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DENTITION STATUS AND TREATMENT NEEDS AMONG SCHOOL GOING CHILDREN OF BIJAPUR CITY, KARNATAKA, INDIA

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ABSTRACT

Dental caries is the most predominant disease affecting children. It has a high degree of morbidity, which has drawn attention of various researchers.

Aims: This study was done to determine the prevalence of dental caries among school going children and to assess the treatment needs of the study population.

Results. A total of 650 students were studied (280 Female and 370 Male). 12 years and 15 years age group were included in the study. The prevalence of caries was 54.2%. Mean DMFT was 0.3184 ± 1.2807 and 1.1775 ± 1.0819 among 12 years and 15 years respectively there was no statistically significant difference in this. Single surface filling was most frequent treatment need observed in both age groups.

Conclusion: As it was observed that a high prevalence of dental caries exists among the students a provision of oral health education in the schools along with a regular provision of school based preventive programme should be planned.

Keywords: Dental caries, treatment needs, school going children.

INTRODUCTION

Dental caries is the most common disease affecting the oral cavity. It's a global oral health problem which can be effectively addressed and controlled through preventive measures at the individual and community level. Prevalence of this disease is declining in the developed countries while there is a slow rise in many developing countries¹. The reduction in the prevalence of oral disease in developed countries may be due to improved oral hygiene practices, positive knowledge and attitude about etiology and prevention of dental diseases². In order to prevent and control the dental caries, we should know the exact nature of its occurrence and distribution in the community. The distribution of dental caries around the world has shown distinctive variations³. Prevalence studies on dental caries in India have shown results ranging from 31.5 to 89%⁴⁻¹⁰.

Prevalence of caries in various parts of country has been reported⁴⁻¹⁰, but reports on prevalence in the northern part of Karnataka are lacking. This data is important to plan preventive measures to control dental caries hence this study was undertaken to determine the prevalence of dental caries among school going children of Bijapur, Karnataka and to assess the treatment needs of the study population.

MATERIAL AND METHODS

It was a school based cross sectional study conducted to assess the prevalence of dental caries and their treatment needs among the 12 and 15 years old school going children in Bijapur city. These age groups were selected as at the 12 years most of the deciduous teeth are replaced by permanent teeth and at 15 years of age, they are exposed to the oral environment for 3 years and hence help assess the prevalence. Bijapur is a

historic city situated in the northern part of Karnataka, with a surface area of about 9700 sq km. Population (2011 census) is 3,26,360 of which 165122 are males and 161238 are females. Literacy rate is 83.43% of which male literates account to 88.92% and female literacy is 77.86%¹¹.

List of all the schools in the city was obtained from concerned authorities, of which a total of eight schools were chosen using the lottery method. Permission was obtained from block education officer, principal/ headmaster of the school to examine the children. All the students aged 12 and 15 years belonging to 6th and 9th standards present on the day of examination were included in the study. Written informed consent was obtained from all the participants after explaining the purpose and the nature of study to them in their mother tongue. Type III clinical examination was carried out by the single calibrated examiner (kappa= 0.05) using mouth mirror and WHO probe under adequate illumination.

Data was collected by using a pre tested proforma specially designed for the study. The proforma was prepared with the help of WHO oral health assessment form (1997), which included information regarding oral hygiene habits, dietary habits, frequency of consumption of sugar and consistency of sugar consumed. The data thus collected was tabulated, analysed and subjected to statistical analysis.

RESULTS

The present study was conducted among the school going children of Bijapur. A total of 650 students participated in the study. Of 650, 346 (148 female, 198male) were of 12 years of age and 304 (132 female, 172male) belonged to 15 years of age (table 1).

Table 2 shows the distribution of students according to their caries status. Among students of 12 years of age caries prevalence was high among

females (56.75%) while in students belonging to 15 years of age males (52.32%) suffered more frequently with caries than females highly significant association was found in this ($\chi^2=5.995$, $p<0.001$). It was observed that 64.34% of students of 12 years age and 44.08% of students of 15 years age suffered from tooth decay.

Table 3 shows analysis of “dmft” (decayed, missing and filled teeth for deciduous dentition) highly significant difference was noticed between both age groups (t test-11.08, $p<0.001$).

Table 4 shows analysis of DMFT (Decayed, Missing and Filled Teeth for permanent dentition) between both age groups. The mean DMFT was 0.3184 ± 1.6641 and 1.1775 ± 1.9390 respectively among 12 years and 15 years age groups. Highly significant difference was seen in both the groups ($p\leq 0.001$).

Table 5 shows the distribution of the students according to their treatment needs. The highest need was for one surface filling (26.15%) in these females requiring single surface filling was high in 12 years age group (31.8%) than 15 years age group (19.69%). Two or more surface fillings were needed by 8.15% of individuals. Preventive care and pulp care were required in among 7.69% and 7.23% respectively. Among the subjects requiring extractions males were predominant in both 12 years (6.06%) and 15 years (4.65%) age group similarly the percentage of subjects requiring crowns was slightly higher in males in both the study groups. However none of these were statistically significant ($p>0.005$).

