ORIGINAL ARTICLE

Caries Prevalence and Its Association with Mother's Education In six to sixty months Old Children of Lucknow City, India

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ABSTRACT

Background: Dental caries or tooth decay poses a formidable threat to public oral health in both developing and most of the industrialized countries because of its relatively high and apparently growing prevalence and its rapid progression which leads to the destruction of the deciduous dentition. The current cross-sectional study was planned to provide the baseline data of prevalence of dental caries among preschool children along with their mother's education in Lucknow city, India.

Materials and Methods: 840 children aged 6-60 months were visually examined for caries and dmft scores were calculated. Demographic data were collected by interview. Recording of dental caries was based on WHO criteria.

Result: The overall mean dmft was 3.13 ± 1.85. The variables were significantly associated with Early Childhood Caries age of subject and level of mother's education.

Conclusion: ECC levels among preschool children in this city were not very high but neither low. The prevention and control of dental caries in young children is a continuing process, and it is easier to manage if groups of population with greatest needs are identified.

Keywords: Early Childhood Caries, mother's education, socioeconomic status

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INTRODUCTION

Dental caries or tooth decay poses a formidable threat to public oral health in both developing and industrialized countries. Early childhood caries (ECC) can have detrimental effect on a child's general and oral health which could be seen even in later life.[1]

There has been the focus on inequality in health and oral health dealing with adolescents and adults in India. However, similar level of emphasis has not been given in regards to very young children and also on covering the backward areas of the country. Thus there is no definite picture regarding the dental caries status in backward areas of the country where 75 percent of the population inhabits. ECC is a serious public health concern especially for disadvantaged social groups; yet, it remains relatively uncharted and given inadequate importance in many developing countries.[2]

Women have an important role in maintaining the health of the family as a mother in the upbringing of the child healthy and her education is of utmost importance. Amongst social indicators mother education has been found to have greatest influence on child's health, especially in developing countries.[3,4] The mother is known to have not only a biological role in the first microbial colonization of her child's teeth, but also has in developing behavior pattern of their child. The developed behavior pattern gets deeply

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embedded and becomes resistant to change. Since caries is a preventable disease, primary caregivers/ mother play a vital role in preventing dental caries in young children.

For the purpose of assessing the magnitude of the preventive task, it is important to know the extent and severity of the disease. Therefore the current cross-section study was planned to provide the baseline data of prevalence for dental caries among preschool children along with their mother's education in Lucknow city.

MATERIAL AND METHOD

Study population: Before commencing the study official permission was obtained from all the concerned authorities. Random sampling was done. An epidemiological survey was carried out in collaboration with Pratham NGO in their school premises.

Data Collection: Initial training and calibration exercise was conducted by doing a pilot study of 50 children to get practical experience in the study methodology, the coding system, intra-examiner variability, sample size and to pretest before the main survey. A total approximately 100 kindergartens are in Lucknow city, and lottery system was been used to select four schools. The study sample calculated 1004 children but on the day of examination 164 children were not present therefore the total sample consisted of 840 individual. Clinical examinations were performed by a single pedodontist in open ground with standard WHO probe and plain mouth mirror under natural light. Infants were examined on their mother's lap, using "knee to knee" technique and other children were examined sitting in an ordinary upright chair. Children's teeth were not air-dried or cleaned before the examinations. No radiographs were taken. All teeth were examined in a systematic manner using international FDI two-digit nomenclature to identify each primary tooth. Every child present took part in the clinical examination of dentition status. Recording of dental caries was based on WHO criteria.[5] Enamel hypoplasia or white spot lesions, and the uncavitated carious lesion was not recorded as caries. Before the oral examination, mothers were interviewed for the family demographics such as mother's education.

STATISTICAL ANALYSIS

Following data collection and statistical coding analysis was applied. Percentage distributions of sample characteristics and associations between different factors and caries presence were computed

Table 1: Association between caries and independent factors

Categories		Total No. of Subjects	%	Caries	%	Caries free	%	'p' Value
Age (months)	13-24	60	7.14	6	10	54	90	0.032
	25-36	218	25.92	39	17.89	179	82.11	
	37-48	267	31.79	85	31.84	182	68.16	
	48-60	279	32.97	93	33.33	186	66.67	
Sex	Male	387	46.07	96	29.00	291	75.19	0.116
	Female	453	53.93	127	31.05	326	71.97	
Religion*	Hindu	367	43.7	91	24.8	276	75.20	0.166
	Muslim	463	56.31	132	27.91	341	72.09	
Mother education	Graduate	109	12.98	9	8.26	100	91.74	<0.001
	Senior school	191	22.74	29	15.18	162	84.82	
	Upper middle	143	17.02	21	14.69	122	85.32	
	Middle school	223	26.55	63	28.25	160	71.75	
	Illiterate	317	37.74	122	38.49	195	61.54	

* Sikh and Christian were not present in the study

applying statistical Chi-square test. Percentage distributions were estimated for the dmft score. The statistical significance level for Chi-square was chosen as $p < 0.05$.

