



ASSESSMENT OF KNOWLEDGE AND AWARENESS ABOUT RISK FACTORS OF EARLY CHILDHOOD CARIES AMONG MOTHERS OF SHIMLA DISTRICT, HIMACHAL PRADESH, INDIA - A CROSS SECTIONAL STUDY.

Dentistry

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ABSTRACT

Background: Among all the oral diseases, dental caries is the most common chronic disease affecting the children. Early childhood caries is one of the most severe forms of dental caries affecting the children less than 3 years. Though dental caries is preventable, not much importance has been given to the preventive aspect of dental caries. This is because of the lack of oral health education. Vertical colonization occurs from caregiver usually mother to the child. Since mother play an important role in a child's life, their knowledge about child's oral health will have a significant impact on the child's oral health status. A proper knowledge for the mothers regarding infant's oral health care will be beneficial in reducing the burden of dental caries in children. Hence a study was conducted to assess mother's knowledge and awareness about infant oral hygiene, problem of dental caries and teething among mothers of 0-5 years old children living in Himachal Pradesh.

Material and methods:

A cross-sectional study was conducted among mothers with a child aged 0 to 5 years of age visiting Department of Pediatrics and Preventive Dentistry. Data were collected using a structured questionnaire comprising three parts, 1st one pertaining to socio-demographic data, 2nd related to feeding practices and 3rd one includes knowledge and awareness.

Statistical analysis used: The collected data were tabulated and statistically analyzed using the chi-squared test and p values $\leq .05$ indicated statistically significant differences.

Results: A total of 98.1% of the mothers were not aware of the first dental visit. 95.81 % mothers did not agree that night time bottle feeding causes dental caries and 4.18 % disagreed that nocturnal breastfeeding can cause dental caries in children. A total of 0.9% mothers feel dental check-up is not necessary when the first tooth erupts, and 57.7% of mothers started using toothbrush and paste after all the primary teeth erupted.

Conclusions: Many of the socio-demographic and feeding factors were significantly associated with ECC. It would be appropriate to plan health education strategies for parents and care takers by inculcating socio-demographic factors. The mother needs to be educated about oral health during their antenatal checkup.

KEYWORDS

Dental caries, mother's awareness, infant oral health care.

INTRODUCTION

Dental caries is the most common chronic infectious disease of childhood, caused by the interaction of bacteria, mainly *Streptococcus mutans*, and sugary foods on tooth enamel. *S. mutans* can spread from mother to baby during infancy and can inoculate even pre-dentate infants.¹ Early childhood caries (ECC) is one of the most severe forms of dental caries affecting the children less than 3 years.² ECC results from a complex interaction between the use of night bottle feeding, neglected oral hygiene, unhealthy dietary habits, parent's education as well as socio-economic status.^{3,4} Parents especially mothers, greatly influence their children's oral health.⁵ A proper knowledge regarding infant's oral health care among mothers can be beneficial in reducing the burden of dental caries in children. According to The Global Burden of Disease Study 2017 oral diseases affect close to 3.5 billion people worldwide. More than 530 million children suffer from caries of primary teeth leading to poor quality of life.⁶⁻⁸ The American Academy of Pediatric Dentistry (AAPD) recommends the assessment of mother's knowledge and attitude by using validated questionnaire which helps to form an effective child oral health promotion program.⁹

Therefore, the aim of this study was to evaluate the mother's knowledge, attitude and practice towards infant oral health care including dental caries, oral hygiene, and teething problems.

MATERIAL AND METHODS-

This descriptive cross-sectional study was carried out in the Department of Pediatric & Preventive Dentistry during the time duration of one month. Study included mothers of children aged 0 to 5 years with a sample size of 215. The data were collected by the using structured questionnaire in both hindi and english language. The questionnaire comprised of three parts with total of 16 closed questions comprising- 1st part- socio-demographics details of family (5 questions), 2nd part- Feeding habits (2 questions), 3rd part -Knowledge and awareness of mothers regarding oral health (7 questions). The collected data were tabulated and statistically analyzed using SPSS 20.0 V software. Chi square test was used, and the statistical significance was set at $P < 0.05$.

RESULTS:

Among the convenient sample of 215 mothers in the present study, the

most prevalent age group of mothers was 31-35 84 (39.06%). Among mothers, 35.34% had graduate education, and the majority were (72.53%) housewife. More than two thirds (N= 156) of the families come under the group of 1- 3 lakhs income annually and other socio-demographic characteristics of the study population in table 1. Feeding practices among mothers are shown in table 2.

