

Early Childhood Caries and its Prevalence among the Preschool Children's Attending the Anganwadi's at Ukkali Vijayapura District, Karnataka India

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Abstract

Introduction: Early Childhood Caries (ECC) is a preventable chronic disease which is mainly affecting infants and children worldwide. The early identification and detection of ECC can reduce pain, life threatening conditions and helps in the growth and the overall development of the child.

Aim: To find out the prevalence of Early childhood caries (ECC) among the children attending the Anganwadi's of Ukkali Vijayapur district, and its relationship with parent's education, occupation, socio economic status of the family with feeding habits and early oral hygiene mentions.

Materials and Method: Community based cross sectional study among the selected Anganwadi's children of 1-5 years of age at Ukkali district Vijayapura.

Result: A total 142 subjects, 34 children were found to be having ECC, 57(40.1%) males and 85 (59.9%) females. A significant association was found in these study with the age of the children, breast feeding duration and the oral hygiene proposes, out of 142 cases 34 cases were having ECC therefore the prevalence of ECC was 23.9%.

Conclusion: Future health promotion and education programs in Anganwadi's should include oral health issues and the risk factors for ECC, and its consequences should be addressed.

Keyword: Children, Early childhood caries, Prevalence, Primary teeth.

Introduction

Dental caries is one of the most common chronic diseases of early childhood Dental caries in primary

dentition is often neglected since they exfoliate, and its treatment is considered as economic burden among lower socioeconomic families. ¹. Early childhood caries (ECC) is a chronic, disease with its complex and multifactorial etiology ². ECC is commonly seen in any tooth surface of primary teeth between the age group of children 1 to 5 years ³. Dental problems in early childhood age have shown to be predictive of future dental problems, with the growth and development of child also interfering with nutrition, concentration, and school participation⁴.

India, Is a developing country and the incidence of dental caries is increasing due to the changing

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lifestyle and dietary patterns.⁵ The Government of India initiated a National Scheme known as the Integrated Child Development Services (ICDS) which aims at the delivery of a package of basic health services through various functionaries. Anganwadi worker (AWW) is the most periphery functionary of the ICDS scheme. She delivers services to mainly children below the age of 6 years, including mainly nonformal, preschool education, health, and nutrition maintenance. Most of the preschool children belonging to low socioeconomic status attend Anganwadi schools⁶. The prevalence of ECC in the developing countries is reported to be as high as 70%⁷. Some of the published studies showed an ECC prevalence of 19-54% in the Indian population⁸. An early identification of dental caries provides an opportunity to identify the children who are at a greater risk for the disease so that appropriate preventive interventions can be initiated to protect the unaffected teeth and protect the permanent dentition¹⁰. To the best of our knowledge, no other studies have been conducted to assess the prevalence of dental caries among Anganwadi children in Ukkali village of Bijapur district. The present study is an effort to determine the prevalence rate and evaluate its associated risk factors of ECC among the Anganwadi's children within 5 years of rural health centre Ukkali.

Method

The study group consisted of 142 preschool children of 1 to 5 years of age group from various Anganwadi centers, rural health Ukkali. Institutional Ethical Committee Clearance (IEC) was obtained, and the consent for examining the children was procured to the Anganwadi's worker and the parents of the children. Clinical examination was done using a sterile mouth mirror, and probe. The decayed teeth were recorded and

patients who required treatment for the decayed tooth cards were issued for the treatment and instructions are given to the children to accompany with their parent for the dental treatment.

Total children in eleven anganwadi centre of rural health Ukkali were about 1264. Male 668 and female were 596. All the children of preschool who were accompanied with their parents and present on the day of examination are included in the study. Children suffering from systemic disease and absent on the day of examination were excluded from the study.

Results

Out of the 142 subjects examined, 40.1% (57) were males and 59.9% (85) were females. On the whole 23.9% (34) had ECC while 76.1% (108) children had no caries.

