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STUDY OF PREVALENCE OF EARLY CHILDHOOD CARIES IN CHILDREN

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Short Profile

Anil Gupta is a Reader at Department of Biochemistry in Eklavya Dental College & Hospital, Kotputli, Rajasthan.

ABSTRACT:
Descriptive study was conducted in & around city, Fazilka, Punjab to evaluate prevalence of early childhood caries in under five year children. Sample selected by random multi stage sampling. It comprised of 440 children. Study showed prevalence of 7.5% (18/240), 15.8% (20/127) and 17.8% (13/73) of early childhood caries (ECC) in children in schools, anganwadi and slum areas, respectively. Prevalence of ECC differed in boys & girls and in children in different age groups, but these diverged prevalence were non-significant, (p=0.57 & p = 0.27), respectively.

KEYWORDS
Early childhood caries (ECC), dental caries, caries in primary teeth.

INTRODUCTION :

Early childhood caries is a disease of microbial origin that affects deciduous teeth. It affects the teeth of children in tender age. This disease is rather more related to socio-economic status and socio-behaviour pattern of the parents than merely describing it as a dental abnormality. Nursing habit & oral hygiene habit together largely determine the prevalence of early childhood caries (Douglass et all., 2001).

ECC damages the primary dentition. Initially, it starts as incipient lesion in teeth. It progresses rapidly and if management is not instituted timely, can mutilate the primary dentition (Skeie et all., 2006).

ECC invasion creates a big problem for the toddlers. It results in pain, swelling, poor appetite and malnutrition as a upshot (Kumar, 2010).

Early childhood caries remains unattended in the public domain as well as in the medical fraternity. The perception that the primary teeth are temporary and will ultimately be replaced by the permanent teeth, discourages the parents and guardians to adopt health oral hygiene habit & seek medical intervention (Postma et all., 2008).

RATIONALE

Early childhood caries inflicts primary teeth of children. Prevalence of early childhood caries has been least researched, both at national & regional level in india. Hence, this study was conducted to explore the prevalence of ECC in children, aged between 2 years to below 5 years in city of Fazilka in Punjab.

AIM & OBJECTIVES

Aim

The aim of present study was to find out the prevalence of early childhood caries in children under the age of five years.

Objectives

1. To assess overall prevalence of early childhood caries in children.
2. To assess differential prevalence of early childhood caries, according to different strata, age group and gender of children.
3. To assess effect of different strata, age and gender on the prevalence of early childhood caries.

MATERIALS & METHODS

Research Design

Descriptive and Prevalence study design.

Study area

Study was conducted in and around the city of Fazilka in Punjab. This city is located on Indo-Pak border in Punjab.

Study subjects

Participants were children in age group between 24 to below 60 months old. Total sample of 440 children were selected by random multi stage sampling method. Study was conducted in and around the city of Fazilka in Punjab. Study had a proportion of 240, 127 and 73 children from Schools, Anganwadi and Slum areas, respectively.

Dental examination

Dental examination was carried out by using mouth mirror and probe in day light. Children were sitted on ordinary chair. Caries were recorded by deft index (Greubbell, 1944).

Early childhood caries

ECC was definied by using AAPD criteria (AAPD, 2008).

Presence of one or more decayed, missing (due to caries) of filled tooth surfaces in any primary tooth in 71 months old child or younger.

Statistical Design

Descriptive study

Different strata, Age and Gender were taken as Predictor variables. Early childhood caries was taken as Out-come variable.
ECC was described in the form of Prevalence.
(Prevalence of a variable) = number of participants affected / total number of participants × 100

Inferential analysis

Inference was deduced by Chi square test for independence.
(p) value of ≤ 0.05 was taken as statistically significant.

RESULT

1. Prevalence of early childhood caries in children in different strata

Study revealed the prevalence of ECC in different strata as 7.5% (18/240), 15.8% (20/127) and

17.8% (13/73) in schools, anganwadi and slum areas children, respectively, as shown in table 1, & chart 1. Overall prevalence was calculated as 11.6% (51/440).

Table 1. Prevalence of early childhood caries in children in different strata

Characteristics	School children	Anganwadi children	Slum area children	Over all prevalence of ECC
Early childhood caries (N)	18/240	20/127	13/73	(51/440) 11.6%
Early childhood caries (%)	7.5%	15.8%	17.8%	

