Original Articles

Severe early childhood caries among young children and its association with behavioural factors: A hospital-based cross-sectional study

BEENU SINGH, KALPANA BANSAL, PAVITHRA DEVI K., VIJAY PRAKASH MATHUR, NITESH TEWARI, RENU SHARMA

ABSTRACT

Background. Several risk factors have been associated with early childhood caries (ECC). However, conclusive data are not available about the socio-demographic and behavioural factors which are associated with severe ECC (S-ECC). We assessed the severity and pattern of ECC in young children. We also looked for association of S-ECC with various socio-behavioural risk factors in a hospital-based setting.

Methods. We included 200 children, 1–6 years old, who reported with dental caries to a paediatric dental outpatient in a tertiary care hospital. Information about socio-demographics and various behavioural factors was recorded in a structured proforma using an interview method. The American Academy of Paediatric Dentistry (AAPD) criteria were used for categorizing children into ECC and severe ECC groups (S-ECC). Qualitative variables were analysed by chi-square test. Multiple logistic regression analysis was done to find the predictors of severe S-ECC. All statistical tests were done at a significance level of $p < 0.05$.

Results. The majority of children (85%) had S-ECC and anterior-posterior (AP) caries pattern (77%). A significant association was found between the age of the child ($p < 0.001$), absence of siblings ($p = 0.009$), continuation of bottle feed or mother's milk till the age of reporting to the hospital ($p = 0.007$), frequency of night-time feed ($p = 0.048$) and S-ECC.

Conclusions. A continued habit of milk feed from bottle/mother till the time of dental visit seeking treatment and night time-feeds more than twice had a significant association with S-ECC.

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INTRODUCTION

Early childhood caries (ECC) is a serious public health problem that continues to affect pre-school children worldwide.[1] It is a multi-factorial disease that occurs as a result of interaction of cariogenic microorganisms, fermentable carbohydrates in the diet, susceptible tooth and host and time.[2] Other factors involved in its causation are parental education, maternal bacterial flora and poor socioeconomic status.[3] Studies have shown that the use of feeding bottles containing sugared milk is an important predisposing factor.[4,5] ECC starts as white spot lesions in the maxillary incisors and then spreads to involve the rest of the dentition at a fast rate. It is defined as the presence of one or more decayed (non-cavitated or cavitated lesions), missing or filled (due to caries) surfaces, in any primary tooth of a child <6 years of age.[6] The American Academy of Paediatric Dentistry (AAPD) defines severe ECC (S-ECC) as presence of any sign of smooth-surface caries in children <3 years of age. From ages 3 through 5 years, 1 or more cavitated, missing (due to caries), or filled smooth surfaces in primary maxillary anterior teeth or a decayed, missing or filled score of ≥4 (age 3), ≥5 (age 4), or ≥6 (age 5) surfaces constitutes S-ECC.[7]

A lot of epidemiological data is available about the varying prevalence of ECC globally and its determinants in various populations.[8–10] A systematic review reported an overall prevalence of 49.6% ECC in India.[11] However, most of the studies done in Indian children have generated data on the prevalence of ECC and it risk factors.[12,13] If left untreated, S-ECC may develop accompanied with frequent episodes of pain, inability to chew due to pain and consequently, prolonged poor food intake. This affects the child's general health and growth.[11] Lack of parental awareness towards the child's oral health and lack of access to dental care services may be reasons for progression of the disease which further leads to a higher risk of caries in the permanent dentition.[14–16] Children who experience frequent pain, abscess and difficulty in chewing owing to S-ECC need specialist care leading to a financial burden on the family in addition to it being time consuming.[17] Most children

with multiple carious lesions need endodontic treatment, crowns, restorations and multiple extractions.[18] Comprehensive dental care in a young child poses a challenge as pain inflicted upon a child during a dental procedure causes anxiety in the child and worse behaviour in subsequent appointments.[19]

Multiple risk factors have been associated with the development of ECC. These include frequent intake of processed sugars, poor brushing habits leading to accumulation of cariogenic microflora, low parental education and the family's low socioeconomic status.[20] Other factors that have also been associated with ECC are sleep pattern and environmental tobacco smoke.[21,22] Late bedtime and short duration of sleep have also been linked to an increased risk of caries in the primary teeth.[21]

Although the literature is replete with associations between ECC and various factors,[13,23] there is paucity of data showing a cause and effect relationship between various factors and S-ECC in the Indian population. Since, management of S-ECC requires more time consuming treatment strategies in the form of behaviour change, pain control to perform pulp therapies and in extreme cases extraction of the teeth in children, it is imperative to understand the sociodemographic and behavioural factors that are associated with S-ECC.[24,25] Research in these aspects will help healthcare workers in providing targeted evidence-based information in communities to reduce the risk of ECC in future generations. We assessed the severity and pattern of ECC in 1–6-year-old children in a hospital-based setting as well as the association of S-ECC with various socio-behavioural risk factors.

