KNOWLEDGE ATTITUDE AND AWARENESS REGARDING EARLY CHILDHOOD CARIES AMONG MOTHERS OF PLAY SCHOOL GOING CHILDREN IN CHENNAI CITY

Dr.Vinita Mary. A, Dr. Kesavan. R, Dr. Dharani.P, Dr.Fahema J.M, Dr.Fiona.D.V,
Department of Public Health Dentistry,
Thai Moogambigai Dental College and Hospital, Chennai, Tamilnadu, India

To access & cite this article

Website: jidam.idamadras.com

Address for correspondence:

Dr. A. Vinita Mary, MDS,
Reader, Dept. of Public Health
Dentistry,
Thai Moogambigai Dental College
and Hospital, Chennai
E-mail: viniebe@gmail.com

ABSTRACT

BACKGROUND: Caries is one of the globally prevailing most common microbial disease of the oral cavity. The factors contributing to the high prevalence of ECC (early childhood caries) are lack of knowledge & education of the parent mostly mothers, their familial background, employment and socio-economic status along with the child's inherent immunity against the pathogens present in their oral flora, feeding intervals and usage of sweeteners and pacifiers. This study was conducted to appraise the influence of the mothers on the risk factors associated with ECC.

MATERIALS AND METHODS: Three play schools were selected based upon our accessibility and mothers of all the children attending these schools were included in the study. The final sample size was 101.

RESULTS: The age of the study subjects ranged from 21 to 40 years, mean age being 30.5 ± 4.01 years. It was seen that, children's neglect towards brushing was around 51.5% among educated mothers and among class-2 socioeconomic status and it was statistically significant; p=0.019 and p=0.021 respectively. Also, 52.5% mothers from both educated and class-2 socioeconomic status reported that they were aware of the importance of cleaning gum pads which was statistically significant; p=0.008 and p=0.042, respectively.

CONCLUSION: Eradication of early childhood caries (ECC) is possible by reducing the associated risk factors with proper education of mothers regarding the feeding habits, to inculcate proper brushing habits among their children and their necessity for a balanced diet along with a dental check-up once in 6 months.

KEYWORDS: Early childhood caries, risk, awareness.

INTRODUCTION:

Dental caries is one of the globally prevailing most common microbial disease of the oral cavity.[1] Early childhood caries (ECC) is a variant of dental caries exclusively occurring in infants and toddlers with rapid progression and associated risk factors. AAPD (American Academy of Pediatric Dentistry), defined ECC 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 under the age of six. In children younger than 3 years of age, any sign of smooth surface caries is indicative of severe early childhood caries (S-ECC). [2] The prevalence of ECC in India is reported to be 51.9% [3], which is a major threat to the oral health of the developing population. The factors contributing to the high prevalence of ECC are lack of knowledge & education of the parent mostly mothers, their familial background, employment and socio-economic status along with the child's inherent immunity against the pathogens present in their oral flora, feeding intervals and usage of sweeteners and pacifiers. Correlation between the feeding intervals, practices of the mother regarding the hygiene of the child, infant's oral flora are considered risk factors of ECC; thus stating a fact that early childhood caries (ECC) is multifactorial.[4] This study was conducted to appraise the influence of the mothers on the risk factors associated with ECC, general knowledge and awareness regarding their child's oral health.

MATERIALS AND METHODS:

A descriptive cross-sectional study was conducted among mothers of play school going children in Chennai. The study was conducted between January and March 2019. The study protocol was approved by the Institutional Review Board of Dr. MGR Educational and Research Institute University.

A specially designed questionnaire consisting of 22 close ended questions divided into two sections was used for data collection. The first part of the questionnaire consisted of questions related to respondents age, gender, educational status, employment status, socio-economic status of the family (Kuppuswamy scale) and general information about their child. In order to ensure anonymity, the respondents name was not recorded. The second part consisted of questions related to their knowledge, attitude and awareness regarding early childhood caries.

