

Assess the Oral Hygiene Practices, Occurrence of Dental Caries and Gingivitis among School Age Children

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ABSTRACT

Background: Dental caries continues to be a major health issue for worldwide population which decreases individual's quality of life. In children dental caries and gingivitis are major health problem due to lack of preventive efforts and change in dietary requirement. According to WHO, oral health awareness among children can be promoted through schools by improving good knowledge, attitude and behavior related to oral health that will be helpful for prevention and control of dental diseases among children. Hence there is a necessity to find out oral hygiene practices and occurrence of dental caries among school age children.

With this background, researcher make a plan to conduct a survey with the following objective.

Objective: To assess dental caries, gingivitis and oral hygiene practices among school age children in a selected community area.

Methodology: A quantitative approach with cross-sectional descriptive design was used to assess dental caries, gingivitis and oral hygiene practices among children. 195 school going children residing in rural area of Doiwala block were selected by using convenience sampling technique. Data was collected by pretested questionnaire. Ethical permission was obtained from institutional ethical committee and informed consent was taken from study participants.

Results: The statistical finding shows that 184 (94.36%) mothers had not attend any education related to dental hygiene previously. Maximum mothers (97.95%) have taught their child how to brush the teeth. It was surprising to note that 144 (58.96%) of children found to be suffering from dental caries. It was found that (38.79%) of children were suffering with teeth pain. Very less 45(29.9%) children had reported that they had visited dentist. There was significant association found between material use for remove food debris between the teeth's and dental caries at ($p < .001$). There was also significant association found between technique use for brushing teeth and dental caries ($p < 0.003$).

Conclusion: The research findings showed that school age children give very less importance to oral hygiene. In this study we found greater need of health education and encouraging parents regarding children oral hygiene which can be beneficial to prevent dental caries among school going children.

KEYWORDS: School Age Children, Gingivitis, Dental caries, Oral hygiene

INTRODUCTION

The children of today are tomorrow's leaders. According to world population statistics 26 % of the world's population were under 15 years of age in mid-2019⁽¹⁾. Childhood age is an important period of life in this period most of the behaviors, healthy practices and positive attitudes are develop in children. Parents, family members and schools are take an important role in develop good health behavior and practices among children. Good oral health is essential for improving overall health and well being of children. ⁽²⁾ Dental caries is most prevalence oral health problem among children in the world, in India more than 40% children were suffering from dental caries in the last 15 years.⁽³⁾

Dental caries not only causes damage to the tooth, but also responsible for several morbid conditions of the oral cavity, due to that children absent from schools and loss of working hours and economic for the parents⁽⁴⁾.

In India, the National Oral Health Programmer initiated in 1999, consists of School dental Program to impart awareness about good oral habits at school targeted at children aged 9-14 years, including teachers and parents⁽⁵⁾.

Globally, between 60–90% of schoolchildren have tooth decay, often leading to pain and discomfort⁽⁶⁾ NRHM also have School Health Program which includes an oral health

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awareness program for children and also an oral/dental screening program for early identification and prevention of dental problems⁽⁷⁾.

WHO also recommended Oral health promotion through schools for improving knowledge, attitude, and behavior related to oral health which can prevent and control dental diseases among school children.⁽⁸⁾ Dental cavities can be prevented by maintaining a constant low level of fluoride in the oral cavity.⁽⁹⁾

“Bagramian RA, Garcia Godoy F” current review of the available epidemiological data from many countries in that they found increase in the prevalence of dental caries among children which become signal a pending public health crisis, they also highlight of different opinion remedy is well known like school oral health educational programs, proper tooth brushing, a proper diet and regular dental office visits. They also highlight that if these remedy was not initiated then there could be a serious negative impact upon the future oral health of the global community.⁽¹⁰⁾

A very extensive and comprehensive National Oral Health Survey was conducted in 2004 has shown prevalence of dental caries as 50 % in 5 year-old children in India.⁽¹¹⁾

Dental caries is still a smoldering disease in the developing countries like India⁽¹²⁾ Risk factors for dental caries are low family income, poor oral hygiene, enamel defects, low level of parental education and unhealthy diets⁽¹³⁾.

Regarding oral health sporadic data of different states, particularly the rural areas of India in that researcher was highlight that 31.5 to 89% people was affected by dental caries in different parts of the country⁽¹⁴⁾.

Dental caries is a common chronic and preventable disease of childhood which can interferes with normal nutrition intake, speech, self-esteem and daily routine activities of children. So that it is very important to provide knowledge and motivation towards healthy dental practice among school going children.

