

Original Article

AN ASSESSMENT OF TEETH CLEANING PRACTICES IN 12 AND 15 YEAR OLD SCHOOL GOING CHILDREN IN RURAL AREAS OF SANWER BLOCK OF DISTRICT INDORE, MADHYA PRADESH

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ABSTRACT

Introduction: Oral health is an essential component of health throughout life. Practices of oral hygiene built up in childhood. The present study was undertaken to assess the teeth cleaning practices of school going children.

Methods: A questionnaire was prepared to assess the teeth cleaning practices among the study subjects. After the pilot study was conducted on 86 eligible students, the sample size was determined to be 1400 students among a total of 3600 students of the 30 schools selected for study. Of the selected schools standard 7th and 10th students sufficed the age criteria. The sample was obtained by selecting the students randomly to cover the minimally required sample size as per the inclusion and the exclusion criteria.

Result & Conclusion: Assessment of oral hygiene practices of the study population revealed that majority of the population (65%) used to clean their teeth once daily using toothbrush and toothpaste in a horizontal motion, the distribution of habit being similar across both age groups and gender in the government schools, implying an overall great defect in practicing recommended methods and techniques of cleaning teeth.

Key words: Oral cavity, School children, Teeth cleaning practices and Rural areas

INTRODUCTION

Dental problems, as a social ailment, are one of the disease burden consequences of civilization for the 20th century. The past two decades have experienced a dramatic decline regarding dental diseases in children and adolescents living in Urban provinces of the country. In parallel with changing oral disease patterns there have been significant improvement in Oral health awareness, dental knowledge and attitudes of children and parents together. Conversely, increasing lev-

els of dental caries have been reported in several developing countries as India, especially for those countries where preventive programmes have yet not been implemented¹.

Systematic community-oriented oral health promotion programmes are needed to target life-style and needs of the children particularly for those living in rural areas of the country. Here it can be said that although dental caries have declined significantly among school-aged children, dental problems have remained the most preva-

lent chronic diseases of childhood². The major etiological factors accounting to improper oral hygiene are diet based on carbohydrate-rich and highly processed food products, neglect of prophylaxis and dental check-up. Because caries is a cumulative disease that begins in early childhood and periodontal disease is a disease that begins in early adolescence. Teens have the highest rate among all child age groups. Eventually a prevention oriented oral health care policy would seem more advantageous than the present curative based approach with a special focus on children belonging to the rural part of the country. Oral health is an essential component of health throughout life. According to Horowitz and co-workers, oral cavity is associated with the development of healthy personality, perceptions and the overall experiences of pleasure.³ Sir William Osler has stressed the significance of oral cavity as the 'Mirror' of general health.⁴

Across the globe there are millions of children who suffer from untreated dental caries and periodontal disease, resulting in unnecessary pain, difficulty in chewing, and lost school time.⁵ The need for improving oral health status is of a major concern in school going children as they occupy a large share of the total population. It has been seen that children who suffer from poor oral health are ten to twelve times more likely to have more restricted activity days, including missing schools, than those who do not. Annually more than 50 million hours are lost from school due to oral diseases.⁶

To plan a preventive programme, data regarding the prevalence of oral disease is required, but very few studies have been reported among rural school children.⁷ Moreover, very few studies are reported assessing the oral health status of school children in Madhya Pradesh.

So the present study was undertaken to assess the teeth cleaning practices of 12 and 15 year old school going children in rural areas of sanwer block of Indore district, Madhya Pradesh.

MATERIAL & METHODS

The present study was conducted at Sri Aurobindo Medical College & P G Institute under the guidance of department of Community Medicine. A written permission was obtained from the District Education Officer (DEO), Indore, and also by the respective Principals of all the government schools covered under study. A questionnaire was prepared to assess the teeth clean-

ing practices among the study subjects. After the pilot study was conducted on 86 eligible students, the sample size was determined to be 1400 students among a total of 3600 students of the 30 schools selected for study. The study period extended from 1st January 2013 to 30th November 2013.

All the government owned schools in Sanwer district constituted the sampling frame. The schools were stratified as primary, middle, and high school. Of which middle and high schools were selected to suffice the criteria of 12 and 15 years index age as per WHO guidelines 1997⁸. To meet the necessary sample size of 1400 out of 102 schools, 30 schools were selected by lottery method.

Of the selected schools standard 7th and 10th students sufficed the age criteria. The sample was obtained by selecting the students randomly to cover the minimally required sample size as per the inclusion and the exclusion criteria. The age of the student was obtained from the school register and also verified by the respective class teacher. The selected students were then questioned about their teeth cleaning practices.

Inclusion criteria: School going children aged 12 and 15 years in the rural areas of Sanwer block, Indore. Children studying in schools for more than 8 years (non-migratory) aged 12 and 15 years on the day of examination.

Exclusion criteria: Physically or mentally challenged children and children absent on the day of examination were excluded.

Organizing the survey: The survey was scheduled to be carried out in five months time in the school premises during day timings. The school authorities were contacted either in person or by telephonic conversation (receiving a verbal consent) and informed about the expected dates of examination. An organizing assistant was requested amongst the respective school staff for smooth functioning. The subjects were examined by a questionnaire concerning their teeth cleaning practices.