METHODS

Study design and population

This was a hospital-based cross-sectional study done in the outpatient department of Paediatric and preventive dentistry at a tertiary care hospital. Ethical approval was obtained from the Institute's ethics committee prior to the start of the study (IECPG-575/14.11.2018, RT-21/19.12.2018). The inclusion criteria were children (i) 1–6 years of age, (ii) with decayed teeth, and (iii) whose parents consented to participate in the study. Children with special healthcare needs, those who were medically compromised or had a systemic illness were excluded. A convenience sample of 200 children was studied from January 2019 to September 2020. Appropriate parental and patient consents were obtained.

Data collection and study procedures

Data about the child's feeding and oral hygiene practices and caries status were collected using an interviewer-administered, specially designed semi-structured questionnaire. The questionnaire was designed by experienced paediatric dentists on the basis of a literature review about various behavioural factors associated with ECC.[26,27] Face validity of the questionnaire was checked by the experts who specialized in paediatric dentistry and their suggestions were incorporated. The ability of the parents to understand the questionnaire was first pilot tested on 10 participants. Based on the experience and feedback, some changes were made in the terminologies. A qualified dentist (BS) who was trained on the items of the questionnaire translated and interviewed the respondents to evaluate the child's socio-behavioural practices. The first part of the questionnaire comprised of patient's demographic variables such as age, sex, socioeconomic status,[28] family structure; joint/nuclear, siblings and order in the family. The second part consisted of record of child's caries status and information such as milk feeding pattern, oral hygiene practices, 24-hour diet recall, sleep pattern, smoking status of family members and temperament of child as reported by the parents. Parents were interviewed by the primary investigator in the paediatric dental clinic on their first dental visit.

Clinical examination

All the oral examinations were done by the same examiner (BS) who was trained for the study by a paediatric dentist. Inter- and intra-examiner calibration exercises were done for identifying cavitated and non-cavitated carious lesions and Kappa scores higher than 0.9 were attained indicating high reliability between investigators. Clinical examination of the children was done using WHO Oral Health survey methods.[29] This involved visual examination of all the surfaces of all the primary teeth using mouth mirror and a blunt explorer. Children above 3 years were seated on a dental chair while those below 3 years of age were examined with the assistance of their parents/caretakers in 'knee to-knee' position.[30] Decayed, missing filled teeth (dmft) index was used to assess dental caries; PUFA index (pulp involvement, ulceration, furcation involvement and abscess) was used to assess the oral conditions resulting from untreated dental caries.[31]

Three caries patterns of ECC were categorized: anterior (A) when only anterior teeth were affected by caries; posterior (P) when only posterior teeth were affected by caries; and anterior and posterior pattern (AP) when both anterior as well as posterior teeth were carious.

Statistical analysis

The AAPD definition was used to classify children with ECC and S-ECC.[7] Data was coded and analysis was done by Statistical Package for the Social Sciences (SPSS) Version 26.0 for Windows. Descriptive statistics were calculated and reported as percentage of children with S-ECC and ECC, various patterns of caries, mean caries score with standard deviation of mean. The qualitative variables were analysed by Fisher exact test and Chi-square test. Multiple logistic regression analysis was done to find the most significant predictor of S-ECC. $p<0.05$ was considered statistically significant.

RESULTS

Two hundred child–parent pairs who fulfilled the study inclusion criteria and consented to provide information formed the study sample The demographic data is shown in Table I. S-ECC was found to be present in 170 (85%) children while ECC was present in 30 children (15%) as per the AAPD criteria. The mean (SD) caries score was 9.9 (4.2) and 3.5 (1.5) in S-ECC and ECC children, respectively. Anterior and posterior combined pattern (AP) was present in 154 children (77%). Multiple untreated dental caries associated lesions were found in 89 children (44.5%). The pulpal involvement component (p) was most frequently scored in 73 children (36.5%) followed by the abscess component (a) in 30 (16%). All p and a components were mainly found in children with S-ECC with the exception of two children with ECC who had an abscess in relation to the carious teeth. Ulceration or fistula (code u or code f) associated with untreated carious teeth was not found in any of the children (Table II).