Chi square value in table 3 and 4 was used to correlate between mother's knowledge about caries, oral hygiene, teething and their demographic characteristics; knowledge about when to start brushing was significant among postgraduate mothers with $p = 0.040$. regarding mother's occupation, visiting to dentists was significant among housewives ($p = 0.046$) and family under the group of 1-3 lakh income ($p = 0.00$). poor knowledge about importance of primary teeth was significant among mothers of secondary degree.

There was no significant difference between socio-demographic variable and brushing twice a day and visiting to dentist $p = 0.05$

Table 1- Descriptive statistic of mother's demographic characteristics

variables	Options	Number (n= 215)	percent
Age of mother (years)	20-24	2	0.93%
	25-30	51	23.72%
	31-35	84	39.06%
	>35	78	36.27%
Mother's education	Primary	13	6.04%
	Secondary	65	30.23%
	graduate	76	35.34%
	Post- graduate	61	28.37%
Mother 's occupation	sHousewife	156	72.53%
	Working	59	27.45%
No. of sibling	1	73	33.95%
	2	121	56.35%
	3	18	8.40%
	>3	3	1.40%
Family income (lakhs)	1-3	151	70.23 %

Table-2 Feeding habit:

Variables		no	%
Prolonged and nocturnal breast-feeding cause caries	Yes	9	4.18 %
	No	206	95.81 %
Night bottle feeding cause dental caries	Yes	72	33.4 %
	No	143	66.5 %

Table 3-

Statistical Analysis: Chi-square test. S: statistically significant at the 0.05 level. NS: Not significant.

	Options	Mother's education					P value
		Primary	Secondary	Graduate	Postgraduate	Total	
no of children	1	4 (30.8)	16 (23.9)	18 (23.4)	35 (60.3)	73 (34.0)	0.000 S
	2	7 (53.8)	44 (65.7)	47 (61.0)	2 (339.7)	121 (56.3)	
	3	2 (15.4)	4 (6.0)	12 (15.6)	0 (0.0)	18 (8.4)	
	>3	0 (0.0)	3 (4.5)	0 (0.0)	0 (0.0)	3 (1.4)	
	Total	13 (100.0)	67 (100.0)	77 (100.0)	58 (100.0)	215 (100.0)	
When did you start brushing your child's teeth	a) After first tooth	0 (0.0)	4 (6.0)	4 (5.2)	5 (8.6)	13 (6.0)	0.040 S
	b) After having 4-6 teeth	0 (0.0)	17 (25.4)	24 (31.2)	16 (27.6)	57 (26.5)	
	c) When all the teeth come	9 (69.2)	42 (62.7)	45 (58.4)	28 (48.3)	124 (57.7)	
	d) Don't remember	4 (30.8)	4 (6.0)	4 (5.2)	9 (15.5)	21 (9.8)	
	Total	13 (100.0)	67 (100.0)	77 (100.0)	58 (100.0)	215 (100.0)	
How often do you brush your child's teeth	a) Sometimes	0 (0.0)	0 (0.0)	0 (0.0)	2 (3.4)	2 (0.9)	0.356 NS
	b) Once daily (morning)	6 (46.2)	25 (37.3)	38 (49.4)	20 (34.5)	89 (41.4)	
	c) Once a day (night)	1 (7.7)	7 (10.4)	9 (11.7)	9 (15.5)	26 (12.1)	
	d) Twice daily (morning - night)	6 (46.2)	35 (52.2)	30 (39.0)	27 (46.6)	98 (45.6)	
	Total	13 (100.0)	67 (100.0)	77 (100.0)	58 (100.0)	215 (100.0)	
Do you feed your child with the same spoon / mug that you used for yourself	a) Yes sometimes	3 (23.1)	11 (16.4)	14 (18.2)	7 (12.1)	35 (16.3)	0.705 NS
	b) Never	10 (76.9)	56 (83.6)	63 (81.8)	51 (87.9)	180 (83.7)	
	Total	13 (100.0)	67 (100.0)	77 (100.0)	58 (100.0)	215 (100.0)	
When did you first go to the	a) Before childbirth	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0.324 NS

dentist to get advice on baby teeth?	b) When the first tooth arrives	0 (0.0)	1 (1.5)	0 (0.0)	1 (1.7)	2 (0.9)	
	c) Every 6 months	0 (0.0)	0 (0.0)	0 (0.0)	2 (3.4)	2 (0.9)	
	d) Tooth problem	13 (100.0)	66 (98.5)	77 (100.0)	55 (94.8)	211 (98.1)	
	Total	13 (100.0)	67 (100.0)	77 (100.0)	58 (100.0)	215 (100.0)	
Milk teeth are not required because they are going to exfoliate, do you agree with this?	a) Yes	8 (61.5)	52 (77.6)	30 (39.0)	21 (36.2)	111 (51.6)	0.000 S
	b) No	5 (38.5)	15 (22.4)	47 (61.0)	37 (63.8)	104 (48.4)	
	Total	13 (100.0)	67 (100.0)	77 (100.0)	58 (100.0)	215 (100.0)	

