

Prevalence of dental caries among school children in Meerut

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ABSTRACT

Background: Healthy teeth and oral tissues and the need for oral health care are important for any section of society. Dental caries, the product of man's progress towards civilization, has a very high morbidity potential and thus, is coming into focus of the mankind. The prevalence and incidence of dental caries in a population is influenced by a number of risk factor such as sex, age, socioeconomic status, dietary patterns and oral hygiene habits. Despite credible scientific advances and the fact that caries is preventable, the disease continues to be a major public health problem. This present study was designed to assess the prevalence of dental caries amongst school children between 05-18 age in Meerut city, UP India. **Objective:** To assess the prevalence of dental caries among 05-18 years school students of Meerut city. **Methods:** A school based cross sectional study was conducted. A total of 4433 school students (05-18 years) were examined from one government and one private schools that were selected by simple random sampling method among all the schools in Meerut city. **Results:** The prevalence of dental caries was found 1366 (30.9%). Prevalence of Dental stains, dental crowding & Ellis fracture were 12.03%, 08.00% and 01.01% respectively. **Conclusion:** Dental caries was found to be very high in both the schools of Meerut city. Regular dental checkups and education on routine oral hygiene procedures is the need of hour for better dental health of school children.

Keywords: School children, Dental carries, Oral health problems, Prevalence.

Introduction

Dental caries is the most prevalent oral disease. During the past decades rapid changes have occurred in the distribution of oral diseases worldwide. Traditionally, the prevalence of dental caries was high in most industrialized countries while low caries levels have been observed in developing countries.[1] It affects both the sexes, all races, all socioeconomic status and all age groups.[2] Oral diseases especially dental caries among children is still a major problem in most developing countries.[3] In developing countries, changes in living conditions due to urbanization and adoption of western lifestyles are often considered as potential risk factors for the incidence of dental caries and recent population data show that the prevalence of dental caries is related to socioeconomic factors in developing countries as for developed countries. [4]

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Dental caries not only causes pain and discomfort, but also in addition, places a financial burden on the parents. The prevention of dental caries has long been considered as an important task for the health profession. Overall the general impression is that dental caries has increased in prevalence and severity in urban and cosmopolitan population over the last couples of decades. However there is no definite picture as yet regarding the oral disease status in country.[5] In order to assess the magnitude of the preventive task it is necessary to know the extent and severity of the disease. Schools are the best center for assessing and effectively implementing the comprehensive health care programme, as children are easily accessible at school.

Objective

To assess the prevalence of dental caries among 05-18 year school students of Meerut city.

Materials and methods

A school based cross sectional study was conducted to assess the oral health status of children. The list of schools was prepared according to the information collected from the directorate of education, Meerut. One government and

one private school of Meerut city were selected from the list through simple random sampling method. Before starting the study official permission was obtained from all the concerned authorities. Principals of both the schools were informed about the aim and objectives of study. The study population consisted of children aged 5 to 18 year present in the school during the study. Data was collected from September 2014 to December 2014. Examination was carried out by the dentist of the department of community medicine. An expert social worker was involved in the entry on the survey form. The health status of each tooth was recorded in terms of the presence or absence of disease or a dental restoration. Prevalence of oral health was expressed as percentages. Variables showing statistically significant association with the outcome variables ($p < 0.05$) were considered as potential risk factors for oral health hazard.

Results

The survey was conducted among the 4433 study subjects. 2540 (57.3%) were males and 1893 (42.7%) were female. Overall 3521 (79.4%) and 912 (20.6%) students were from government and private schools respectively. In this study, the overall prevalence of dental caries was 1366(30.8%) with 1062(30.2%) in government school and 304(33.3%) in private school,