A significant association was found between the severity and pattern of caries ($p<0.001$). Children with S-ECC had the AP pattern while those with ECC had the P pattern (Fig. 1).

TABLE I. Socio-demographic variables of the participants (*n*=200)

Variable	*n* (%)
Age (months)	
0–24	22 (11.0)
25–48	95 (47.5)
49–71	83 (41.5)
Mean (SD) age (months)	47.85 (15.2)
Sex	
Males	145 (72.5)
Females	55 (27.5)
Socio-economic status	
Upper	24 (12.0)
Upper middle	65 (32.5)
Lower middle	43 (21.5)
Upper lower	68 (34.0)
Lower	0
Family structure	
Joint	106 (53.0)
Nuclear	94 (47.0)
Total number of siblings	
0	61 (30.5)
≥1	139 (69.5)
Order of birth of child	
First born	103 (51.5)
Second born	75 (37.5)
Third born or more	22 (11.0)

TABLE II. Severity and pattern of early childhood caries (ECC) in the study children

Variable	*n* (%)
Severe ECC	170 (85.0)
Mean (SD) caries score	9.9 (4.2)
ECC	30 (15.0)
Mean (SD) caries score	3.5 (1.5)
Pattern	
Anterior	20 (10)
Posterior	26 (13)
Anterior+posterior	154 (77)
Pulp involvement (p)	73 (36.5)*
Abscess (a)	32 (16.0)†
Ulceration (u), fistula (f)	0, 0
Single or multiple teeth affected by PUFA	89 (44.5)

* in children with severe ECC only † 30 children with severe ECC and 2 with ECC

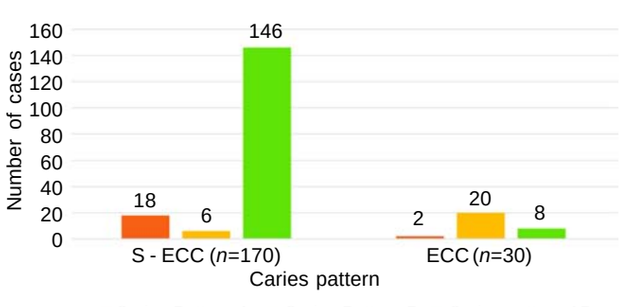

FIG 1. Association of severity of caries with pattern (anterior [A], posterior [P], anterior and posterior [AP])

There was a statistically significant association of age of child at the time of reporting to the outpatient with S-ECC (p<0.001). Since the criteria to determine the severity of caries was the AAPD definition, which is age defined, S-ECC was associated with the children in younger age groups. In the age group 49–71 months, the proportion of the children having ECC increased (26.5%) as compared to in the younger age groups (8.4% and 0). In the younger age groups (<24 months and 25–48 months), the proportion of S-ECC was more than ECC. Another variable which was strongly associated with severity was the presence of siblings (p=0.009). Among 61 'single child' participants, 58 (95%) had S-ECC. Other variables such as gender of the child, socioeconomic status, family structure and birth order of the child were not significantly associated with S-ECC (Table III).

Milk feeding practices

We found a significant association between S-ECC and whether bottle/mother/both milk feed pattern was continuing till the time of presentation (p=0.007). Frequency of night time feed (bottle or mother's milk) was strongly associated with S-ECC (p=0.048) while other factors such as type of feed (bottle, mother or both), frequency of milk feed during day, age when the feed was stopped, had no association with severity of ECC (Table IV).

No association was found between S-ECC and various oral hygiene practices of the child: whether brushing was started or not; age of initiating brushing; frequency of brushing and the response of the child to brushing activity (Table IV). Similarly, there was no association between ECC and daily sweetened beverage intake, type of beverage intake, beverage frequency and total number of proper meals in a day. There was also no association between the severity of ECC and sleeping pattern, smoking of family members, temperamental characteristics of the child (easy going or difficult to manage; Table V).

In multivariate analysis, night feed frequency more than once and age <4 years were independent predictors of S-ECC (Table VI). A single child increased the risk of S-ECC by 2.8 times (95% CI 0.8–10.5) than those with siblings. Children who were night fed more than twice had 2.6 times (95% CI 1.0–6.4) higher risk of developing S–ECC than those who were fed less than twice. Similarly, children <4 years of age were more likely to develop S-ECC by 2.8 times (95% CI 1.0–7.6) than those ≥4 years.