Table 4-

	Options	3. Mother's occupation			P value
		a) Housewife	b) Working	Total	
family income-(annually) lakhs	1-3	130 (82.8)	21 (36.2)	151 (70.2)	0.000 S
	3-6	13 (8.3)	20 (34.5)	33 (15.3)	
	6-9	2 (1.3)	15 (25.9)	17 (7.9)	
	≥10	12 (7.6)	2 (3.4)	14 (6.5)	
	Total	157 (100.0)	58 (100.0)	215 (100.0)	
Who Brushes Your Child	a) Child	100 (63.7)	34 (58.6)	134 (62.3)	0.496 NS
	b) Mother	57 (36.3)	24 (41.4)	81 (37.7)	
	Total	157 (100.0)	58 (100.0)	215 (100.0)	
When did you first go to the dentist to get advice on baby teeth?	a) Before childbirth	0 (0.0)	0 (0.0)	0 (0.0)	0.046 S
	b) When the first tooth arrives	2 (1.3)	0 (0.0)	2 (0.9)	
	c) Every 6 months	0 (0.0)	2 (3.4)	2 (0.9)	
	d) Tooth problem	155 (98.7)	56 (96.6)	211 (98.1)	
	Total	157 (100.0)	58 (100.0)	215 (100.0)	

Statistical Analysis:

Chi-square test. S: statistically significant at the 0.05 level. NS: Not significant.

DISCUSSION -

Pediatric triad is a three-way interaction among the child, parents, and pediatric dentists. Knowledge and attitude of parents especially low mothers towards maintaining the optimum oral health of their children during infancy plays a crucial role or future oral health status and of course for overall health and well-being.¹⁰

Among children, dental caries is the most common chronic infectious disease. Its prevalence is more commonly found in children who live in poor economic conditions, parents have low educational level, especially those of illiterate mothers.¹¹ Parents with low socioeconomic status face barriers to dental care, high cost of dental treatment, geographical area of Himachal Pradesh causes lack of transportation, lack of demand to dental care and lack of dental educational programmes. In this study most of mothers belongs to family having annual income of 1-3 lakhs (151, 70.2 %).

AAPD recommend that the first dental visit should be before the child's first birthday. This helps for early intervention and education of parents on oral hygiene, early childhood caries, and prevention of early

childhood caries.⁹ In the present study, 98.1% of mothers visit when there was problem with teeth. These findings could be because of low education level of mothers.

Children should be introduced to oral hygiene habits as early as possible. Parents should start brushing their baby's teeth with a soft toothbrush suitable for the baby's age as soon as the first tooth appears.¹² 57% of mothers agreed that they started brushing only after all teeth erupted. A similar finding was reported by Nagarajappa et al.¹³ (58%) and Suresh et al.¹⁴ (56%).

The habit of falling asleep with a bottle containing milk or liquids rich in sucrose can contribute to the occurrence of ECC because salivary flow rate is reduced at night.¹⁵ Only 33.4% of the study population responded positively that night time bottle feeding can cause dental caries. Educational level might be the reason for this variation.

Majority of the parents, 88% agreed that teething is a normal process which does not cause severe complication. 54% of the parents claimed that consulting a pediatrician was not their immediate first line treatment approach as few symptoms such as diarrhea, fever and skin rash in teething is normal and could be corrected by using routine analgesic and antibiotic. In previous studies, Owaisi et al.¹⁶ attributed 85% while Nagarajappa et al.¹³ attributed 70% infants with fever to teething.

Oral health education and evaluation inculcated in childhood lays a foundation for lifetime free disease. This can be achieved through parents especially mothers. They play a role model for their children hence they need to be encouraged to infuse oral hygiene habits right from infancy.¹⁷

Since the study was conducted in one localized hospital and the educational level of mothers was low these results cannot be extrapolated to the general population. Hence similar studies on larger and diverse population would be more useful in implementing nationwide efficient and effective oral health programmes for infants.

CONCLUSION:

This study revealed that about one third of mothers failed to brush their teeth twice daily, and a majority of mothers did not brush their children's teeth as recommended. Overall knowledge and awareness of mothers towards oral health care of children is poor. Mother needs to be educated about oral health during their antenatal check-up.

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