

ORIGINAL ARTICLE

Prevalence of Early Childhood Caries Amongst School Children of Rural Areas

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ABSTRACT:

Background: Dental caries is the most commonly occurring condition amongst children. Various factors are found to be responsible for early childhood caries. These include a susceptible host, intake of fermentable carbohydrate, lack of proper oral hygiene maintenance leading to plaque accumulation, presence of cariogenic bacteria like *Streptococcus mutans*, *Lactobacillus*, and time for the action of all the above. The aim of the present study is to determine the prevalence of early childhood caries in rural areas. **Materials and methods:** The present cross sectional study was conducted in the department, Institute, State during a period of one year i.e. from June 20XX to July 20XX. The study consisted of 1300 preschoolers aged less than 60 months. Complete clinical examination of the children was done using mouth mirror and probe. Minimal pressure was used for the removal of debris under complete aseptic conditions to detect decay in teeth. A predesigned proforma was used to fill the decayed, missing and filled teeth. All the data thus obtained was compiled in a tabulated form and analysed using SPSS software. Chi square test was applied as a test of significance. Probability value of less than 0.05 was considered significant. **Results:** In this cross sectional study, a total of 1300 subjects were enrolled, the mean of the subjects was 3.48 +/- 1.22 years. There were 44% (n=572) children who had decay in 1-4 teeth. There were 40% (n=520) subjects who had decay in 5-9 teeth. There were 59% (n=767) males and 41%(n=533) females in this study. Majority of children had working mothers i.e. 65% (n=845). **Conclusion:** The prevalence of early childhood caries was 98% in our study. It is a commonly seen clinical entity amongst children of rural areas. This clearly indicates lack of knowledge and awareness amongst the parents.

Keywords: Awareness, Caries, Children, Rural.

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INTRODUCTION

Dental caries is the most commonly ignored chronic condition amongst children. According to the American Academy of Pediatric Dentistry (2003), early childhood caries is defined as the presence of one or more decayed (non cavitated or cavitated), missing (due to caries), or filled tooth surfaces in any primary tooth in a child up to 71 months of age or younger.¹ Various factors are found to be responsible for early childhood caries. These include a susceptible host, intake of fermentable carbohydrate, lack of proper oral hygiene maintenance leading to plaque accumulation, presence of cariogenic bacteria like *Streptococcus mutans*, *Lactobacillus*, and time for the action of all the above.² Certain risk factors that lead to increase in incidence of early childhood caries are improper dietary habits and intake of medications, socioeconomic status, working status of mother and oral hygiene maintenance habits.^{3,4} It is considered as a serious public health

problem in disadvantaged communities of both developing and developed countries.⁵ In a study conducted by Midda and Konig (1994) found that children belonging to lower socioeconomic group had more incidence of growth and bone retardation with lower average weight. According to them there was also delay in eruption of teeth compared to children of higher socioeconomic status.⁶ In a study by Ogden *et al*, children of lower socioeconomic status have higher incidence of caries.⁷ Early childhood caries is a complex condition involving primary dentition which can cause behavioural issues amongst infants and toddlers and hence it poses a serious public health problem.^{8,9} If it is not treated it can cause pain, malocclusion, low self esteem, problem in phonetics, compromised ability to eat. Therefore it is a medical, psychological, dental and economical problem that severely affects the quality of life.^{10,11} The prevalence rate of early childhood caries has been found to be fluctuating over years. In the year 1940, it was 55.5% and

by the year 1960 it shoot upto 68%.¹² Various preventive measures and awareness programmes have been conducted to reduce its prevalence but the prevalence continues to increase inspite of all the measures. The aim of the present study is to determine the prevalence of early childhood caries in rural areas.

MATERIALS AND METHODS

The present cross sectional study was conducted in the department, Institute, State during a period of one year i.e. from June 20XX to July 20XX. The study consisted of 1300 preschoolers aged less than 60 months. The study was approved by the ethical committee of the institute and a written consent was obtained from the concerned authorities before commencing the examination procedure. Children with developmental enamel defect and having any systemic condition were excluded from the study. Children aged between 2-5 years and accompanied by their parents were included in the study. Complete clinical examination of the children was done using mouth mirror and probe. Minimal pressure was used for the removal of debris under complete aseptic conditions to detect decay in teeth. A predesigned proforma was used to fill the decayed, missing and filled teeth. All the children who required any kind of treatment were issued treatment cards. Information regarding the demographic status, scocioeconomic conditions and dietary habits were also recorded in the proforma. All the subjects were made aware about the oral hygiene habits. They were taught about proper brushing techniques. All the data thus obtained was compiled in a tabulated form and analysed using SPSS software. Chi square test was applied as a test of significance. Probability value of less than 0.05 was considered significant.

RESULTS

In this cross sectional study, a total of 1300 subjects were enrolled, the mean of the subjects was 3.48 +/- 1.22 years.