DISCUSSION

ECC is a common and neglected public health problem in both developing as well as developed countries.[17] Through this semi-structured questionnaire-based study, we found that most pre-school children report to a hospital only after the progression of caries to the severe stage. Children <4 years are more susceptible to suffer from severe ECC as compared to those in the 49–71 months age group. Frequent feeding of milk at night during sleep using a bottle or mothers's milk are reasons for progression of caries. Parents of more than one-third of the children reported continued frequent feeding by either milk bottle or mother's milk till the time of reporting to hospital.

In another study too it was found that most children seek dental care from a paediatric dentist or specialist hospital when the caries became severe.[32,33] This could be because parents take the child for treatment only when she starts complaining of recurrent pain and difficulty in chewing. Various studies have shown that untreated caries teeth of children are the main component of deft.[34,35] More than one-third of children in our study reported with pulp involvement in the S-ECC group which necessitated comprehensive treatment in the form of pulp

TABLE III. Association between severe early childhood caries (S-ECC) and demographic characteristics

Variable	Total	S-ECC	ECC	p value
Age (months)				
0–24	22 (11.0)	22 (100)	0	<0.001
25–48	95 (47.5)	87 (91.6)	8 (8.4)	
49–71	83 (41.5)	61 (73.5)	22 (26.5)	
Gender				
Male	145 (72.5)	123 (84.8)	22 (15.2)	0.9
Female	55 (27.5)	47 (85.5)	8 (14.5)	
Socio-economic status				
Upper	24 (12.0)	19 (79)	5 (21)	0.7
Upper middle	65 (32.5)	54 (83)	11 (17)	
Lower middle	43 (21.5)	37 (86)	6 (14)	
Upper lower	68 (34.0)	60 (88.2)	8 (11.8)	
Family structure				
Joint	106 (53.0)	89 (84)	17 (16)	0.66
Nuclear	94 (47.0)	81 (86)	13 (14)	
Number of siblings				
0	61 (30.5)	58 (95)	3 (5)	0.009
≥1	139 (69.5)	112 (80.5)	27 (19.5)	
Birth order of child				
First	103 (51.5)	87 (84.5)	16 (15.5)	0.85
Second	75 (37.5)	65 (86.7)	10 (13.3)	
Third or more	22 (11.0)	18 (81.8)	4 (18.2)	

Values in parentheses are percentages

TABLE IV. Association of severity of early childhood caries (ECC) with feeding practices and oral hygiene practices

Variable	Category	*n* (%)	S-ECC	ECC	p value
Type of milk feed	Mother	114 (57.0)	95 (83.3)	19 (16.7)	0.48
	Bottle	77 (38.5)	66 (85.7)	11 (14.3)	
	Both	9 (4.5)	9 (100)	0 (0)	
Status of milk feed	Continuing	69 (34.5)	65 (94.2)	4 (5.8)	0.007
	Stopped	131 (65.5)	104 (79.4)	27 (20.6)	
Frequency of milk feed during a day	≤3 times	42 (60.9)	40 (95.2)	2 (4.8)	0.64
	>3 times	27 (39.1)	25 (92.6)	2 (7.4)	
Age (years) when feed was stopped	≤2	51 (38.9)	37 (72.5)	14 (27.5)	0.08
	>2	80 (61.1)	68 (85)	12 (15)	
Presence of night feed	Yes	185 (92.5)	157 (85)	28 (15)	1.00
	No	15 (7.5)	13 (86.7)	2 (13.3)	
Night feed frequency	Once	40 (21.6)	29 (72.5)	11 (27.5)	0.048
	Twice	67 (36.2)	59 (88)	8 (12)	
	>2 times	78 (42.2)	69 (88.5)	9 (11.5)	
Teeth brushing started	Yes	193 (96.5)	163 (84.5)	30 (15.5)	0.6
	No	7 (3.5)	7 (100)	0 (0)	
Initiation of brushing teeth (months)	0–12	24 (12.4)	20 (83.3)	4 (16.7)	0.7
	13–24	85 (44.0)	7 4 (87)	11 (13)	
	≥25	84 (43.5)	69 (82)	15 (18)	
Frequency of brushing teeth every day	Once	127 (65.8)	104 (81.9)	23 (18.1)	0.47
	Twice	51 (26.4)	45 (88.2)	6 (11.8)	
	Irregular	15 (7.8)	14 (93.3)	1 (6.7)	
Child's response to brushing teeth	Pleasant	117 (58.5)	95 (81.2)	22 (18.8)	0.18
	Resist	61 (30.5)	54 (88.5)	7 (11.5)	
	Postpone	22 (11.0)	21 (95.5)	1 (4.5)	