The questionnaire was validated during the pilot study consisting of 20 samples from the target population. The questionnaire showed adequate internal consistency with Cronbachs alpha value of 0.75. The reliability was assessed by test-retest and Kappa statistic and the agreement was good (0.85). The content and face validity of the questionnaire was done by a panel of experts who assessed whether the questionnaire items are adequately measuring the construct intended to assess, and whether the items are sufficient to measure the domain of interest.

SAMPLING METHODOLOGY

The subjects were selected using convenient sampling method. Three play schools were selected based upon our accessibility and mothers of all the children attending these schools were included in the study. The final sample size was 101.

DATA COLLECTION

The mothers were approached through the play schools in which their children were studying after obtaining the necessary permission from the concerned authorities. The nature and purpose of the study was explained to them and written informed consent was obtained. The study subjects were involved in a one to one interview and all the questions were explained clearly by the investigator. The respondents were requested to provide appropriate answers and were assured of the confidentiality.

STATISTICAL ANALYSIS

The data was analysed using Statistical Package for Social Sciences, IBM Corporation, SPSS Inc., Chicago, IL, USA version 21 software package (SPSS). Descriptive statistics with frequency, percentage, mean and standard deviation was computed. Chi-square test was used to assess the level of significance at $p<0.05$.

RESULTS:

The study was conducted among mothers of preschool going children in Chennai city. The age of

the study subjects ranged from 21 to 40 years, mean age being 30.5±4.01 years.

It was seen that, childrens neglect towards brushing was around 51.5% among educated mothers and among class-2 socioeconomic status and it was statistically significant; p=0.019 and p=0.021 respectively (Table 2 & 3). Also, 52.5% mothers from both educated and class-2 socioeconomic status reported that they were aware of the importance of cleaning gum pads which was statistically significant; p=0.008 and p=0.042, respectively (Table 2 & 3). Around 60.4% from class-2 socioeconomic class reported that their kids did not brush before bed which was significant (p=0.005) (Table 3). Awareness among mothers that eating after brushing at night caused decay was more in educated group being 78.2% which was statistically significant, p=0.051 (Table 2). About 83% of the mothers were aware that prolonged usage of pacifiers is harmful and this awareness was seen in educated mothers with p=0.002 and among class-2 socio-economic status with p=0.049 (Table 2 &3).

Regardless of the varied classes in the socio-economic status, 92% had stated that balanced diet was necessary for a good oral health (p-value=0.048) (Table 3). Only 19.8% of the population who were working stated that they took their kids for frequent dental check-up (p-value=0.006) (Table 3) and 48.5% from various economic status took their kids to a dentist only if they had pain in face or swelling (p-value=0.002) (Table 3). Mothers with undergraduate education and homemakers stated that it was necessary to treat primary teeth which was statistically significant with p=0.018 and p= 0.017, respectively (Table 2 & 3).

The duration of breastfeeding was reported as 1-2 years by majority (44.5%) of the mothers, p= 0.025 (Table 4). Awareness regarding caries and its association with sugars present in milk and the duration of breast feeding and bottle feeding was seen among 48.5% (p-Value= 0.029). Around 51.4% of mothers had started weaning of milk at the age of 6 months to 1 year (p-value=0.040) (Table 4).

Table 1: Socio-demographic characteristics of the study population

Socio-demographic characteristics of Mother		Frequency	Percentage
Age group	21-30 years	54	53.5
	31-40 years	47	46.5
Educational status	Primary level	1	1.0
	Secondary level	1	1.0
	Higher-secondary	16	15.8
	Ug	53	52.5
	Pg	30	29.7
Employment	Employed	30	29.7
	Unemployed	71	70.3
Socioeconomic status	Upper	23	22.8
	Upper middle	66	65.3
	Lower middle	12	11.9
Demographic data of the child		Frequency	Percentage
Childs age	2 years	6	5.9
	3 years	51	50.5
	4 years	35	34.7
	5 years	9	8.9
Childs gender	Male	50	49.5
	Female	51	50.5
Childs order	1	62	61.4
	2	35	34.7
	3	3	3.0
	5	1	1.0

Table 2: Comparison of awareness and practices with age and educational status of the mother

