

Prevalence of Early Childhood Caries Among children of Jammu City

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Abstract

Aim: The aim of the present study is to determine the prevalence of early childhood caries (ECC) among children of Jammu City.

Materials and Methods: A total of 200 children (100 males and 100 females) were selected based on the inclusion criteria from 979 children who visited the Department of Paediatric and Preventive Dentistry in Indira Gandhi Government Dental College, Jammu, during the period from January 2016 to March 2016. Questionnaires containing questions regarding demographic data, dietary and oral hygiene habits of children were distributed among all parents in both English and Hindi languages which were then collected to analyze data. The data were subjected SPSS version 20 (SPSS Inc. Chicago III. USA). The association of variables was obtained by Chi-square test at 0.01 and 0.05 significant levels.

Results: The subjects who brushed only once showed more number of decayed teeth (42.5%) in comparison to the subjects who brushed twice daily (13.5%). There was no significant gender difference for the incidence of ECC. Furthermore, there was a significant difference between the residents of urban and rural locations for the prevalence of ECC with children of urban areas showing more prevalence which was found to be statistically significant. There was an increase in a number of subjects showing decayed teeth with increased frequency of snack consumption.

Conclusion: ECC was more prevalent in the children of rural areas of Jammu population, and there is an increased risk of ECC with more frequency of in-between meals snack consumption and decreased frequency of brushing.

Key words: Early childhood caries, Eruption, Prevalence, Primary teeth

INTRODUCTION

Early childhood caries (ECC) is a complex disease involving the maxillary primary incisors within a month after the eruption and spreads rapidly to involve other primary teeth.^[1]

ECC has been on the increase in many countries and has become a significant health problem especially in socially disadvantaged populations. Several terminologies were used to describe the condition such as nursing bottle caries,

nursing caries, rampant caries, baby bottle caries, baby bottle tooth decay, milk bottle syndrome, and prolonged nursing habit caries.^[2,3]

Although ECC is generally first noted in primary maxillary incisors, it can rapidly spread to primary molars and often leads to dental infection in the permanent dentition.^[4-8]

ECC is a serious public health problem in very young children, and although it is not life threatening, if left untreated it may lead to pain, bacteremia, compromised chewing ability, and toxic overdose of analgesics administered during the early stages, followed by malocclusion in permanent dentition, phonetic problems, suboptimal health, lower self-esteem, and failure to thrive.^[9,10]

It has also been described as a social, political, behavioral, medical, psychological, economical, and dental

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problem.^[11] Children born after maternal complications during pregnancy or who have had traumatic births are at risk of developing ECC.^[12]

The prevalence of ECC is estimated to range from 1% to 12% in preschoolers of developed countries and from 50% to 80% in high-risk groups.^[11-15]

In India, a fluctuant prevalence rate is found over the years. It varied from 55.5% in 1940 to 68% in 1960s.^[16] One of the significant studies conducted by Kuriakose and Joseph in 1999, the results showed an astonishing caries prevalence of 57%.^[17]

The American Academy of Pediatrics established a policy in 2003 that every child should receive an oral health assessment (including caries risk assessment) by 6 months of age administered by a qualified pediatrician or pediatric healthcare professional.^[18]

The data regarding the ECC in our region are negligible, so the present study is conducted to determine the prevalence of ECC among children of Jammu City.

MATERIALS AND METHODS

A total of 200 children (100 males and 100 females) were selected based on the inclusion criteria from 979 children who visited the Department of Paediatric and Preventive Dentistry in Indira Gandhi Government Dental College, Jammu, during the period from January 2016 to March 2016.

Inclusion Criteria

The following criteria were included in this study:

- Children <5 years of age.
- Cooperative children.
- Children are native to Jammu region.

Exclusion Criteria

The following criteria were excluded from the study:

- Children with developmental anomalies of teeth.
- Children with syndromes and other systemic disorders.

A single dental professional using a mouth mirror under sterile conditions did clinical examinations. The decayed, missing, filled teeth (DMFT) indices of each subject were recorded.

Questionnaires containing questions regarding demographic data, dietary and oral hygiene habits of children were distributed among all parents in both English and Hindi languages which were then collected to analyze data.

