

Prevalence of Early Childhood Caries in 3 to 5 years old Children of Bhavnagar city: A cross sectional study.

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Abstract

Background: Early Childhood Caries is a problem that affects preschool children all over the world, and there is shortage of epidemiological data regarding ECC in Bhavnagar city.

Aim: This study aims to assess the prevalence of ECC among 3- to 5-year-old preschool children in Bhavnagar city. **Materials and Methods:** A cross-sectional study was carried out among 285 preschool children aged 3–5 years in Bhavnagar. Children were randomly selected from preschools of Bhavnagar. Caries experience was recorded using “deft” index.

Results: The overall prevalence of ECC was found to be 26.31%. **Conclusion:** Prevalence of dental caries is high, treatment of dental caries would impose a great financial burden; hence, effective preventive strategies should be developed and implemented. Future health promotion and education programs in preschool should include oral health issues and the risk factors for ECC, and its consequences should be addressed.

Key Words: Dental caries, Prevalence of ECC, risk factors, severe ECC.

Introduction

Early Childhood Caries (ECC) is defined as the presence of one or more decayed (non-cavitated or cavitated lesions), missing or filled (due to caries) surfaces, in any primary tooth of a child under six years of age.¹

Since 1962, a many of terms have been used to use for caries in young children, like bottle mouth caries, baby bottle tooth decay,

nursing caries, nursing bottle syndrome, rampant caries, nursing bottle mouth, milk bottle syndrome, breast milk tooth decay, maternally derived *Streptococcus mutans* disease (MDSMD) and faciolingual pattern of decay and about 106 factors have been associated with its etiology.²

Epidemiological studies shown, variation in the prevalence of caries (preschool children) ranging from 6.6% to 76% with

strong correlation to ethnicity and socioeconomic status.³⁻¹⁶

The recent studies in Scotland has reported reduce in the prevalence of caries in three-year-olds which can be due to the preventive program conducted locally.¹⁷

This highlights the importance of prevalence studies and the rationale for conducting the present study was, very few prevalence studies have been reported in Gujarat on ECC and none so far in Bhavnagar, Gujarat, India. The present study was to assess the prevalence of ECC.

MATERIALS AND METHODS

The approval by the Institutional Ethical Committee at college of dental science, Amargadh, Bhavnagar were obtained. The objectives and nature of the study were explained to the participants, while the voluntary nature of participation was emphasized and strict confidentiality assured.

Participants:

A total of 285 children belonging to 3-5 year old age group attending the pre-school were randomly selected from Bhavnagar city.

Inclusion criteria

- ✓ The pre-school children between 3-5 years of age.
- ✓ All deciduous teeth should be presented.

Exclusion criteria

- ✓ Handicapped children; children with major debilitating illnesses.
- ✓ Children where the first permanent molar were erupted.
- ✓ Children with medical history were excluded

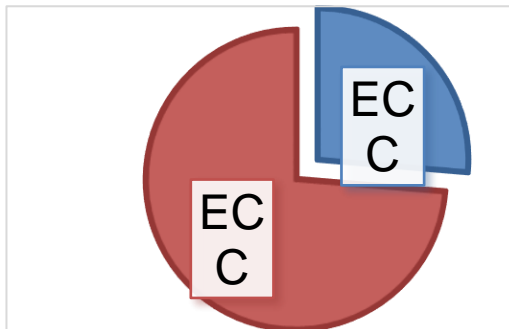
Data collection

The American Academy of Pediatrics Dentistry defined ECC as the presence of one or more decayed or filled tooth surfaces in any primary tooth in a child 71 months of age or younger. According criterion, intraoral examinations were done by using mouth mirror and No. 23 explorer for assessing "deft" index. For this WHO Oral Health Assessment Form 1997 was used. Intraoral examination was done in natural (sunlight) and artificial light (torch) and chlorhexidine gluconate {0.2% (w/v)} solution was used as an antiseptic after

each patients.

RESULT

Out of 285 [132 females and 153 males] 3 to 5 years old children examined, 47



children were in the age of 3.5 year and 55 were in the age of 3 year, 92 were in the age of 4 year and 91 were in the age of 5 year. [table 1,2]

Table 1: Distribution of sample according to gender

MALE	FEMALE	TOTAL
153	132	285

Table 2: Age distribution of 285 children

NO	AGE	MALE	FEMALE	TOTAL
1	3-4	56	46	102
2	4-5	97	86	183

In the present study, ECC was found in 26.31% of 285, in 3 to 5 years old children. (Graph1).

Graph1: Affected and Non affected with ECC

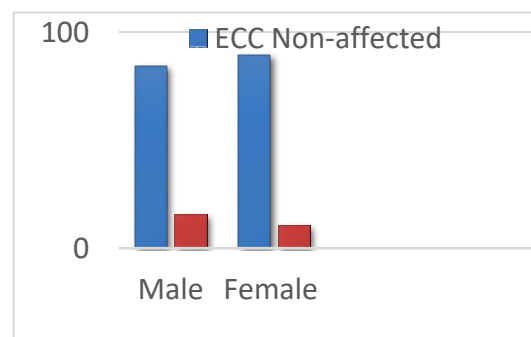
The ECC was found to be significantly higher in male and was 15.7% in them as compared with 10.5% in female (Graph 2).

Graph 2: Comparison between ECC effected and non-affected males and females

Discussion

Early childhood caries is still one of the most common diseases in children worldwide. it not only affect children's oral health, but also the general health.