Questions	Response	AGE GROUP			EDUCATIONAL STATUS					
		FREQUENCY (%)		p-value*	FREQUENCY (%)					p-value*
		21-30years	31-40years		Primary school	Secondary	Higher-secondary	UG	PG	
FREQUENT BOTTLE FEEDING CAUSES DECAY	YES	25(51.1)	24(48.9)	0.633	1 (2)	0	2(4)	28(57.1)	18(36.7)	0.015
	NO	29(55.7)	23(44.2)		0	1(1.9)	14(26.7)	25(48.1)	12(23.1)	
NEGLECT TOWARDS BRUSHING	YES	30(57.7)	22(42.3)	0.380	1(1.9)	1(1.9)	10(19.2)	32(61.5)	8(15.4)	0.019
	NO	24(48.9)	25(51.1)		0	0	6(12.2)	21(42.9)	22(44.9)	
IMPORTANCE OF CLEANING GUM PADS	YES	25(47.2)	28(52.8)	0.183	1(1.9)	1(1.9)	2(3.8)	30(56.6)	19(35.8)	0.008
	NO	29(60.4)	19(39.6)		0	0	14(29.2)	23(47.9)	11(22.9)	
EATING AFTER BRUSHING AT NIGHT AFFECTS CHILD'S TEETH	YES	44(55.7)	35(44.3)	0.394	0	1(1)	8(10)	48(61)	22(28)	0.002
	NO	10(45.5)	12(54.6)		1(5)	0	8(36)	5(23)	8(36)	
IS PACIFIER HARMFUL	YES	44(53)	39(47)	0.845	0	1(1)	9(11)	44(53)	29(35)	0.002
	NO	10(55)	8(45)		1(6)	0	7(39)	9(50)	1(5)	
NECESSITY TO TREAT PRIMARY TEETH	YES	31(49)	32(51)	0.269	1(2)	1(2)	5(8)	32(51)	24(38)	0.018
	NO	23(61)	15(39)		0	0	11(29)	21(55)	6(16)	

*Chi square test - p<0.05 significant; p<0.01 highly significant; p<0.001 very highly significant

Table 3: Comparison of awareness and practices with socioeconomic status of the family and employment of the mother

SOCIO-ECONOMIC STATUS						EMPLOYMENT STATUS		
Questions	Response	FREQUENCY (%)			p-VALUE*	FREQUENCY (%)		p-VALUE*
		CLASS1	CLASS 2	CLASS3		EMPLOYED	UNEMPLOYED	
NEGLECT TOWARDS BRUSHING	YES	6(12)	39(75)	7(13)	0.021	17(33)	35(67)	0.498
	NO	17(35)	27(55)	5(10)		13(27)	36(73)	
IMPORTANCE OF CLEANING GUM PADS	YES	17(32)	29(55)	7(13)	0.042	14(26)	39(74)	0.447
	NO	6(12.5)	37(77)	5(10.5)		16(33)	32(67)	
BRUSHING BEFORE BED	YES	13(32.5)	27(67.5)	0	0.005	15(38)	25(62)	0.165
	NO	10(16)	39(64)	12(20)		15(25)	46(75)	
EATING AFTER BRUSHING AT NIGHT AFFECTS CHILD'S TEETH	YES	19(24)	50(63)	10(13)	0.712	27(34)	52(66)	0.062
	NO	4(18)	16(73)	2(9)		3(14)	19(86)	
SWEETENED PACIFIERS	YES	3(14)	13(59)	6(27)	0.033	6(27)	16(73)	0.778
	NO	20(25)	53(67)	6(8)		24(30)	55(70)	
IS PACIFIER HARMFUL	YES	21(25)	55(66)	7(8)	0.049	25(30)	58(70)	0.844
	NO	2(11)	11(61)	5(28)		5(28)	13(72)	
IMPORTANCE OF BALANCED DIET IN ORAL HEALTH	YES	23(25)	60(65)	9(10)	0.048	29(32)	63(68)	0.201
	NO	0	6(67)	3(33)		1(11)	8(89)	
DENTAL CHECK-UP	YES	6(30)	14(70)	0	0.164	11(55)	9(45)	0.006
	NO	17(21)	52(64)	12(15)		19(23)	62(77)	
NECESSITY TO TAKE YOUR CHILD TO A DENTIST	PAIN AND SWELLING	7(14)	36(73)	6(13)	0.002	13(27)	36((73)	0.673
	CAVITIES	4(13)	21(70)	5(17)		10(33)	20(67)	
	DENTAL CHECKUP	11(55)	9(45)	0		7(35)	13(65)	
	OTHERS	1(50)	0	1(50)		0	2(100)	