The data were subjected SPSS version 20 (SPSS Inc. Chicago III. USA). The association of variables was obtained by Chi-square test at 0.01 and 0.05 significant levels.

RESULTS

Table 1 and Table 2 summarized the distribution of subjects according to a number of decayed teeth and DMFT index. 31.5% of the subjects showed 1–5 decayed teeth followed by 15.5% of the subjects which had 6–10 of decayed teeth and 9% which showed more than 10 decayed teeth. Table 3 summarized the association between brushing frequency and number of decayed teeth, and it was concluded that the subjects who brushed only once showed more number of decayed teeth (42.5%) in comparison to the subjects who brushed twice daily (13.5%). This difference was statistically significant ($P = 0.0001^{**}$). Table 4 summarized that there was no significant gender difference for the incidence of ECC ($P = 0.3927$). Furthermore, there was a significant difference between the residents of urban and rural locations for the prevalence of ECC with children of rural areas showing more prevalence (69%) which was found to be statistically significant ($P = 0.0002^{**}$). Table 5 summarized that there was an increase in a number of subjects showing decayed teeth with increased frequency of snack consumption.

DISCUSSION

The present study was conducted in a total of 200 children (100 males and 100 females) who were selected based on the inclusion criteria from a total of 979 children who visited the Department of Paediatric and Preventive Dentistry in Indira Gandhi Government Dental College, Jammu, during the period from January 2016 to March 2016.

Table 1: Distribution of subjects according to number of decayed teeth

| Number of decayed teeth | Number of subjects (%) |
|-------------------------|------------------------|
| Nil | 88 (44) |
| 1–5 | 63 (31.5) |
| 6–10 | 31 (15.5) |
| >10 | 18 (9) |

Table 2: Distribution of subjects according to DMFT index

| DMFT | Number of Subjects (%) |
|------|------------------------|
| Nil | 86 (43) |
| 1-5 | 69 (34.5) |
| 6-10 | 26 (13) |
| >10 | 19 (9.5) |

D - Decayed, M - Missing, F - Filled, T - Teeth

Table 3: Association of brushing frequency and number of decayed teeth

| Brushing frequency | Number of subjects | Decayed teeth (%) |
|--------------------|--------------------|-------------------|
| Once | 108 | 85 (42.5) |
| Twice | 92 | 27 (13.5) |

$\chi^2=14.585$, $df=1$, $\chi^2/df=14.58$, $P(\chi^2>14.585)=0.0001^{**}$

Table 4: Association of gender, demographic area with ECC

| Variable | ECC present (%) | ECC absent (%) | P value |
|----------|-----------------|----------------|---------|
| Gender | | | |
| Male | 59 | 41 | 0.3927 |
| Female | 53 | 47 | |
| Location | | | |
| Rural | 69 | 31 | 0.0002* |
| Urban | 43 | 57 | |

ECC: early childhood caries

Table 5: Association of decayed teeth with frequency of snack consumption

| Snack consumption frequency | Number of subjects showing decaying teeth (%) |
|-----------------------------|---|
| Once | 18 (16.1) |
| Twice | 43 (38.4) |
| Thrice | 51 (45.5) |

The findings of our study found that majority of the subjects (34.5%) showed a DMFT score of 1–5 which is in accordance with the study conducted by Kuriakose *et al.*,^[19] however, some authors found lower mean DMFT scores.^[20]

The findings of our study found that there was an increased prevalence of ECC in children of rural areas which can be attributed to decreased awareness and lack of education about oral health among parents of these children. Similar results were found by various studies.^[19,21]

The present study found that there was an increase in the risk for caries with increased frequency of snack consumption which is in accordance with the results of Huew *et al.* and other studies done in the past.^[19,22]

The findings of our study found no significant gender differences for the prevalence of ECC which is in contradiction with the results of Kuriakose *et al.*^[19] who found that male children were more affected than females.

This study showed that the prevalence of decayed teeth was less in children who brushed twice daily which is in accordance with the results of previous studies.^[19]

The limitation of the present study is that socioeconomic status, education, working status of parents of children

was not considered which could play an important role in the maintenance of oral hygiene of the children.