Materials and Methods

A quantitative (Non-experimental) research approach with descriptive cross sectional design was adopted to determine the oral hygiene practices, occurrence of dental caries and gingivitis among school age children. A total 195 children were selected randomly by convenient non probability sampling technique. In inclusion criteria researcher include all mothers who have children age group 6 to 10 years and present during data collection. The tools used for the study were Socio demographic, observation check list, cafeteria type questions and self reported practice check list. Validity of tools was done by seven expert's and reliability of the tool was tested by Inter-rater/ Inter-observer and Crobach's Alpha method ($r= 0.96$). Pilot study was done on 10 % of participants. Research data was analysis by descriptive and inferential statistics (frequency, percentage, fisher exact and chi-square). Ethical Committee permission was obtained from the concerned institutional authorities. Written consent was obtained from study participants.

Results

Table No-1 Demographic characteristics of children and Parents by frequency and percentage.
n=195

S. No.	Demographic characteristics	Frequency (f)	Percentage (%)
1.	Age of child in year		
	a) 5-6	48	24.6
	b) 7-8	98	50.3
	c) 9-10	49	25.1
2.	Gender		
	a) Male	107	54.87
	b) Female	88	45.13
3.	Number of siblings in family		
	a) 1	13	6.67
	b) 2	151	77.44
	c) ≥ 3	31	15.9
4.	Type of family		
	a) Nuclear	146	74.87
	b) Joint	49	25.13
5.	Religion		
	a) Hindu	141	72.31
	b) Muslim	54	27.69
6.	Dietary Patterns		
	a) Vegetarian	68	34.87
	b) Non- Vegetarian	127	65.13
7.	Mothers Educational Status		
	a) No-Formal education	48	24.62
	b) Primary	82	42.05
	c) Secondary	46	23.59
	d) Graduate and Above	19	9.74
8.	Father Educational Status		
	a) No-Formal education	28	14.36
	b) Primary	91	46.67
	c) Secondary	55	28.21
	d) Graduate and Above	21	10.77

9.	Mother's occupation		
	a) House Wife	123	63.08
	b) Employed	6	3.08
	c) Self-employed	53	27.18
10.	d) Labour	13	6.67
	Father's occupation		
	a) Labour	45	23.08
11.	b)Self-employee	124	63.59
	c) Employed	26	23.33
11.	Family Monthly income in rupees		
	a) 5000-15,000	138	70.8
	b) 15,001-25,000	35	17.9
	c) 25,001-35,000	15	7.7
	d) Above 35,001	7	3.6

Data presented in table 1 show that 50.3 % of the children were between 7 -8 years of age. More than fifty percent (54.87%) of children were male. Maximum families (77.44%) had two children. Nearly fifty percentages of the parents both, mother (42.5%) and father (46.67%) were primary educated. Maximum (70.8%) family had less 15000/ month income. 63.59 % father's were self employee.

Table 2 - Other variables of children by frequency and percentage

n=195

S. No.	Other variables	Frequency (f)	Percentage (%)
1	Teething age of child		
	a) 6-10 months	108	55.4
	b) 11-18 months	87	44.6
2	Total teeth present in child		
	a) 20-25 teeth	116	59.5
	b) 26-32 teeth	79	40.5
3	Is your child going to school?		
	a) Yes	180	92.3
	b) No	15	7.7
	3a) if yes in which class is he/ she studying?	N=180	
	a) 1-4	142	72.9
	b) 5-8	38	18.9
4	In which age does your child start brushing teeth?		
	a) 12-24 months	60	30.8
	b) 25-36 months	135	69.23
5	Previous teaching related to dental hygiene		
	a) Yes	11	5.64
	b) No	184	94.36
6	Supervised while brushing		
	a) Yes	76	38.97
	b) No	119	61.03
7	Check oral status every month		
	a) Yes	43	22.05
	b) No	152	77.95
8	Have you taught your child how to clean teeth?		
	a) Yes	191	97.95
	b) No	4	2.05

Table No.2 highlight that teething age of child was 6-10 months in fifty percentage children. Majority (92.3%) of children were going to school where as maximum family members (94.36%) did not have previous knowledge regarding dental hygiene. Only 38.97 % mothers were supervising their children while brushing. Very few mothers (22.05%) were checking the oral status of their children every month but majority of the mothers (97.95%) have taught their children how to clean teeth daily.