Values in parentheses are percentages

therapy and rehabilitation of the primary crowns or the aesthetics were compromised. S-ECC may require more elaborate treatment or use of general anaesthesia or conscious sedation thereby incurring more expenditure on the treatment, more hospital visits due to pain and infection and the operator's time and availability. A large proportion of children in our study had dental caries in both anterior as well as posterior teeth.

Nearly half the children were in the age group of 25–48

TABLE V. Relation of childhood caries with dietary pattern, sleep pattern, smoking of family members, child's temperament rating by parents

Variable	Categories	Total	S-ECC	ECC	p value
Type of milk feed	Mother	114 (57.0)	95 (83.3)	19 (16.7)	0.48
Daily intake of sweetened beverage	Yes	169 (84.5)	143 (84.6)	26 (15.4)	1.0
	No	31 (15.5)	27 (87.9)	4 (12.1)	
Beverage type	Sugar added*	161 (95.3)	136 (84.5)	25 (15.5)	1.0
	Sugar sweetened†	8 (4.7)	7 (87.5)	1 (12.5)	
Beverage frequency	≤2 times	123 (72.8)	104 (84.5)	19 (15.5)	0.97
	>2 times	46 (27.2)	39 (84.8)	7 (15.2)	
Total number of meals in a day	≤3	187 (93.5)	161 (86.1)	26 (13.9)	0.11
	>3	13 (6.5)	9 (69.2)	4 (30.8)	
Sleep time	Before 9 p.m.	21 (10.5)	17 (81)	4 (19)	0.90
	9–11 p.m.	110 (55.0)	93 (84.5)	17 (15.5)	
	After 11 p.m.	50 (25 .0)	43 (86)	7 (14)	
	Not fixed	19 (9.5)	17 (89.5)	2 (10.5)	
Wake up time	Before 7 a.m.	59 (29.5)	50 (84.8)	9 (15.2)	0.40
	7–9 a.m.	129 (64.5)	108 (83.7)	21 (16.3)	
	After 9 a.m.	12 (6.0)	12 (100)	0	
Smoking of family members	Yes	37 (18.5)	32 (86.5)	5 (13.5)	0.78
	No	163 (81.5)	138 (84.7)	25 (15.3)	
Child's temperament assessed by parents	Easy	121 (60.5)	100 (82.6)	21 (17.4)	0.25
	Difficult	79 (39.5)	70 (88.6)	9 (11.4)	

*milk, tea or coffee with sugar, lemonade; †coca cola, fruit juice

TABLE VI. Multivariate logistic regression analysis for predictors of severe early childhood caries (ECC)

Variable	Severe ECC *n* (%)		p value	Unadjusted OR (95% CI)	Adjusted OR (95% CI)	p value
	Yes	No				
Age (months)						
0–48	109 (64.1)	8 (26.7)	0.001	4.9 (2.0–11.7)	2.8 (1.1–7.6)	0.046
49–71	61 (35.9)	22 (73.3)		1	1	
Number of siblings						
0	58 (34.1)	3 (10.0)	0.009	4.6 (1.4–16)	2.8 (0.8–10.5)	0.12
>1	112 (65.9)	27 (90.0)		1	1	
Frequency of night feed						
1	29 (18.6)	11 (39.3)	0.014	1	1	
≥2	128 (81.5)	17 (60.7)		2.9 (1.2–6.7)	2.6 (1.1–6.4)	0.04
Status of milk feed						
Continued	105 (61.8)	26 (86.7)	0.007	4.0 (1.3–12)	3.5 (0.7–17.5)	0.12
Stopped	65 (38.2)	4 (13.3)		1	1	

months suggesting a high prevalence of S-ECC in this age group. A significant association has been observed between S-ECC and age of the child at the time of reporting to the hospital. A higher proportion of children in our study had S-ECC in younger age group than in the older age group.