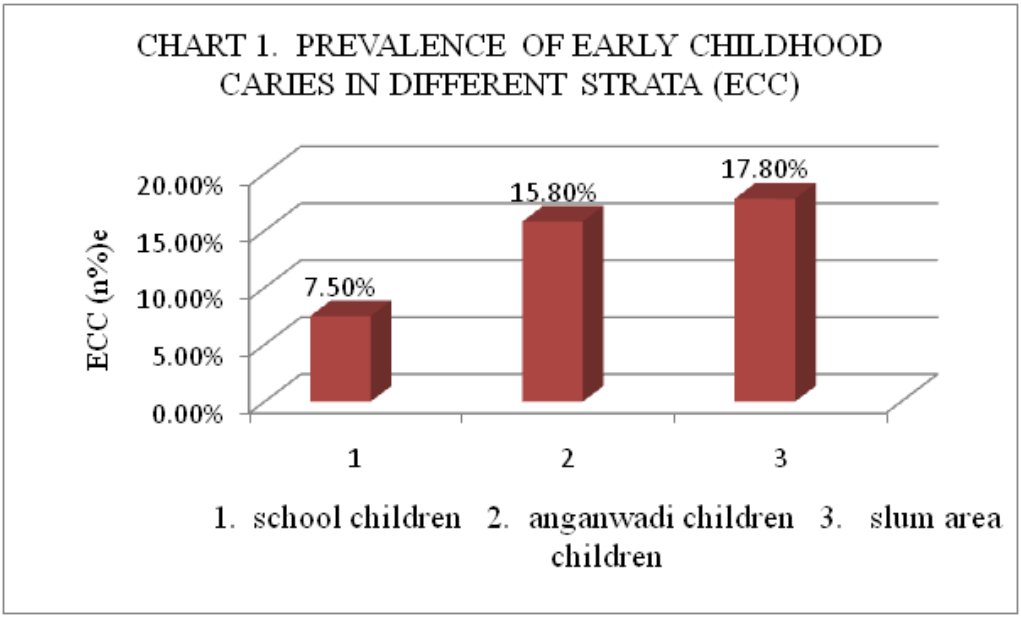

Table 2. Chi square test of independence for prevalence of ECC in children in different strata

Characteristics	School children	Anganwadi children	Slum area children	Chi square value (χ^2)	P value
ECC	18	20	13	(8.82)	0.01 significant
No ECC	222	107	60		

ECC---- early childhood caries

Chi square test of independence revealed (χ^2) value of 8.82, which was statistically (0.01), significant, as seen in table 2.

2. Gender-wise prevalence of early childhood caries

Descriptive analysis depicted prevalence of 12.3% (32/260) and 10.5% (19/180) early childhood caries in boys and girls, as shown in table 3 & chart 2.

Table 3. Gender-wise prevalence of early childhood caries

CHARACTERISTICS	Boys	Girls
Early childhood caries (N)	32/260	19/180
Early childhood caries (%)	12.3%	10.5%

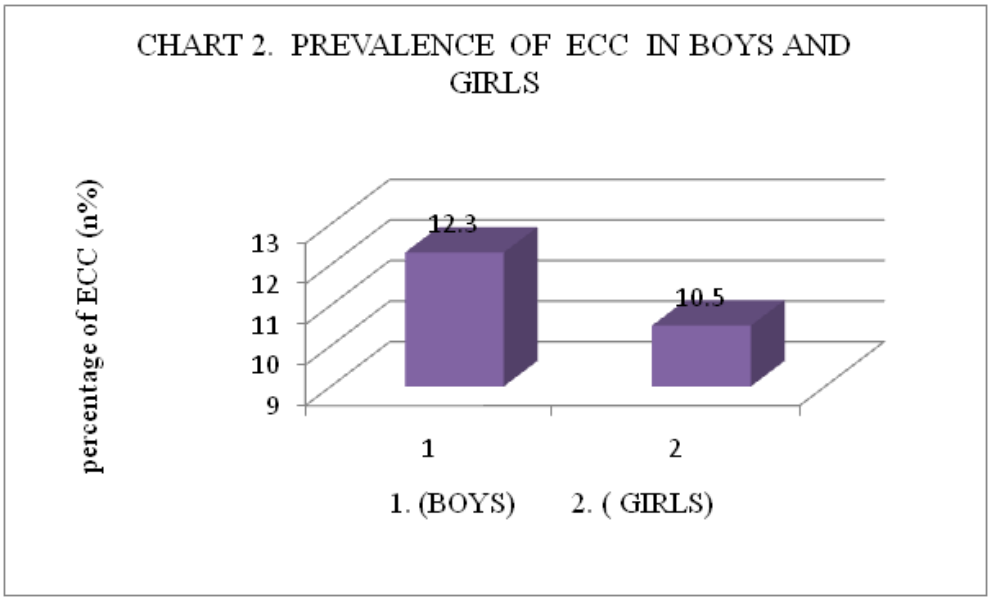

Table 4. Chi square test of independence for gender-wise prevalence of ECC in children

Characteristics	Boys	Girls	Chi square value (χ^2)	P value
ECC	32	19	(0.319)	(0.57) Not significant
No ECC	228	161		

Inferential analysis provided value of (χ^2) 0.319, which was not significant (p=0.57), as in table 4.

