treatment plan or dental public health programme.

In the present study, an attempt is made to determine the prevalence of dental health diseases in rural areas of Thane district.

Gingivitis was the commonest dental problem encountered. Prevalence observed in the study was 86.7%. Overall prevalence was found to be increase with age. These results were comparable to the study conducted by Dhar V et al., [6] which reported 84.37%. Mild gingivitis was more prevalent in the 4-7yrs age group and moderate and severe gingivitis were more prevalent in age groups 8-12yrs. There was a significant difference between different age groups and also between boys and girls. This could be explained due to mixed dentition, shedding of primary teeth, improper and unsupervised oral hygiene practices and malocclusion. Since early diagnosis ensures the greatest chance for successful treatment, it is important that children receive a periodontal examination as part of their routine dental visits. A study conducted by Jose A et al., [7] reported 54.3% prevalence of caries Total prevalence of caries in this study was seen to be 79.6%. Females experienced more decay as compared to males. However the difference was not statistically significant. Overall prevalence of fluorosis was seen to be 2.2% whereas study by Dhar V et al., [6] reported 36.36%. The prevalence was high in later maybe because of the fluoride content in water being high naturally. A study conducted by Miglani et al., [4] reported 19.6% prevalence of malocclusion comparable to our study which reported 14.9%. There was a significant difference between different age groups however, no significant difference between boys and girls. Malocclusion was found to be the highest in the age group 13-16yrs (Table 3,4,5,6).

Table 1. Demographic data.

	4-7yrs	8-12yrs	13-16yrs	Total
Boys	86	120	76	282
Girls	96	154	106	356
Total	182	274	182	638

Table 2. Showing sex wise distribution of dental morbidities.

Dental condition	Total no. of affected	%	Males	%	Females	%
Dental caries	507	79.6	221	34.7	286	44.9
Gingivitis	553	86.7	250	39.2	303	47.5
Malocclusion	95	14.9	35	5.5	60	9.4
Fluorosis	14	2.2	9	1.4	5	0.8

Table 3. Gingivitis.

Gingivitis	Total no of children	Total affected		Normal		Mild gingivitis		Moderate gingivitis		Severe gingivitis	
		n	%	n	%	n	%	n	%	n	%
4-7yrs	182	162	89	20	11	139	85.80	21	12.96	2	1.23
8-12yrs	274	242	88.32	32	11.67	143	59.09	78	32.23	21	8.6
13-16yrs	182	149	81.86	33	18.13	64	42.95	66	44.29	19	12.75
Boys	282	250	88.65	32	11.34	150	60	78	31.2	22	8.8
Girls	356	303	85.11	53	14.88	196	64.68	87	28.71	20	6.6
Total	638	553	86.67	85	13.32	346	62.56	165	29.83	42	7.5

Boys/girls-P-0.004(S)
Age wise-P-0.000(HS)
(Kruskal Wallis Test)

Table 4. Caries.

Caries	Total no of children	Total affected		Not affected	
		n	%	n	%
4-7yrs	182	139	76.37	43	23.62
8-12yrs	274	215	78.46	59	21.53
13-16yrs	182	153	84.06	29	15.93
Boys	282	221	78.36	61	21.63
Girls	356	286	80.33	70	19.66
Total	638	507	79.46	131	20.53

Boys/girls-P > 0.05(NS)
Age wise-P > 0.05(NS)
(Kruskal Wallis Test)

Table 5. Malocclusion.

Malocclusion	Total no of children	Total affected		Not affected	
		n	%	n	%
4-7yrs	182	13	7.14	169	92.85
8-12yrs	274	47	17.15	227	82.84
13-16yrs	182	35	19.23	147	80.76
Boys	282	35	12.41	247	87.58
Girls	356	60	16.85	296	83.14
Total	638	95	14.89	543	85.10

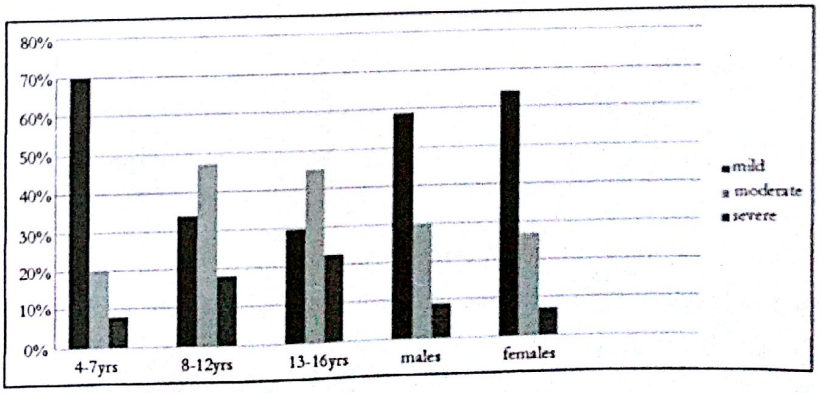
Boys/girls-P > 0.05(NS)
Age wise-P-0.04(S)
(Kruskal Wallis Test)

Table 6. Fluorosis.

