

Prevalence of Dental Caries and Oral Hygiene Status in School Going Children of Age Group 7 to 11 Years in and Around Modinagar District: A Cross Sectional Survey

Anu Bhat¹ Monika Gupta² Nausheen Khan³ Ankur Mishra⁴ Ammar Mehdi Raza⁵ Vijay Kumar^{6*}

¹Senior Lecturer, Department of Pedodontics and Preventive Dentistry, B.R.S Dental College and Hospital, Panchkula, Haryana, India.

²Dental Officer, ECHS, Morena, India.

³MDS, Private Practitioner, Smile Zone Dental Clinic, Lucknow, UP, India.

⁴Assistant Professor, Department of Pedodontics and Preventive Dentistry, Career Institute of Dental Sciences and Hospital, Lucknow, UP, India.

⁵Assistant Professor, Department of Pedodontics and Preventive Dentistry, Career Institute of Dental Sciences and Hospital, Lucknow, UP, India.

⁶Assistant Professor, VDCH, Jharkhand, India.

ABSTRACT

Aim: To evaluate the Prevalence of dental caries in school going children of age group 7 to 11 years in and around Modinagar district using DMFT and OHI-S indices.

Materials and methods: Total 2500 Children in the age group of 7 – 11 yrs were examined from 5 different schools. Case history of each child was recorded using “Dentition status and treatment needs”, (WHO basic oral health assessment form 1997). Dental caries was recorded using DMFT and def index for permanent and primary teeth using Type 3 examination.

Results: Significant p value 0.009 seen in case of correlation between DMFT and OHI-S. Pvalue was insignificant in case of correlation between def and OHI-S.

Conclusion: Oral health promotion through various school health programmes which includes screening, preventive procedures, and health education of school children should be done on regular basis for generating awareness and maintainence.

Keywords: Oral Health, DMFT, OHI-S.

INTRODUCTION

Oral diseases are an integral part of general health of an individual, both oral health and general health share a directly proportional relationship. These oral diseases are highly prevalent and significantly affect the parameters of quality of life. Dental caries is most common, infective and transmittable disease characterised by multifactorial pathology. India is a developing nation and has shown a increased trend of dental caries. The prevalence of dental caries was shown to be 55.5% in 1940s and it increased to 68% in 1960s¹. Modinagar is a city and a municipal board in Ghaziabad district in

the Indian state of Uttar Pradesh. It is situated on Ghaziabad Meerut National Highway No. 58, approximately equally distant from Meerut and Ghaziabad. This study was conducted here as Modinagar has been developed as an educational hub with many dental colleges and other educational institutions established in and around the city due to its location in National Capital Region. Although this place has many dental colleges but the data about dental caries prevalence which forms the basis of planning and implementing oral health care programs was not

Received: Feb. 21, 2021; Accepted: Mar. 22, 2021

*Correspondence Dr. Vijay Kumar.

VDCH, Jharkhand, India.

Email: dr.vijay0328@gmail.com

found to be adequate. Hence, this cross-sectional survey was planned involving both government and private primary schools in and around Modinagar in an attempt to determine the prevalence of caries and oral hygiene status among 7-11 year old school children in and around schools in Modinagar.

MATERIALS AND METHODS

This present study was carried out in the government schools of Modinagar in Ghaziabad District of Uttar Pradesh.

Ethical clearance and consent form

Prior to the commencement of the study. Ethical clearance was obtained from the Ethical committee of DJ College of Dental Sciences and Research centre, Modinagar Ghaziabad. Permission to conduct the study was obtained from the principles of the concerned schools after explaining them the nature and the aim of the study. Consent for conducting the screening of the students was obtained verbally by the principle from the parents of the students.

Sampling technique

Schools were selected randomly by a computer generated list. Care was taken to include children of same socioeconomic condition and having same dietary pattern. The type of school and its location was used as proxy indicator of child's socioeconomic condition. A similar method was used in previous study². Total 2500 Children in the age group of 7 – 11 yrs were examined from 5 different schools. Case history of each child was recorded using "Dentition status and treatment needs", (WHO basic oral health assessment form 1997).³ Dental caries was recorded using DMFT and def index for permanent and primary teeth using Type 3 examination. The overall values of DMFT and def were evaluated separately. (Figure 1 and Figure 2). Simplified oral hygiene index (OHI-S) was used to for oral hygiene status.