A review of the literature suggests that in most developed countries the prevalence ECC is between 1 and 12% and in less developed countries prevalence is high as



70%. The prevalence ranged from 11.4% in Sweden to 7–19.0% in Italy. A high prevalence of ECC has been reported in some Middle Eastern countries, such as in

Palestine is 76% and in the United Arab Emirates is 83%.¹⁸

The national surveys from some countries, such as in Greece 36%, in Brazil 45.8%, in India 51.9%, and in Israel 64.7%, showed inconsistent prevalence of ECC. In a systematic review, Ismail and Sohn found that the prevalence varied from 2.1% in Sweden to 85.5% in rural Chinese children.¹⁸ The national prevalence of ECC in the United State of America can be estimated between 3 and 6%.¹⁸

Caries prevalence in the present study was found to be lower than Indian studies by Kashetty,³ Gopala,⁴ Ghanghas⁵ and Shikha Dogra.⁶ This can be accounted to the fact that Bhavnagar is an endemic fluoride area.

In present study caries experience high in male than female similar to that reported by Peressini.¹⁹ This can be due to cultural differences giving priority to male. Parents of children in India usually do not realize the importance of primary dentition because of they think that permanent teeth would soon erupt even if the primary teeth are carious. Their lack of knowledge about the importance of oral health of their wards is a contributory factor for oral health decline in the children.

Conclusion

Prevalence of dental caries is more, treatment of dental caries would effect on great financial burden; hence, effective preventive program should be developed and implemented. Future health education programs in pre-school should include oral health problem and the risk factors for ECC, and its consequences should be addressed.

References

1. Early Childhood Caries: IAPD Bangkok Declaration, Int J Paediatr Dent. 2019; 29:384-386.
2. Harris R, Nicoll AD, Adair PM, Pine CM. Risk factors for dental caries in young children: a systematic review of the literature. Community Dental Health 2004; 21:71-85.
3. Kashetty MV, Patil S, Kumbhar S, Patil P. Prevalence of dental caries among 3 - 6 year old Anganwadi children in Mudhol town, Karnataka, India. J Indian Assoc Public Health Dent 2016; 14:403-8.
4. Ghanghas M, Kumar A, Manjunath BC, Narang R, Goyal A, Kundu H. Prevalence of early childhood caries in 3- to 5-year-old preschool children in Rohtak City, Haryana. J Indian Assoc Public Health Dent 2017; 15:344-7.

5. Gopala S, Chandrappab V, Kadidalc U, Rayalad C, Vegesnae M. Prevalence and Predictors of Early Childhood Caries in 3- to 6-year-old South Indian Children - A Cross sectional Descriptive Study. *Oral hlth prev dent* 2016; doi: 10.3290/j.ohpd.a35619.
6. Donga S, Rao RR, Singh GP, Mohan S, Patel A. Early Childhood Caries in Preschool Children of Gram Panchayat Anoo, Hamirpur, Himachal Pradesh, India. *J Dent Sci* 2018;10:11-5.
7. Gaidhane AM, Patil M, Khatib N, Zodpey S, Zahiruddin QS. Prevalence and determinant of early childhood caries among the children attending the Anganwadis of Wardha district, India. *Indian J Dent Res* 2013; 24:199-205.
8. Prakash P, Subramaniam P, Durgesh BH, Konde S. Prevalence of early childhood caries and associated risk factors in preschool children of urban Bangalore, India: A cross-sectional study. *Eur J Dent* 2012; 6:141-152.
9. Kumarihamy et al.: The prevalence of Early Childhood Caries in 1-2 yrs olds in a semi-urban area of Sri Lanka. *BMC Research Notes* 2011; 4:336.
10. Wyne A, Darwish S, Adenubi J, Battata S, Khan N. Blackwell Science Ltd The prevalence and pattern of nursing caries in Saudi preschool children. *Int J Paediatr Dent* 2001; 11: 361–364.
11. Azizi Z. The Prevalence of Dental Caries in Primary Dentition in 4- to 5-Year-Old Preschool Children in Northern Palestine. *Int J Dent* 2014; doi.org/10.1155/2014/839419.
12. Folayan MO, Kolawole KA, Oziegbe EO, Oyedele T, Oshomoji OV, Chukwumah NM, Onyejaka N. Prevalence, and early childhood caries risk indicators in preschool children in suburban Nigeria. *BMC Oral Health* 2015; 15:1-12.
13. Mangla RG, Kapur R, Dhindsa A, Madan M. Prevalence and associated Risk Factors of Severe Early Childhood Caries in 12 to 36 month-old Children of Sirmour District, Himachal Pradesh, India. *Int J Clin Pediatr Dent* 2017; 10:183-187.
14. Arangannal P, Mahadev SK, Jayaprakash J. Prevalence of Dental Caries among School Children in Chennai, Based on ICDAS II. *J Clin Diagn Res* 2016; 10: 09-12.
15. Prabakar J, John J, Srisakthi D. Prevalence of dental caries and treatment needs among school going children of Chandigarh. *Indian J Dent Res* 2016; 27:547-52.
16. Olatosi OO, Inem V, Sofola OO, Prakash P, Sote EO. The prevalence of

early childhood caries and its associated risk factors among preschool children referred to a tertiary care institution. Niger J Clin Pract 2015; 18:493-501.

17. World Health Organization (WHO). Oral health surveys: basic methods. 4th ed. Geneva: WHO; 1997.

18. Anil S, Anand PS. Early Childhood Caries: Prevalence, Risk Factors, and Prevention. Front. Pediatr. 2017; 5:157.

19. Peressini S, Leake JL, Mayhall JT, Maar M, Trudeau R. Prevalence of early childhood caries among First Nations children, District of Manitoulin, Ontario. Int J Paediatr Dent 2004;14:101-10.

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