the difference noted in both schools was not found to be statistically significant with p value of 0.07. Overall prevalence of dental caries in males was 780 (30.7%) while in females it was 586(31%) the difference in prevalence of caries was not statistically significant with p value of 0.8. The difference among both the genders in reference to dental caries was statistically significant (p -value= 0.01) in private school with 177 (30.3%) and 603(38.6%) prevalence of carries among males and females respectively. The same difference in government was not significant (p -value= 0.30) with 603(30.8%) and 459(29.3%) prevalence of carries among males and females respectively. Dental caries were also distributed according to age and the division was set for pre and post puberty i.e. below and above 13 years of age. In the total sample 3223(72.7%) were less than 13 years and 1210 (27.3%) were more than 13 years. Prevalence of dental caries in males less than and greater than 13 years was 636(34.4%) and 144(20.9%) respectively. Prevalence of dental caries in females less than and greater than 13 years was 33.7% and 23.6% respectively. The difference in prevalence of dental caries among two age groups was highly significant statistically for both males (p -value < 0.001) and females (p -value < 0.001).

Table 1: Distribution of dental status among private and government schools

DENTAL STATUS	TOTAL					
	GOVT.		PRIVATE		TOTAL	
NORMAL	1609	45.7	457	50.1	2066	46.6
DENTAL CARIES	1062	30.2	304	33.3	1366	30.8
CROWDING	259	7.4	95	10.4	354	8.0
ELLIS	33	0.9	16	1.8	49	1.1
FRACTURE						
STAIN	519	14.7	26	2.9	545	12.3
OTHERS	39	1.1	14	1.5	53	1.2
TOTAL	3521	100.0	912	100.0	4433	100.0

Table 2: Distribution of dental status among less than and greater than 13 years of age

DENTAL STATUS	TOTAL					
	<13 yrs		>13yrs		TOTAL	
NORMAL	1533	47.6	533	44.0	2066	46.7
DENTAL CARIES	1099	34.1	267	22.1	1366	30.9
CROWDING	187	5.8	167	13.8	354	8.0
ELLIS	30	0.9	19	1.6	49	1.1
FRACTURE						
STAIN	339	10.5	206	17.0	545	12.3
OTHERS	35	1.1	18	1.5	53	1.2
TOTAL	3223	100.0	1210	100.0	4433	100.2

Table 3: Distribution of dental status of males among less than and greater than 13 years of age

DENTAL STATUS	MALES					
	<13 yrs		>13yrs		TOTAL	
NORMAL	879	47.5%	305	44.3%	1184	46.6
DENTAL CARIES	636	34.4%	144	20.9%	780	30.7
CROWDING	103	5.6%	100	14.5%	203	8.0
ELLIS FRACTURE	18	1.0%	14	2.0%	32	1.3
STAIN	201	10.9%	121	17.6%	322	12.7
OTHERS	14	0.8%	5	0.7%	19	0.7
TOTAL	1851	100.0%	689	100.0%	2540	100.0

Table 4: Distribution of dental status of females among less than and greater than 13 years of age

DENTAL STATUS	FEMALES					
	<13 yrs		>13yrs		TOTAL	
NORMAL	654	47.7	228	43.8	882	46.6
DENTAL CARIES	463	33.7	123	23.6	586	31.0
CROWDING	84	6.1	67	12.9	151	8.0
ELLIS FRACTURE	12	0.9	5	1.0	17	0.9
STAIN	138	10.1	85	16.3	223	11.8
OTHERS	21	1.5	13	2.5	34	1.8
TOTAL	1372	100.0	521	100.0	1893	100.0

Table 5: Distribution of dental status of males among private and government schools

DENTAL STATUS	MALES					
	GOVT.		PRIVATE		TOTAL	
NORMAL	885	45.2	299	51.2864494	1184	46.6
DENTAL CARIES	603	30.8	177	30.3602058	780	30.7
CROWDING	136	6.9	6	1.02915952	142	5.6
ELLIS FRACTURE	20	1.0	12	2.05831904	32	1.3
STAIN	301	15.4	21	3.60205832	322	12.7
OTHERS	12	0.6	7	1.20068611	19	0.7
TOTAL	1957	100.0	583	100	2540	100.0