*Chi square test - p<0.05 – significant; p<0.01 – highly significant; p<0.001 – very highly significant

Table 4: Comparison of awareness and practices with demography of the child

QUESTIONS	RESPONSE	CHILDS AGE (In Years) FREQUENCY (%)				P-VALUE*	CHILDS GENDER FREQUENCY		P-VALUE*	CHILDS ORDER FREQUENCY (%)				P-VALUE*
		2	3	4	5		MALE	FEMALE		1st	2nd	3rd	5th	
DURATION OF BREAST FEEDING	<1 YEAR	5 (11.6)	20 (46.5)	16 (37.2)	2 (4.7)	0.025	18 (42)	25 (58)	0.364	21 (49)	21 (49)	1 (2)	0	0.195
	1-2 YEARS	1 (2.2)	27(60)	14(31.1)	3(6.7)		24(53)	21(47)		32(71)	11(24)	1(2)	1(2)	
	2-3 YEARS	0	4(30.8)	5(38.5)	4(30.7)		8(61)	5(39)		9(69)	3(23)	1(8)	0	
FREQUENT BOTTLE FEEDING CAUSES DECAY	YES	2(4)	32(65)	13(27)	2(4)	0.029	25(51)	24(49)	0.767	29(56)	20(44)	0	0	0.180
	NO	4(8)	19(37)	22(42)	7(13)		25(48)	27(52)		33(63)	15(29)	3(6)	1(2)	
WEANING	6 MONTHS	1(5)	11(50)	8(36)	2(9)	0.681	6(27)	16(73)	0.040	15(68)	6(27)	0	1(5)	0.421
	6 MONTHS TO 1 YEAR	5(10)	24(46)	19(37)	4(8)		27(52)	25(48)		29(56)	21(40)	2(4)	0	
	>1 YEAR	0	16(59)	8(30)	3(11)		17(63)	10(37)		18(67)	8(29)	1(4)	0	
SWEETENED PACIFIERS	YES	2(9)	10(46)	6(27)	4(18)	0.288	13(60)	9(40)	0.309	13(59)	6(27)	3(14)	0	0.009
	NO	4(5)	41(52)	29(37)	5(6)		37(47)	42(53)		49(62)	29(37)	0	1(1)	
NECESSITY TO TREAT PRIMARY TEETH	YES	6(10)	34(54)	17(27)	6(9)	0.074	26(41)	37(59)	0.033	40(63)	20(32)	2(3)	1(2)	0.764
	NO	0	17(45)	18(47)	3(8)		24(63)	14(37)		22(58)	15(39)	1(3)	0	

*Chi square test - p<0.05 – significant; p<0.01 – highly significant; p<0.001 – very highly significant

DISCUSSION:

Proper education of the mother and collective co-operation of the family members helps in surpassing the threat posed by ECC on children[5]. Mother being considered as the most caring person of the family; the health of the children becomes her responsibility. According to a study by Zhou Y et al an educated and employed mother of class-2 economic status is more conscious and aware of her childrens oral health[6]. India being a developing country, prevalence of dental caries is at high risk due to the inadequate awareness among the adult population leading to the child population being at risk[7].