Birth orders of total 142 children were distributed in five groups. The total 36 children in 1st order having ECC were, 10 (27.8%), 53 children in the 2nd order having ECC were, 13(24.55%), 37 children in the 3rd order having ECC were 5(13.5%), 13 children in the 4th order having ECC were 6(46.2%) and children with 5th order were total are 3 none of them were effected with ECC. No difference was found between the birth order of the child and ECC. Mothers of total 97 children were illiterate, children effected with ECC were 25(25.8%), mother with primary education total are 31, children effected with ECC were 6(19.4%), mother with secondary education total are 11, 2(18.2%) were effected with ECC, and 3 of them are higher education with ECC are 1(33.3%). No difference was found between mother's educations. No difference was found between the social class of the family and ECC.

Table 1: Association of ECC and Demographic variables of the Subjects

Variables		ECC Absent		ECC Present		p value
		N	Percent	N	Percent	
Age (Yrs)	1-2	45	100.0	0	0.0	0.000*
	3-4	52	65.0	28	35.0	
	>4	11	64.7	6	35.3	
Gender	Male	42	73.7	15	26.3	0.588
	Female	66	77.6	19	22.4	

Variables		ECC Absent		ECC Present		p value
		N	Percent	N	Percent	
Birth Order	1	26	72.2	10	27.8	0.137
	2	40	75.5	13	24.5	
	3	32	86.5	5	13.5	
	4	7	53.8	6	46.2	
	5	3	100.0	0	0.0	
Mothers Education	Illiterate	72	74.2	25	25.8	0.830
	Primary	25	80.6	6	19.4	
	Secondary	9	81.8	2	18.2	
	Higher	2	66.7	1	33.3	
Social Class	I	2	66.7	1	33.3	0.495
	II	55	72.4	21	27.6	
	III	47	79.7	12	20.3	
	IV	4	100.0	0	0.0	

*significant with $p < 0.05$

Table 2 shows that all study subjects were having the history of breast feeding. Around 9 children were breastfed for less than 6 months. No children were having ECC. Out of 105 children were breastfed for one year, 31(29.5%) showed ECC present. 28 children are

breastfed more than a one year around 3(10.7%), were having ECC positive. A significant association was found between the history of breast feeding and ECC. $P = 0.026$.

Table 2: Association of ECC and Breast feeding variables of the Subjects

Variables		ECC Absent		ECC Present		p value
		N	Percent	N	Percent	
Breast feeding (months)	<6	9	100.0	0	0.0	0.026*
	6-12	74	70.5	31	29.5	
	>12	25	89.3	3	10.7	
Bottle feeding	No	96	77.4	28	22.6	0.318
	Yes	12	66.7	6	33.3	
Duration of Bottle feeding (months)	6-12	4	57.1	3	42.9	0.397
	12-18	5	62.5	3	37.5	
	>24	3	100.0	0	0.0	
Frequency/day of Bottle feeding	Twice	5	71.4	2	28.6	0.732
	Thrice	7	63.6	4	36.4	
Sugar in Bottle feeding	Yes	3	100.0	0	0.0	0.18
	No	9	60.0	6	40.0	
Bottle feeding at night	No	7	70.0	3	30.0	0.737
	Yes	5	62.5	3	37.5	
Frequency of Meals/day	No Meals	10	100.0	0	0.0	0.278
	Once	8	66.7	4	33.3	
	Twice	56	75.7	18	24.3	
	Thrice	34	73.9	12	26.1	

*significant with $p < 0.05$

Bottle Feeding: Total 18 children gives a history of bottle feeding with 6(33.3%) shows ECC present. No significant difference with history of bottle feeding and frequency of bottle feeding with ECC. No significant difference seen with the content of bottle feeding, bottle feeding at night and frequency of meals per day with ECC.

Table 3 showed that 42 children not started cleaning only 4 of these children showed ECC present. About 35 children started cleaning from 4 months and 8 of these children showed ECC positive. Around 44 children started cleaning.