RESULTS

Statistical analysis

Data was collected and tabulated using Microsoft excel software. Results were evaluated using 21

version of SPSS. The level of significance was set as P value < 0.005.

The survey was conducted among 2500 students. In this 1291 (51.6%) were males and 1209 (48.3%) were females. Overall prevalence of dental caries was found to be 63%.

Table 1: Composition of the sample.

Age (yrs)	Total sample			Composition sample by age	Composition sample by gender	
	M	F	M+F	M+F %	Males %	Females %
7	230	270	500	20	46	54
8	280	221	501	20	56	44
9	260	240	500	20	52	48
10	281	200	481	19.2	58.4	41.5
11	240	278	518	20.7	46.3	53.6
Total	1291	1209	2500	100	51.6	48.36

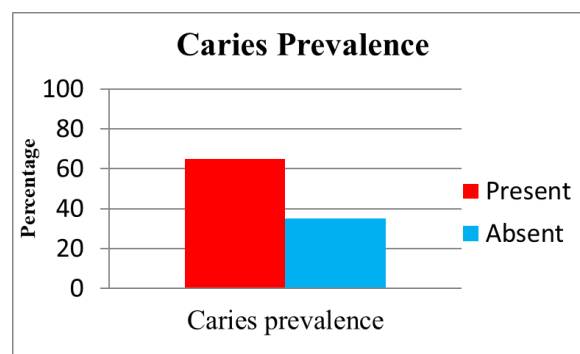


Fig 1: Caries prevalence.

The mean value of DMFT was found to be 1.35. A steady increase in the values were seen with age. 7 year old child showed a mean DMFT of 1.07 with Standard deviation of 1.62 and 11 year old child showed mean DMFT of 1.50 with SD of 1.90.

The mean value of def was shown to be 1.0 and was found to be decreasing with age. The mean value of def for a 7 year old child was found to be 1.07 with a SD of 1.62 and mean value of def for a 11 year old child was found to be 0.76 with a SD of 1.4.

The mean value of OHI-S was found to be 5.0 and was found to show an increasing trend with age. Mean value of OHI-S was found to be 5.15 for a 7 year old child having SD of 9.93 and 11 year old child showed a mean value of OHI-s to be 6.29 with a mean SD of 11.80.

DMFT		Def		OHI-S	
Mea n	Std deviatio n	Mea n	Std deviatio n	Mea n	Std Devaitio n
1.35	1.95	1.07	1.62	5.15	9.93
1.36	1.962	1.12	1.70	5.25	9.77
1.35	1.95	0.95	1.7	6.07	11.07
1.58	1.99	0.88	1.6	6.17	11.42
1.50	1.90	0.76	1.4	6.29	11.80

Relationship was seen between DMFT, def And OHI-S and it was found that p Value was found to be significant 0.009 between DMFT and OHI-S. But the Pvalue was found to be insignificant in case of correlation between def and OHI_S. Significant p value 0.009 seen in case of correlation between DMFT and OHI-S.

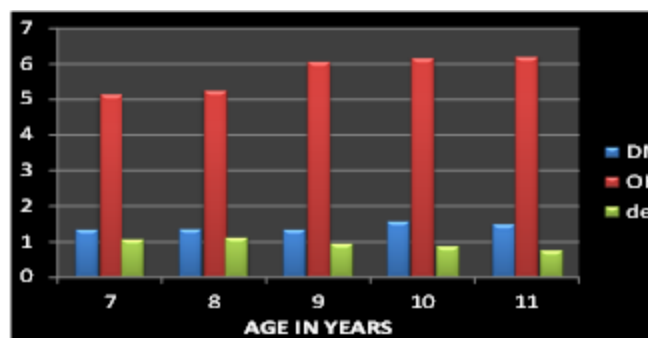


Fig 2: Corelation between DMFT, def and OHI-S.