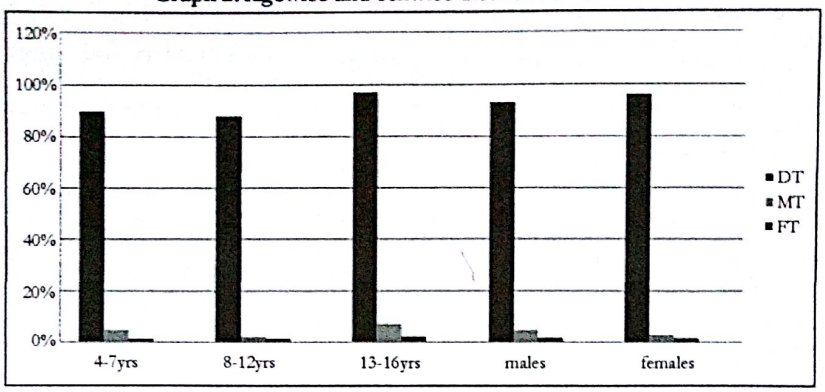
Fluorosis	Total no of children	Total affected		Not affected	
		n	%	n	%
4-7yrs	182	2	1.09	180	98.90
8-12yrs	274	3	1.09	271	98.90
13-16yrs	182	9	4.94	173	95.05
Boys	282	9	3.19	273	96.80
Girls	356	5	1.40	351	98.59
Total	638	14	2.19	624	97.80

Boys/girls-P > 0.05(NS)
Age wise-P-0.011(S)
Kruskal Wallis Test)

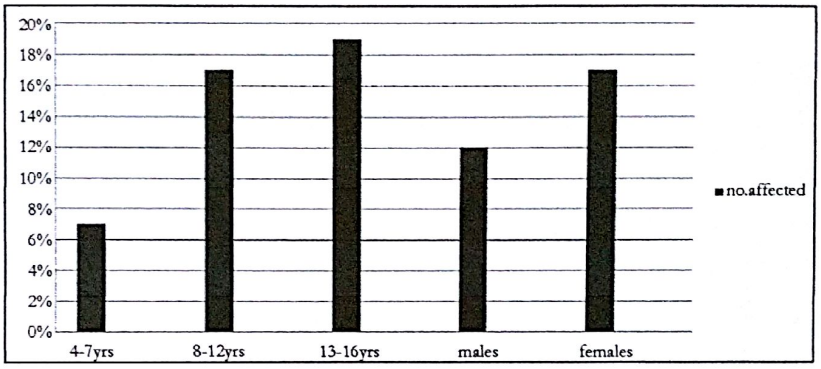
Graph 1. Agewise and sexwise distribution of severity of gingivitis.



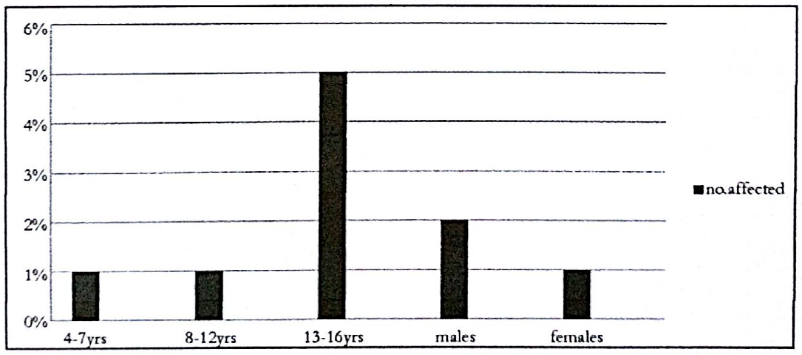
Graph 2. Agewise and sexwise distribution of caries.



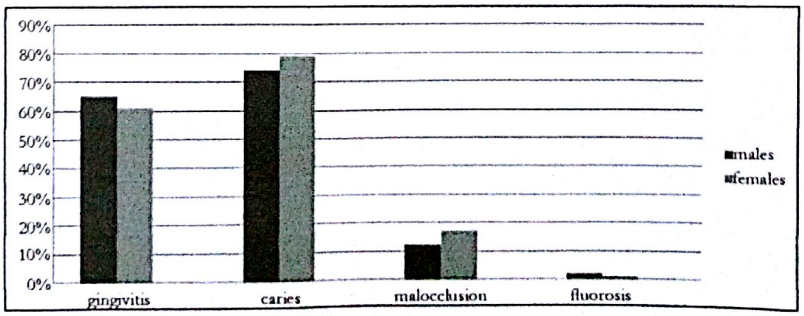
Graph 3. Age and sex distribution of malocclusion.



Graph 4. Age and sex distribution of fluorosis.



Graph 5. Sexwise distribution of different dental diseases.



Conclusion

This data of existing dental health problems shows that necessary dental health programs needs to be implemented to attain the required oral care among the school going children of Thane district. For the benefit of community, dental health programmes have to be conducted repeatedly in order to reach the goals of WHO. Parents should be made aware of brushing methods and importance of preventive measures for the children. The rationale of school dental health programme is to improve and motivate the parents and children regarding their dental health and treatment needs.

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