Method of Cleaning: 54 children used to clean their teeth with brush and paste, out of these 16 (29%) were having ECC. 31 children used to clean their teeth with finger and paste, out of these 9(29.0%) were having ECC. 15 children used to clean their teeth with finger and powder (Lal Manjan, salt with coal powder) out of these 5(33.3%) were having ECC. 42 children not is to clean their teeth, around 4(9.5%) of these showed ECC present. No significant p value seen between method of cleaning and ECC.

Table 3: Association of ECC and Teeth cleaning variables of the Subjects

Variables		ECC Absent		ECC Present		p value
		N	Percent	N	Percent	
Cleaning Started Months/years	Not Started	38	90.5	4	9.5	0.005*
	1-4 months	27	77.1	8	22.9	
	5-6 months	28	63.6	16	36.4	
	9 -10 months	15	78.9	4	21.1	
	1-2 yrs	0	0.0	2	100.0	
Method of Cleaning	Brush/paste	38	70.9	16	29.1	0.074
	Finger/paste	22	71.0	9	29.0	
	Finger/powder	10	66.7	5	33.3	
	Do not Clean	38	90.5	4	9.5	

*significant with p<0.05

Discussion

The present study was undertaken to assess the existing knowledge of early childhood oral health related factors among eleven Anganwadi centre of rural health Ukkali, so that effective pediatric oral health measures can be provided, there by safe guarding the growth and development of young children.

A total of 142 children of less than 5 years of age groups are selected and screened to determine the prevalence of ECC from the 11 Anganwadi’s at Ukkali. The prevalence of ECC in the present study was, out of 142 cases 34 cases were having ECC therefore the prevalence of ECC is 23.9%.

The mean dmft found in Karnataka (Bangalore), Andhra Pradesh and Kerala were 0.6, 1.63, and 2.1 respectively¹¹. Another study was conducted to compare

the prevalence and pattern of caries in 4-5½-year-old children of urban Bangalore and non-urban Chikkaballapur within Karnataka state, India. The results showed caries prevalence of 66.3% with a mean deft of 2.9 in Bangalore city whereas in Chikkaballapur, the prevalence was 58.4%¹². The prevalence of ECC in urban Bangalore within Karnataka state was 27.5%¹⁰. In the present study ECC prevalence is low compared to all above studies.

In this present study no significant association was found between the age of the children and ECC, this finding does not coincide with finding of Wendt L K in Sweden showed that the prevalence increases with high age group¹³.

The present study the prevalence of ECC was found to be more among girls (22.4%) compared to

boys (26.3%). ECC among male and female shows no significant association. The present study doesn't coincide with study done Olmez S¹⁴.

Children with birth order 1 and 2 showed higher prevalence of ECC than children with subsequent birth orders. However no significant association was found in the birth order and ECC.

No significant association was found between the social class and mother's education with ECC. Some study showed that higher ECC prevalence found with the lower family income¹⁵.

Significant prevalence of ECC with breast feeding is seen in the present study. Correlates with study done Roberts GJ¹⁶, showed that prolonged and excessive breast feeding also has been suspected as a causative factor in ECC.

In present study bottle feeding duration, frequency, with or without sugar and frequency of meals shows no significant correlation with ECC. Some study showed that increased frequency of bottle feeding increases the prevalence of ECC^{17, 18}.

Maximum of children in the present study started cleaning their teeth after the age group of 3 years. The children in the age group of 3, 4, 5 years showed a significant prevalence of ECC with cleaning of the teeth. As in accordance with other studies, caries prevalence was seen to increase significantly with age. As children grow older, change in their dietary habits and oral hygiene practices pose a greater cariogenic challenge^{19, 20}. The method of cleaning teeth did not show any significant relation with ECC. Tooth brushing, early onset of tooth brushing, parental supervision of tooth brushing and daily use of fluoride dentifrices were shown to significantly reduce prevalence of ECC^{21, 22}.

Conclusion

Dental health services should be made available in the peripheral areas to meet the needs of young children. Future health promotion and education programs in Anganwadi's should include oral health issues and the risk factors for ECC, and its consequences should be addressed. Public funded oral health program should be started and targeted at children from lower socioeconomic status

Ethical Clearance Oral consent from parents and children has been taken

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Conflict of Interest - Nil

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