DISCUSSION

The present study provides information on prevalence of Dental Caries and oral health in a representative sample from urban and rural areas of Modinagar in Ghaziabad U.P. Dental caries is a disease evidenced in prehistoric man⁴. and is the most prevalent childhood disease worldwide. About 60% of children suffer from dental caries⁵

Caries prevalence varies from country to country and from region to region in same country. Geographic variables like race, climate, diet, culture and economic factors also affect the caries prevalence.

Considering the global scenario, as per W.H.O in 2004 DMFT reported worldwide was 1.64. In U.S.A the national centre for health statistics, part of Centre for disease control and prevention conducted a survey, The National Health and

Nutritional Examination Survey in 2011-2012 and found that 23% Children aged 2-5yrs had caries.⁶

In India National Oral Health Survey conducted by Government of India in 2004 reported Caries prevalence to be 51.9% for 5 yr old and 53.8% for 12 yr old. HansaKundu et al⁷ in 2015 reported Prevalence of dental caries in 5yr is 48.11% and 12 yr is 62.02% in India.

In the present Study the prevalence of Dental Caries was found to be 65% which is in accordance with the results shown by Multi centric survey done by Government of India in 2007 in Seven States of India, of which U.P was found to have a caries prevalence of 50%. Also Aggrawal et al 2015⁸ found mean DMFT to be 3.2 with caries prevalence of 44%. Bansal et al 2015⁹ found Caries prevalence of 30% in UP. This can be attributed to the majority of population living in rural areas with less inclination and awareness towards maintenance of oral hygiene in children.

The DMFT and OHI-S indexes are two of the most important quantitative factors, measuring tooth health and oral hygiene. In the present study a positive correlation was reported between DMFT and OHI-S as both showed an increasing trend with age. Luljeta Ferizi Shabani et al concluded that there is a strong correlation between DMFT and OHI-S index in children 10-15 years old, and they had high caries prevalence. Nathan et al¹⁰ found a positive correlation of DMFT and OHI-s increasing with age.

Recommendations

Implementation of preventive school dental health programmes

- ❖ By organising regular dental screening camps
- ❖ Teachers to be trained to implement basic preventive programs
- ❖ Mobile dental clinics can be implemented for the schools
- ❖ Management of dental fear to be implemented in preventive programs
- ❖ Parents to be made aware of various oral hygiene techniques

CONFLICTS OF INTEREST

The authors declare they have no potential conflict of interests regarding this article.

REFERENCES

1. Joshi N, Rajesh R, Sunitha M. Prevalence of dental caries among school children in Kulasekharam village: a correlated prevalence survey. *J Indian Soc Pedod Prev Dent*. 2005 Sep; 23(3):138–140.
2. Singh Meghna et al “Prevalence of dental diseases in 5 to 14 year old school children in rural areas of the Barabanki district of Uttar Pradesh. India. *Indian Journal of dental research* 2011:396-399
3. World Health Organization. Oral health surveys: basic methods. 4th ed. Geneva: World Health Organization; 1997
4. National oral health Policy: *JIDA* 1986;58:397-401
5. Goenka P et al. Prevalence of Dental Caries in Children of Age 5 to 13 Years in District of Vaishali, Bihar, India; *Int J Clin Pediatr Dent*. 2018 Sep-Oct; 11(5): 359–364.
6. Diseases I of M (US) C on a NSS for C and SC. Levels of Surveillance and [3]Emerging Data Sources [Internet]. National Academies Press (US); 2011 [cited 2018 Mar 19]. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK83159/>
7. Kundu H, Patthi B, Singla A, Jankiram C, Jain S, Singh K. Dental caries scenario among 5, 12 and 15-year-old children in India- A retrospective analysis. *J Clin Diagn Res JCDR*. 2015; 9(7):ZE01-05
8. Dixit et al “Prevalence of dental caries and treatment needs among 3-5 year old Preschool children in Narmada, Gujrat. *IOSR-JDMS* 2015; Issue1 vol1:97-101
9. Bansal et al “Prevalence of dental caries among school children in Meerut’ *Asian Pacific journal of health sciences*. 2015; 2(1):84-88
10. Nathan U Ikimi., et al. “DMFT Index and OHI-S in Children Attending Public Schools in Abuja, Nigeria”. *Acta Scientific Medical Sciences* 4.5 (2020): 09-13.