3. Age-wise prevalence of early childhood caries

Further study showed prevalence of ECC as 9.5% (16/169) and 12.9% (35/271) in different age groups, as in table 6, chart 3.

Table 6. Age-wise prevalence of early childhood caries

CHARACTERISTICS	2Years - 3Years	>3Years - <5Years
Early childhood caries (N)	16/169	35/271
Early childhood caries (%)	9.5%	12.9%

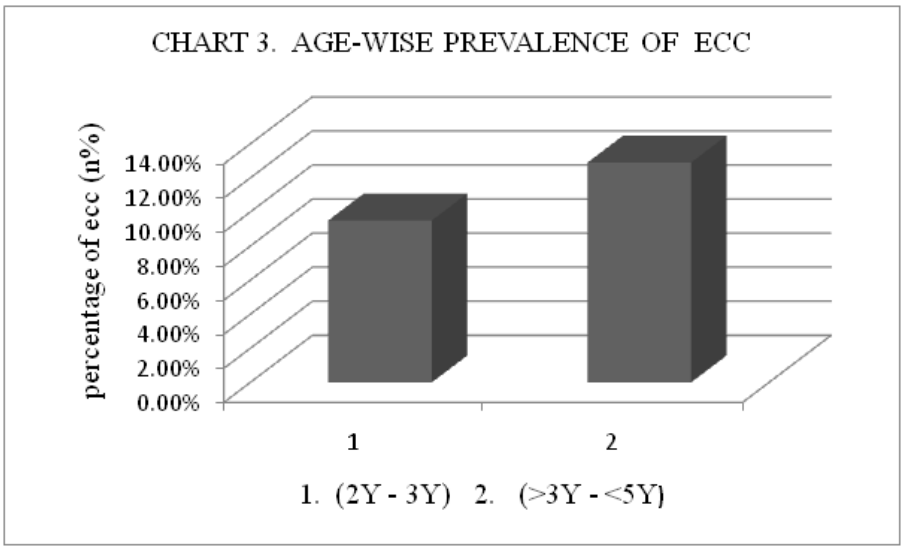

Table 7. Chi square test of independence for age-wise prevalence of ECC in children

Characteristics	2Years - 3Years	>3Years - <5Years	Chi square value (χ^2)	P value
ECC	16	35	(1.207)	(0.27) Not significant
No ECC	153	236		

Inferential analysis, further provided (χ^2) 1.207 value which was not significant (p=0.27), as in table 7.

DISCUSSION

1. In present study, over all 11.6% prevalence of early childhood caries was found in city, fazilka in Punjab. This prevalence rate is low in comparison to other studies.
Furthermore, in a previous study by (Tandon & Sethi, 1996), (Tyagi, 2008), a low prevalence of about 19% of ECC was found in Udupi and Davangere, in southern states of india.
In another previous study, high ECC prevalence 42% was observed by (Dini et al., 2000).
Generally, ECC occurrence is highly variable. It fluctuates in between countries and further, within each country.
Accordingly, prevalence of ECC, worldwide is highly erratic, varying from 2.1% in Sweden to 85.5% in rural areas in china. (Priyadarshini et al., 2011)
2. In present study, highest prevalence, (17.8%) of ECC was found in children in slum areas. Lowest prevalence 7.5% was detected in school children. The occurrence of ECC is multifactorial. It is dependent on socio-economic status, literacy status, oral hygiene habit etc.
so the facts achieved in present study are in conformity and are further, authenticated by earlier study by (Mouradian et al., 2009) & (Jigjid et al., 2009), which stated high prevalence of ECC in low income groups.
3. In present study, significant (p=0.01) relation is determined between ECC and different strata (socio-economic status).
4. In present study, higher prevalence of ECC (12.3%) was found in boys in comparison to low prevalence, 10.5% in girls. But higher prevalence of ECC in boys was not statistically (p=0.57) significant.
Similar findings were observed in earlier study by (Priyadarshini et al., 2011). It showed a higher prevalence among boys than girls, which was statistically, non-significant.
5. In this study, age-wise higher prevalence, 12.9% of ECC was found in (>3y-<5y) age group in comparison to low prevalence of ECC, 9.5% in (2y-3y) age group. This age-wise high prevalence of ECC

was non- significant (p=0.27), statistically.

Former study by (Priyadarshini et al., 2011) augmented the present study describing the pattern of rise of ECC in higher age group of children.

CONCLUSION

Early childhood caries is a rampant lesion of teeth, if it is not treated timely. With the advancement in medical technology, it can be easily detected in incipient stage and can be teeth can be restored. In the tender age, toddlers are entirely dependent on parents and teachers. They should be educated and motivated towards early childhood caries and measures to intercept and prevent this dental disease.

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