A significant association between the age and S-ECC has been found in previous studies as well.[24,36] We found a significant association between the total number of siblings of the child and S- ECC. Similar findings have been reported by Stephen *et al*.[37] that more children without siblings have ECC. It is possible that parents of a single child with severe caries report to hospital more often, or that a single child is the focus of attention and hence more pampered. It is also possible that there is continuation of bottle feed/mothers feed in a single child thus increasing the possibility of S-ECC in those children. However, several other investigators report that ECC increases with the presence of siblings and it has been stated that in large families, parents' attention towards their children's oral health is shared or divided between the larger number of siblings, thereby less care is provided for each child leading to a higher chance of oral problems.[38] This aspect needs further exploration in future studies.

As per the AAPD guidelines for prevention of ECC, frequent consumption of sugar sweetened beverages including milk should be avoided using a bottle after the child attains 12–18 months of age and *ad libitum* breast feeding should be avoided after the first primary tooth erupts.[7] However, more than one-third of children in our study continued to be bottle fed or fed on mother's milk till they presented to us; the mean (SD) age of these children was 36 (15) months. Continuing to feed using a bottle, mother's milk or both was associated with S-ECC in our study. Milk feeding may constantly expose the teeth to a cariogenic environment leading to progression of caries and increase in severity. There was a statistically significant

association between S-ECC and night feed frequency of milk. Our study revealed that night feeds of milk in bottle/mother's milk more than twice increased the chances of S-ECC significantly. Reduced nocturnal salivary flow results in higher levels of lactose in the resting saliva and dental plaque for longer than would be expected during the day.[39]

Unexpectedly, we did not observe an association between S-ECC and the feeding pattern, mothers' or bottle milk or both. Nobile *et al*. also did not show an association between the bottle feed and/or the breast feed and ECC or S-ECC.[40] Thus, probably it is not the bottle/breast feeding which causes S-ECC but frequent night-time feeding (more than twice) which may predispose to S-ECC. Our findings were in agreement with the studies done by Nirunsittirat *et al*.[41] and Vejdani *et al*.[42]

Our study revealed that significantly more males with ECC or S-ECC report to hospital as compared to females. A similar finding has been reported by Kabil and Eltawil.[38] It has been postulated that mothers in certain societies indulge more in boys than in girls and parent them differently, giving them more sweets and thus leading to the development of caries. However, no association could be found between the gender and S-ECC or ECC in our study and this is similar to that in the study reported by Nobile *et al*.[40]

We did not find any significant association between S-ECC/ECC and oral hygiene practices. Tiberia *et al*[33] and Aida *et al*.[43] also did not find an association between ECC and frequency of brushing and the age of initiation of brushing, respectively.

Analysis of the association between the dietary pattern and severity of caries, we observed a similar proportion of children in the ECC and S-ECC groups consumed beverages with added sugar and sugar sweetened beverages. The reason for this could be a recall bias or that a single day 24-hour dietary recall may not accurately reflect a child's dietary pattern.

We did not find a significant association S-ECC and sleep and wake up time of the child. However, Chen *et al*. showed an association between late bedtime and short sleep duration.[21] Similarly, Mattila *et al*.[44] also reported that late bedtime was associated with increased caries in 10-year-old Finnish children. Parental smoking was not significantly associated with an increase in severity of ECC. This is similar to the study by Ozen *et al*.[45]

There was also no association between S-ECC and the child's temperament. Though temperament of the child has been associated with feeding and oral hygiene habits which may be related to development of ECC in studies,[46] no direct relationship has been stated.

Our study has some limitations that need to be considered while extrapolating the results. These include a small sample size and an unequal distribution of participants in S-ECC and ECC which restricts the validity of statistical comparisons. However, the unequal distribution of participants was beyond our control as patients reach tertiary care hospitals for treatment when the caries has already become severe. Another limitation was that the study being cross-sectional could not tell us about the cause-effect relationship. It is important to note that this was a hospital-based study, the child–parent pairs included were those who reported to a dental hospital setting either because of tooth decay, pain or swelling in relation to an infected caries tooth. The study did not have a caries free group.

In an attempt to reduce the burden of S-ECC and improve the quality of life of children, healthcare providers should provide adequate information to parents and caregivers about correct feeding practices along with guidance on oral hygiene for their infants and toddlers as soon as they start teething.

Thus, we found that children often report to a dental hospital with S-ECC with involvement of both anterior as well as posterior teeth. Pulp involvement and associated abscess due to untreated caries are common sequelae in these children. Continuing prolonged feeding by bottle or mother's milk; and night milk feed frequency more than twice are potential risk behaviours that are associated with S-ECC.

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