CONCLUSION

ECC is the most common multifactorial disease consequent to the interaction of cariogenic microorganisms, exposure to carbohydrates, inappropriate feeding practices, and a range of social variables. It can be concluded that ECC was more prevalent in the children of rural areas of Jammu population and there is an increased risk of ECC with more frequency of in-between meals snack consumption and decreased the frequency of brushing.

REFERENCES

- Davies GN. Early Childhood Caries – A synopsis. *Community Dent Oral Epidemiol* 1998;26:106-16.
- De Grauwe A, Aps JK, Martens LC. Early childhood caries (ECC): What's in a name? *Eur J Paediatr Dent* 2004;5:62-70.
- Feldens CA, Giugliani ER, Duncan BB, Mde LD, Vitolo MR. Long-term effectiveness of a nutritional program in reducing early childhood caries: A randomized trial. *Community Dent Oral Epidemiol* 2010;38:324-32.
- Tinanoff N, O'Sullivan DM. Early childhood caries: Overview and recent findings. *Pediatr Dent* 1997;19:12-6.
- Milgrom P, Weinstein P. *Early Childhood Caries: A Team Approach to Prevention and Treatment*. Seattle, WA: University of Washington, Continuing Dental Education; 1999.
- Johnsen DC, Schechner TG, Gerstenmaier JH. Proportional changes in caries patterns from early to late primary dentition. *J Public Health Dent* 1987;47:5-9.
- Kaste LM, Marianos D, Chang R, Phipps KR. The assessment of nursing caries and its relationship to high caries in the permanent dentition. *J Public Health Dent* 1992;52:64-8.
- O'Sullivan DM, Tinanoff N. Maxillary anterior caries associated with increased caries risk in other primary teeth. *J Dent Res* 1993;72:1577-80.
- Kagihara LE, Niederhauser VP, Stark M. Assessment, management and prevention of early childhood caries. *J Am Acad Nurse Pract* 2009;21:1-10.
- Casamassimo PS, Thikkurissy S, Edelstein BL, Maiorini E. Beyond the DMFT: The human and economic cost of early childhood caries. *J Am Dent Assoc* 2009;140:650-7.
- Hallett KB, O'Rourke PK. Social and behavioural determinants of early childhood caries. *Aust Dent J* 2003;48:27-33.
- Horowitz HS. Research issues in early childhood caries. *Community Dent Oral Epidemiol* 1998;26:67-81.
- Reisine S, Douglass JM. Psychosocial and behavioral issues in early childhood caries. *Community Dent Oral Epidemiol* 1998;26:32-44.
- Shaw L, Clark DC, Edger NP. The oral health status of Cree children living in Chisasibi, Quebec. *J Can Dent Assoc* 1987;53:201-5.
- Burt BA, Eklund SA. *Dentistry, Dental Practice, and the Community*. 5th ed. Philadelphia, PA: Saunders; 1999. p. 227-8.
- Oral Health. *ICMR Bulletin*. New Delhi: ICMR; 1994. p. 24.
- Kuriakose S, Joseph E. Caries prevalence and its relation to socio-economic status and oral hygiene practices in 600 pre-school children of Kerala-India. *J Indian Soc Pedod Prev Dent* 1999;17:97-100.
- Hale KJ. American Academy of Pediatrics Section on Pediatric Dentistry. Oral Health Risk Assessment Timing and Establishment of the Dental Home. *Pediatrics* 2003. p. 1113-6. [Last cited on 2008 Oct 10].
- Kuriakose S, Prasannan M, Remya KC, Kurian J, Sreejith KR. Prevalence of early childhood caries among preschool children in trivandrum and its association with various risk factors. *Contemp Clin Dent* 2015;6:69-73.
- Sudha P, Bhasin S, Anegundi RT. Prevalence of dental caries among

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- 5-13-year-old children of Mangalore city. J Indian Soc Pedod Prev Dent 2005;23:74-9.
21. Suresh BS, Ravishankar TL, Chaitra TR, Mohapatra AK, Gupta V. Mother's knowledge about pre-school child's oral health. J Indian Soc Pedod Prev Dent 2010;28:282-7.
22. Huew R, Waterhouse P, Moynihan P, Kometa S, Maguire A. Dental caries and its association with diet and dental erosion in Libyan schoolchildren. Int J Paediatr Dent 2012;22:68-76.

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