RESULTS

Caries prevalence: Total of 223 of the 840 children (26.55%) demonstrated dental caries, and 617(73.45%) were caries-free. Caries was more prevalent in females 127 (31.05%) than in males 96 (29%), but this difference did not reach statistical significance. The prevalence of dental caries was found to be more in Muslims 132 (27.9%) than Hindus 91 (24.8%), but this difference did not reach statistical significance (Table 1).

In all, there were 695 decayed teeth; five of them had been treated (filled). The maximum caries level per child (dmft) was thirteen teeth. The mean dmft among the whole group was 0.83 teeth (700/840). Among the 223 children who presented caries – the mean dmft was 3.13 teeth (700/223) as shown in Table 2.

Association: The association between dmft and age were examined (Table 3).

Table 3: Association of age with dmft

Age in months	Number of subjects	%	dmft (Mean ± SD)
6-12	16	1.91	0
13-24	60	7.14	0.17 ± 0.56
25-36	218	25.92	0.55 ± 1.52
37-48	267	31.79	0.99 ± 2.01
48-60	279	33.21	1.10 ± 2.06

The cavitation was found only among children greater than one year of age. According to univariate analysis (Table 1), caries was statistically significantly associated with two factors: child's age and level of mother's education.

DISCUSSION

The study of presence of dental caries in primary dentition is vital not only for the consequential deterioration in the quality of life of young children but also it has been envisaged that the if caries is

Table 2: Distribution of study subjects according to age with dmft score>0

		dmft score	1	2-4	5-7	8-10	11-13
Age **group (months)**	**13-24**	**Percentage of children**	50	50	0	0	0
		N	3	3	0	0	0
		Percentage of teeth affected	30	70	0	0	0
		N	3	7	0	0	0
	25-36	**Percentage of children**	35.90	38.46	20.52	5.13	0
		N	14	15	8	2	0
		Percentage of teeth affected	11.76	34.53	39.5	14.29	0
		N	14	41	47	17	0
	37-48	**Percentage of children**	24.71	54.12	12.94	7.06	1.77
		N	21	46	11	6	1
		Percentage of teeth affected	7.99	42.21	25.1	20.15	4.56
		N	21	111	66	53	12
	48-60	**Percentage of children**	22.58	50.54	21.51	3.23	2.15
		N	21	47	20	3	2
		Percentage of teeth affected	6.81	41.23	36.04	7.79	8.12
		N	21	127	111	24	25

(n=number of children; N= number of teeth)

present in primary dentition, permanent dentition will definitely be affected.[6,7] Mothers with higher education have a better knowledge regarding the oral hygiene practice and importance of deciduous teeth. This study examined dental caries among children aged 6-60 months in the school premises of the slums and kindergarten schools in Lucknow. The results of this study demonstrated that the caries prevalence was 26.55%. Caries prevalence for WHO index age five years was 33.33%. This is comparatively low as per some Indian studies such as in Pondicherry[8] and National Oral Health Survey[9] which showed the prevalence of 44.4% and 51.9% respectively and high on the study in Davangere[10] where caries prevalence was 24.5%. The prevalence of caries worldwide is highly variable ranging from 40% in Brazil to 55% in China.[11] This could be due to the differences in case selection and investigative criteria of ECC. In this study only cavitated lesions were included. Recent studies from European countries, as well as from North America, show race and ethnicity could be defining factor for ECC prevalence.[12-15] The majority of the caries indexes constituted the d-component, as confirmed in other studies.[16-19] Distribution of caries was skewed, and in fact, only one of the children had filled teeth, and none had missing teeth due to caries. This proves that their parents were not aware of the importance of getting their children's teeth checked regularly.

In the present study maternal education level was indirectly associated with the prevalence of dental caries, the result is in concurrence with the study done by Jefferson Traebert.[20] Szatko *et al*.[21] found that educative mothers are more knowledgeable hence influencing the child's oral health. Also, studies have shown that a low level of education is an impediment to get prompt dental advice and management.[22-23] Therefore, the association between mothers' education level and caries experience was examined. Dental caries was more prevalent among children of mothers with less or no formal education as it has the impact on the selection of food, importance to oral health and living standard in families.

CONCLUSION

Mothers have a direct bearing on their child's life-style, behavior, and habits. A major effort to widen their educational potential, therefore, seems to be of importance, to improve the oral health of their children. Identifying population with greatest needs and reasons for it will go a long way in curbing the ill effects of dental caries

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