Section -B

Table No-3 Frequency and percentage distribution of oral health assessment.

n=195

S. No.	oral health assessment	Frequency (f)	Percentage (%)
1	Lips		
	Pink color	195	100
	Cracked		
	a. Yes	68	34.9
	b. No	127	65.1

	Moist a. Yes b. No	127 68	65.1 34.9
2.	Teeth (Tooth decay) a. Yes b. No	114 81	58.46 41.59
	Color a. Yellow b. White	8 186	4.12 95.88
	Alignment a. Yes b. No	175 19	90.21 9.79
	Sensitivity a. Yes b. No	62 133	31.79 68.21
	Filling a. Yes b. No	58 136	29.90 70.10
	Missing a. Yes b. No	77 118	39.49 60.51
	Pain a. Yes b. No	76 119	38.79 61.03
3.	Tongue a. Color pink b. Not coated	195 195	100 100
	Gum Pink color	195	100
4.	Bleeding a. Yes b. No	72 123	36.92 63.08
	Swelling a. Yes b. No	15 180	7.69 92.31
	Pus/infection a. Yes b. No	10 185	5.13 94.87
	Mucus membrane a. Color pink b. Pale	192 3	97.9 2.1
5.	Ulcers a. Yes b. No	10 185	5.1 94.9
	Dry a. Yes b. No	12 183	6.2 93.8
	Odour a. Yes b. No	17 178	8.7 90.9
	Palate (Sticking food particles) a. Yes b. No	13 183	6.7 93.3

On base of assessment and observation researcher find out that all children had pink color lips. Less than two-thirds (65.1%) children had moist lips, nearly 34.1% children were having cracked lips. Around (58.46%) children suffering from dental caries. 68.21% children were having sensitivity in teeth. 38.79% children having teeth pain and 36.08% children having bleeding in their gums.

Table number 5: Percentage distribution of material used for oral hygiene
n=195

S. No.	Material used	Percentage (%)
1.	Cleaning teeth	89.2
	a) Tooth brush	7.7
	b) Finger	3.1
2.	Type of paste/powder	86.1
	a) Paste	3.6
	b) Powder	10.3
3.	Time taken for brushing	94
	a) less than 3 mint	4
	b) 3 mint	2
4.	Type of brush used for cleaning teeth	89.2
	a) Soft brush	7.4
	b) Medium soft	.5
5.	Material used to remove food debris between the teeth	25.4
	a) Tooth pick	40.8
	b) Match stick	30.8
	c) Neem Stick	3
6.	Technique used for brushing	76.9
	a) Horizontal	1.5
	b) Vertical	21.5

Table number 5 highlight that maximum mothers of children (89.2%) were using tooth brush and 86.1% children were using toothpaste for cleaning their teeth. Maximum (94 %) children were taken time less than 3 mint for brushing of teeth. Most of (76.9 %) children were doing brushing in horizontal way. Nearby 40.8% children were using match stick to remove food debris between teeth.

Table Number 6:- Frequency and percentage distribution of oral clean practices
n=195

S.N.	Oral Clean Practices	Frequency	Percentage
1	Does your child brush his/her teeth?		
	a. Regular	193	98.97
2	b. Twice a day	2	1.03
	Does your child clean the tongue?		
3	a. Cleaning	126	64.62
	b. Not cleaning	69	35.38
4	Does your child swallow paste?		
	a. Swallow	24	12.31
5	b. Not swallow	171	57.69
	Does your child clean the chewing area?	195	100.0

Table number 6 highlight that majority (98.97%) of children were brushing their teeth regularly but only 1% children brush their teeth twice a day. Merely one-third (35.38%) of children do not clean their tongue while brushing their teeth. Very less (12.3%) children were swallow’s the paste while brushing their teeth. All of child clean the chewing area of mouth during oral care.

Table No-7 Association between oral hygiene practice and occurrence of dental caries among children
n= 195

Oral Hygiene Practice	Dental Caries		Total	Yates correction	P value <0.05
	YES	NO			
1)Material used				4.652	.085
a)Brush	97 (55.74%)	77 (44 %)	174		
b)Finger	5 (83%)	1 (16%)	6		
c)Datoon	12 (80%)	3 (20%)	15	1.714	.469
2) Type of paste and powder					
a) Paste	95(56%)	73(43%)	168		
b) Powder	14(70%)	6(30%)	20		
c) Salt and oil	5(71%)	2(28%)	7		