Table 1: Study distribution according to the number of decayed teeth

NUMBER OF DECAYED TEETH	FREQUENCY	PERCENTAGE
nil	26	2
1-4	572	44
5-9	520	40
10-14	143	11
>14	39	3

Table 2: DMFT index amongst the study population

DMFT INDEX	FREQUENCY	PERCENTAGE
1-4	559	43
5-9	533	41
10-14	156	12
>14	52	4

Table 3: Association with the demographic variable

VARIABLE		FREQUENCY	PERCENTAGE	P VALUE
Gender	Male	767	59%	>0.05
	Female	533	41%	
Working status of mother	Working	845	65%	<0.05
	Non working	455	35%	

Majority of the subjects were 5 years of age(42%), there were 34% subjects who were 4 years old.

Table 1 shows the decayed index amongst the subjects. There were 44% (n=572) children who had decay in 1-4 teeth. There were 40% (n=520) subjects who had decay in 5-9 teeth. Decay was present in 10-14 teeth in 11% (n=143) children. There were 39 children who had decay in more than 14 teeth. There were only 2% subjects who had no caries.

Table 2 shows the DMFT index amongst the children. There were 43% (n=559) subjects with DMFT index between 1-4. Index was between 5-9 in 41% (n=533) subjects. There were 12% (n=156) subjects with DMFT index between 10-14. DMFT index of more than 14 was seen in 4% (n=52) subjects.

Table 3 shows the gender predilection of caries and association with working status of women. There were 59%(n=767) males and 41%(n=533) females in this study. Majority of children had working mothers i.e. 65%(n=845). There were 35% subjects who had non working mothers. There was a significant difference in the working status of mother in the study.

DISCUSSION

Early childhood caries is the most common diseased condition of childhood. Both Infants and toddlers are frequently affected by this disease as they are dependent on their parents for dietary and oral hygiene habits. In the present study, the prevalence was 98%. There were 44% (n=572) children who had decay in 1-4 teeth. There were 40% (n=520) subjects who had decay in 5-9 teeth. Decay was present in 10-14 teeth in 11% (n=143) children. There were 39 children who had decay in more than 14 teeth. There were only 2% subjects who had no caries. The prevalence of caries varies amongst western countries.

The prevalence reported in Western countries is varied. The mean DMFT was 0.6, 1.63, and 2.1 in Bangalore, Andhra Pradesh, and Kerala respectively.¹³ In our study, there were 43% (n=559) subjects with DMFT index between 1-4. Index was between 5-9 in 41% (n=533) subjects. There were 12% (n=156) subjects with DMFT index between 10-14. DMFT index of more than 14 was seen in 4% (n=52) subjects. In the study conducted by Ruhaya Het al in Malaysia, there were 99% of the subjects affected by caries. Early childhood caries is a very serious problem in the city. In their study, majority i.e. 80.6% of the subjects were categorized as “high caries” (i.e. dmft>7).¹⁴

In a study conducted in the Commonwealth of Independent States, the mean dmft of 5 year old children was from 4.4 in Lithuania to 7.4 in Belarus.¹⁵ A study conducted by Karvonen HM in urban areas of China, the mean dmft varied from 3.7 to 7.6 and in Ulaanbaatar Mongolia, the mean DMFT of children aged 4.5 years was 6.5.¹⁶ In the present study, there were 59%(n=767) males and 41%(n=533) females in this study. Majority of children had working mothers i.e. 65%(n=845). There were 35% subjects who had non working mothers. There was a significant difference in the working status of mother in the study. In a study conducted by Kuriakose S et al, there were 52.9% of mothers who were nonworking and 68.2% of children of working mothers were affected by caries. Therefore there is a significant association between the working status of women and caries index amongst children.¹⁷ Determination of prevalence rate amongst the preschoolers is a difficult process as they are uncooperative and not easy accessible.¹⁸ Various studies have also shown that prevalence of caries increases with age.¹⁹ This is due to the change in the dietary habits and oral hygiene practices amongst children as they grow. Males are more commonly affected than females in our study and as in many other studies as in India, male community is more favoured and also their increased physical activity demands more food intake than females. There is increased prevalence of early childhood caries in this study which clearly dictates the need of various preventive and awareness programmes to be conducted in this section of the society. Parents and children both need to be taught about the oral hygiene practices and the need to adopt good dietary habits. Early childhood caries affects the complete social and psychological well being of the child. Therefore there is a continuous need to reinforce good habits amongst children at an early age.

CONCLUSION

The prevalence of early childhood caries was 98% in our study. It is a commonly seen clinical entity amongst children of rural areas. This clearly indicates lack of knowledge and awareness amongst the parents. Various knowledge and awareness programmes about early childhood caries and dietary habits need to be initiated to reduce the prevalence.

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