In the study population, 60% of the mothers had breast-fed till 2 years of their childs age. Most of the mothers start weaning of breast milk or bottle-feeding from six months to one year thus reducing the major risk factor of ECC[8]. Among the study population, 57.1% of the mothers with undergraduate education and mothers having 3-year-old children had stated that frequent bottlefeeding with improper oral hygiene caused dental caries, which is similar to the study by Buhari. N et al. Majority of the mothers with undergraduate education (61.5%) and class-2 socioeconomic status of the family (75%) faced difficulty in making their children brush their teeth without hassle which is similar to a study Noha Samir Kabil et al (2017) who reported that ECC is directly associated with childs brushing habits. Thus, the mothers went for an easier option to prevent ECC by avoiding sugary foods or candies which acts as a causative agent of ECC[2]. But by doing so, they failed to notice the association of time with food debris and microorganisms acting on it to decay[10]. Among the study population, 62% of mothers with first child and 67% of class-2 socio-economic status claimed that they never used sweetened pacifiers for their children. Also, 53% of undergraduate mothers and 66% of class-2 socioeconomic status were aware that the use of pacifiers is harmful to their children which is similar to a study by P Prakash et al (2012). Among mothers from families of class-2 socioeconomic status, 65% were aware of the importance of balanced diet in the oral health of their child similar to a study by Nunn, M. E et al (2009). Among mothers from class-2 socio-economic status, 73% said that they

visited a dentist only if their child had pain or swelling which is similar to a study by Al-Zahrani, Ali M et al (2014). Mothers with undergraduate education, 51% and homemakers, 62% had answered that there was necessity to treat primary teeth.

Limitations: The present study was conducted among only 101 subjects as a pilot study who were conveniently selected which prevents generalization of the results. Further studies are needed with a larger sample size and appropriate sampling methodology.

CONCLUSION:

Eradication of early childhood caries (ECC) is possible by reducing the associated risk factors with proper education of mothers regarding the feeding habits, to inculcate proper brushing habits among their children and their necessity for a balanced diet along with a dental check-up once in 6 months. Measures have to be taken by the primary health centres to educate mothers from under privileged background regarding the causes and risk factors of ECC and precaution to avoid them.

FINANCIAL SUPPORT AND SPONSORSHIP:

Nil

CONFLICT OF INTEREST:

There is no conflict of interest

REFERENCE:

1. Bagramian RA, Garcia-Godoy F and Volpe AR. The global increase in dental caries. A pending public health crisis. Am J Dent.2009;22(1):3-8.

2. Policy on Early Childhood Caries (ECC): Classifications, Consequences, and Preventive Strategies. American Academy of Pediatric Dentistry. 2016; 40(6): 60-62.

3. Sukumaran Anil and Pradeep S. Anand. Early Childhood Caries: Prevalence, Risk Factors, and Prevention. Front Pediatr 2017;5:157.

4. Srikanth Koya, KS Ravichandra, Vasa A Arun kumar, Suzan Sahana, and HM Pushpalatha Prevalence of Early Childhood Caries in Children of West Godavari District, Andhra Pradesh, South India: An Epidemiological Study. Int J Clin Pediatr Dent 2016;9(3):251 255.

5. Khanh LN, Ivey SL, Sokal-Gutierrez K, Barkan H, Ngo KM, Hoang HT, Vuong I and Thai N. Early Childhood Caries, Mouth Pain, and Nutritional Threats in Vietnam. 2015;105(12):2510-2517. Kesavan et al: Knowledge, motivation and barriers of blood donation among adolescent population in chennai, INDIA,Journal Ind Dent Associ Mad 2019; Vol6(Issue 1): 1-8

6. Zhou Y, Lin HC, Lo EC and Wong MC. Risk indicators for early childhood caries in 2-year-old children in southern China. Aust Dent J. 2011;56(1):33-39.

7. Mehta A. Trends in dental caries in Indian children for the past 25 years. Indian J Dent Res. 2018;29(3):323-328

8. Paglia L. Does breastfeeding increase risk of early childhood caries? Eur J Paediatr Dent.2015;16(3):173.

9. Arora, Amit, Eli Schwarz, and Anthony Stevenson Blinkhorn. Risk factors for early childhood caries in disadvantaged populations. Journal of investigative and clinical dentistry 2011; 2 (4): 223-228.