3) Time taken for brushing					
a) < 3 mint	110(60%)	73(40%)	183	3.985	.116
b) 3 mint	2(25%)	6(75%)	8		
c) > 3 mint	2(50%)	2(50%)	4		
4) Type of brush				1.8	0.171
a) Soft Brush	98(56%)	76(44%)	174		
b) Medium Brush	13(72%)	5(28%)	18		
c) Hard Brush	3(100%)	00	3		
5) Material use to remove food debris				18.117	.001
a) Tooth pick	113(59%)	78(41%)	191		
b) Brush	1(50%)	1(50%)	2		
c) Cloth	0	2(100%)	2		
6) Brushing technique				10.201	0.003
a) Horizontal	82(55%)	68(45%)	150		
b) Vertical	00	3(100%)	3		
c) Circular motion	32(76%)	10(24%)	42		
7) Tongue clean				15.00	0.0001
a) Clean	77(71%)	32(29%)	109		
b) Not clean	37(43%)	49 (57%)	86		

Table Number 7 show that there was no significant asociation between dental caries and material used for dental hygine, toothpaste, time taken for brushing, type of brush used for cleaning teeth. There was highly significant association between dental caries and material used to remove food debris, brushing technique and tongue clean.

Table Number: 8 Association between demography variables and occurrence of dental caries among children n= 195

Demography variables	Dental Caries		Total	Chi square	P value < 0.05
	Yes	No			
1.Child's age (years)				4.49	0.034
a) 6-7	50(51%)	48(49%)	98		
b) 8-10	64 (66%)	33 (34%)	97		
2) Gender				1.768	0.1836
a) Male	58(54%)	49(46%)	107		
b) Female	56(64%)	32(36%)	88		
3) Number of children				8.014	0.0046
a) One Child	11(35%)	20(65%)	31		
b) Two or more child	103(63%)	61(37%)	164		
4) Mother's education				12.309	0.006
a) Non formal	26(54%)	22(46%)	48		
b) Primary	59(72%)	23(28%)	82		
c) Secondary	22(48%)	24(52%)	46		
d) Graduate and above	7(37%)	12(63%)	19		
5) Monthly income(Rs)				15.502	0.0001
a) 5000-15,000	93(67%)	45(33%)	138		
b) 15001 & Above	21(37%)	36(63%)	57		

Table number 8 highlight that was association between dental caries and selected demographic variables like number of children in family, mother education & monthly income that indicate if mother were more educated and child are less in family then dental caries problem can be reduce. Families who have less income there was more incidence of dental caries among children.

Discussion

In this study it was found nearby 58.46% children had been suffering from dental caries this finding was supported by Sudha P. etc in their study researcher high prevalence (82.5%) of dental caries among school going children⁽¹⁵⁾. In present study it was found that dental caries were more prevalence (52%) among boys than girls, This finding was also supported by Kalita C etc in which they showed that boys (45.85%) showed higher prevalence of dental caries compare to girls (40.92%)⁽¹⁶⁾.

In my study it was found that 7.69 % children were having gingivitis, supported by another study Kola srikanth etc

where they showed more prevalence of gingivitis among children⁽¹⁷⁾. Researcher highlighted that very less (25.4%) children were using tooth pick and most of (40.8%) children matchstick for remove food debris .(need Supportive study) In the present study shows more prevalence of dental caries (P=0001)among low socio- economic status families because family members not have proper hygiene, awareness regarding dental problems & they have improper intake of food items .Researcher find out that association between mother education and incidence of dental caries (P=0.006), this finding was supported by Sharma S. et in which they coraborated the idea that preventing dental caries improve mother education status ⁽¹⁸⁾ .

STRENGTH

Selection of statistical test by the researcher was based on the distribution of the research data. Researcher highlight the prevalence of dental caries, gingivitis and less importance of oral hygiene among school children.

LIMITATION

There are several limitations in the study which was accepted by researcher such as descriptive cross sectional design, study only done in school age children only very less number of participant and no intervention regarding oral care for Family members who not have more knowledge regarding dental problems among children.

CONCLUSION

High prevalence of dental caries and gingivitis were seen among school going children. Researcher highlight that low socio-economic status associated with dental caries. Poor oral hygiene practice increase incidence of dental caries among children so that there was a need of health educations for mothers and children. Regular screening programs and informative sessions on oral hygiene should be conducted in schools and community area for early diagnosis and prompt treatment for infected children.

SUGGESTION

From this study researcher suggest that there should be provision of oral health education for parents in the community areas with proper instructions on oral hygiene practices which will help in reducing incidence of dental caries and gingivitis and improve oral health among children.

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