Table 6: Distribution of dental status of females among private and government schools

DENTAL STATUS	FEMALES					
	GOVT.		PRIVATE		TOTAL	
NORMAL	724	46.3	158	48.0	882	46.6
DENTAL CARIES	459	29.3	127	38.6	586	31.0
CROWDING	123	7.9	28	8.5	151	8.0
ELLIS FRACTURE	13	0.8	4	1.2	17	0.9
STAIN	218	13.9	5	1.5	223	11.8
OTHERS	27	1.7	7	2.1	34	1.8
TOTAL	1564	100.0	329	100.0	1893	100.0

Discussion

Dental caries is an important dental health problem and it is the most prevalent oral disease among children in the world. Dental caries disease is 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. [6] Dental health is often neglected by a vast majority of population. In the developing countries like India the prevalence of dental carries is very high particularly among the children and adolescents. The prevalence is even higher in people and among school children. The absence of practice of healthy habits often leads to this type of problem. Dental caries is not only a medical problem but many socio-demographic factors are said to be associated with this. Usually the habit of taking care of dental health is obtained from the parents and other senior members of family. In India where the birth rate is still high and there is less spacing between two births, mothers often are not capable of giving proper care to all the children. The unhealthy practice of children often leads to many medical problems some of which can cause permanent damage. If dental caries develops after the eruption of permanent dentition and proper care is not taken, it may lead to permanent damage and spread of infection throughout the body can also occur. Early diagnosis with prompt treatment is also necessary. In this study it was observed that the overall prevalence of dental caries was 1366(30.8%) with 1062(30.2%) in government school and 304(33.3%) in private school, the difference noted in both schools was not found to be statistically significant with p value of 0.07. A study conducted by Adekoya-Sofowora et al. (2006) revealed that dental caries in 12-year-old suburban Nigerian school children was not found to be statistically significant with p value of 0.07.[7]In this study , the overall prevalence of dental caries 1099(34.1%)were found in age group below the 13 years. 636(34.04%) males and 463 (33.07%) females were found in this age group. The prevalence of dental caries 267(22.01%) belong to the age group above the 13 years. 144(20.09%) males and 123 (23.06%) females were found in this age group.A study done by Pontigo-Loyola et al.(2007) suggested that prevalence and severity of dental caries in adolescents aged 12 and 15 living in communities with various fluoride concentrations. [8]Villalobos-Rodelo JJ, Medina-Solís CE, Molina-Frechero N, Vallejos-Sánchez AA, Pontigo-Loyola AP, Espinoza-Beltrán JL. Dental caries in school children aged 6-12 in years in Navolato, Mexico: Experience, prevalence, severity and treatment needs.An another cross sectional study conducted in Mexico by Villalobos-Rodelo JJ et al.(

2006) reported that Dental caries was observed in school children aged 6-12 in years. [9]In this study, the overall prevalence of dental caries was 1366(30.8%) with 1062(30.2%) in government school and 304(33.3%) in private school, the difference noted in both schools was not found to be statistically significant with p value of 0.07.This finding is similar to the study conducted by Sogi G and Baskar D.J (2001).[10]This study was reported that a higher prevalence among female (31.0%) than (30.7%) among male students. Dixit et al. (2013) reported a higher prevalence among girls (48.4%) than in boys (32%), similar to our findings, there was no significant difference in prevalence between girls and boys. [11]Gathecha et al. (2012) revealed that the difference of prevalence of dental caries between boys and girls was not significant.[12] In this current study, dental caries was found positive in school children, 1062(30.2%) were government school children and 304 (33.3%) were private school children. In the study conducted by Piovesan et al. (2011) suggested that dental caries was found positive in school children, (61%) were government school children and (39%) were private school children. [13]Poor health and oral diseases in children frequently lead to serious general health, significant pain, and interference with eating and lost school time. One of the factors to be considered when planning for the required growth in dental care facilities is the prevalence of dental diseases and their treatment need in the population.

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