DISCUSSION

This study provides information on dental caries prevalence and treatment needs among 12 and 15 years old school going children of Bijapur, Karnataka, India. The prevalence rate of caries in this study was 54.2%, which is similar to caries prevalence reported (53.8%) in National Oral Health survey of India¹². Similar studies were done to assess prevalence of dental caries in

different parts of India. In municipal Karnataka¹³ it was reported 59.60%, 46.77% in Belgaum city¹⁴, 82.5% in Mangalore¹⁵, 54.3% in Kerala¹⁶, 80% in Chennai city¹⁷, 30.1% in Sikkim¹⁸, and in Urban Delhi¹⁹ it was 52.3%. These wide variations might have been because of differences in various factors like socioeconomic status, oral hygiene practices, availability and utilization of dental care by the study subjects, their knowledge and attitude towards oral health and different age groups studied by the different authors.

Higher rate of caries (64.36%) was observed in among 12 years age group as compared to 15 years age group (44.08%) this difference was statistically significant. The difference observed can be attributed to the fact that the deciduous carious teeth i.e first and second deciduous molars get replaced by premolars bringing down the value of D component. This was in agreement with findings of Shivanjali Grover and Anuradha P²⁰ and Dash et al²¹ while studies of Chawla HS²², Bajomo AS²³, Bjarnason S²⁴ showed higher caries rates among 15 years age group subjects. The probable variation may be because of differences in the methods of oral hygiene maintenance and Dietary habits.

We observed higher rate of caries among girls (56.75%) than males (51.51%) in students belonging to 12 years age group. These findings are contrary to the findings of Shivanjali Grover and Anuradha P²⁰. Early eruption rates may be responsible for higher rate of caries in girls. In students belonging to 15 years of age higher rate of caries was seen among males (52.32%) than females (41.66%) these are in agreement with findings of Shivanjali Grover and Anuradha P²⁰. there may be social or emotional causes related to such findings (Shanti Ghosh)²⁵.

Maximum no i.e 26.15% required single surface fillings followed by two or more surface fillings (8.15%). The figures indicate burden of the disease and unmet treatment needs. These findings are in concurrence with findings of Rodrigues and

Damle²⁶, Dash J K et al²¹. The most common cause of this type of fillings in this age is pits and fissures. Preventive measures like pit and fissure sealants should be employed to reduce burden of this type of caries.

In the present study the students belonged to both public as well as the private schools hence differing in socioeconomic strata. The socioeconomic conditions definitely influence the health care seeking behavior as well as seeking care for preventive purposes.

CONCLUSION

The present study suggests the burden of unmet treatment needs among children. The evaluation of the treatment need revealed that the greatest need was for one surface filling followed by two or more surface fillings. It clearly indicates the need for special attention by government and professionals to meet the oral health needs. Preventive and curative oral health services should be made integral to other health programs.

CONFLICT OF INTEREST: Nil

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Table 1. Distribution of subjects according to gender and age

Age in years	Female (%)	Male (%)	Total
12	148 (42.77)	198 (57.22)	346 (53.23)
15	132 (43.42)	172 (56.57)	304 (46.76)
TOTAL	280 (43.07)	370 (56.92)	650

Table 2. Distribution of subjects according to their caries status

AGE IN YEARS	MALE		FEMALE	
	WITH CARIES (%)	WITHOUT CARIES (%)	WITH CARIES (%)	WITHOUT CARIES (%)
12	102 (51.51)	96 (48.48)	84 (56.75)	64 (43.24)
15	90 (52.32)	82 (47.67)	55 (41.66)	77 (58.33)

Table 3: Analysis of dmft

Age in yrs	d		m		f		t	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
12 yrs	0.5765	0.9671	0.0226	0.8171	0.0000	0.0000	0.8025	1.7842
15 yrs	0.0000	0.0000	0.0001	0.0018	0.0000	0.0000	0.0001	0.0018
T test value			11.08					
p value			p<0.001					

Table 4: Analysis of dmft

Age in yrs	D		M		F		DMFT	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
12 Yrs	0.2667	1.0563	0.0471	0.0059	0.0046	0.6019	0.3184	1.6641
15 Yrs	0.9290	1.0141	0.0180	1.0780	0.2305	0.9127	1.1775	1.9390
T test value	5.79		4.48		2.58		4.25	
p value	P<0.001		P<0.001		P=0.001		P<0.001	

Table 5. Treatment needs

TREATMENT NEED	12 YEARS		15 YEARS		TOTAL (%)
	MALE (%)	FEMALE (%)	MALE (%)	FEMALE (%)	
Preventive care	19 (9.59)	10 (6.75)	12 (6.97)	7 (5.30)	50 (7.69)
Fissure sealant	11 (5.55)	6 (4.05)	00	00	17 (2.61)
One surface filling	57 (28.78)	46 (31.08)	41(23.83)	26 (19.69)	170 (26.15)
Two or more surface filling	10 (5.05)	12 (8.10)	19 (11.04)	12 (9.09)	53 (8.15)
Crown	8 (4.04)	6 (4.05)	10 (5.81)	7 (5.30)	31 (4.76)
Pulp care	13 (6.56)	14 (9.45)	12 (6.97)	8 (6.06)	47 (7.23)
Extraction	12 (6.06)	5 (3.37)	8 (4.65)	1 (0.75)	26 (4)
Other care	2 (1.01)	1 (0.67)	00	1 (0.75)	4 (0.61)