An average of 25 to 30 school children was examined per day. A total of 1400 children aged 12 and 15 years from the selected schools finally formed the sample population. The survey was conducted from June 2013 to October 2013.

Age Selection: Age 12 and 15 were selected as index ages⁸ for the study as

- a) **12 years** - this age is especially important as it is generally the age at which children leave primary school, and therefore in many countries, is the last age at which a reliable sample may be obtained easily through the school system. Also, it is likely at this age that all permanent teeth, except third molars, will have erupted. For these reasons, 12 years has been chosen as the global monitoring age for caries for international comparisons and monitoring for disease trends.
- b) **15 years** - at this age the permanent teeth have been exposed to the oral environment for 3-9 years. The assessment of caries prevalence is therefore more meaningful than at 12 years of age. This age is also important for the assessment of periodontal disease indicators in adolescents.

RESULTS

Age wise distribution of students: Of the 30 schools selected, there were total of 1400 students of 12 and 15 years of age. Among them, there were 466 of boys and 314 of girls of 12 years of age and 397 of boys and 223 of girls of 15 years of age.

Table No. 1 shows the distribution of students under study according to type of tooth cleaning practiced. Of all the 1400 students, a total of 1205(86.07%) students used toothbrush, 59(4.2%) used finger and 136(9.71%) used neem stick to clean their teeth.

Table No. 2 shows the distribution of students according to direction of cleaning their teeth. Of the total 1400 students, 1241(88.64%) practiced horizontal, 97(6.92%) circular and 62(4.42%) vertical cleaning of teeth.

Table No. 3 shows the distribution of students according to frequency of cleaning teeth. Of a total of 1400 students 52(2.71%) cleaned teeth less than once a day, 913(65.21%) once a day, 393(28.07%) twice a day, and 42(3.00%) more than twice a day.

Table no. 4 shows the distribution of students according to material used for cleaning tooth and gums. A total of 958(68.42%) used toothpaste, 306(21.8%) used toothpowder, and while 136(9.71%) used other material like neem stick and none of them used charcoal as a material to clean their teeth.

Table 1: Distribution of students according to type of tooth cleaning practiced

Age & sex	Type of Cleaning practiced						
	Tooth Brush		Finger		Neem Stick		
	N	%	N	%	N	%	
12 years	Female	273	86.90	15	4.80	26	8.30
	Male	404	86.70	14	3.00	48	10.30
	Total	677	86.80	29	3.70	74	9.50
15 years	Female	191	85.70	14	6.30	18	8.10
	Male	337	84.90	16	4.00	44	11.10
	Total	528	85.20	30	4.80	62	10.00

Table 2: Distribution of students according to direction of teeth cleaning

Age & sex	Direction of Cleaning						
	Vertical		Horizontal		Circular		
	N	%	N	%	N	%	
12 yrs	Female	11	3.50	272	86.60	31	9.90
	Male	25	5.40	409	87.80	32	6.90
	Total	36	4.60	681	87.30	63	8.10
15 yrs	Female	11	4.90	203	91.00	9	4.00
	Male	15	3.80	357	89.90	25	6.30
	Total	26	4.20	560	90.30	34	5.50

Table 3: Distribution of students according to frequency of cleaning teeth

Age & Sex	Frequency of Cleaning teeth			
	Less than Once a Day (%)	Once a Day (%)	Twice a Day (%)	More than Twice (%)
12 yrs				
Female	11 (3.50)	214 (68.20)	75 (23.90)	14 (4.50)
Male	18 (3.90)	287 (61.60)	143 (30.70)	18 (3.90)
Total	29 (3.70)	501 (64.20)	218 (27.90)	32 (4.10)
15 yrs				
Female	9 (4.00)	148 (66.40)	62 (27.80)	4 (1.80)
Male	14 (3.50)	264 (66.50)	113 (28.50)	6 (1.50)
Total	23 (3.70)	412 (66.50)	175 (28.20)	10 (1.60)

Table 4: Distribution of students according to material used for cleaning of teeth

Age & Sex	Material used for cleaning of teeth						
	None		Tooth Paste		Tooth Powder		
	N	%	N	%	N	%	
12 yrs	Female	26	8.30	219	69.70	69	22.00
	Male	48	10.30	315	67.60	103	22.10
	Total	74	9.50	534	68.50	172	22.10
15 yrs	Female	18	8.10	163	73.10	42	18.80
	Male	44	11.10	261	65.70	92	23.20
	Total	62	10.00	424	68.40	134	21.60

DISCUSSION

The distribution of students under study according to type of tooth cleaning practiced is as follows: Of all the 1400 students, a total of 1205(86.07%) students used toothbrush, 59(4.2%) used finger and 136(9.71%) used neem stick to

clean their teeth. Other studies have reported similar percentages: Ghai et al⁹ reporting 88% brush usage and 2% stick usage in rural subjects, Bhayya et al¹⁰ reporting 95% subjects using a brush and 2.87% using a finger. Also, Warnakulasuriya KAAS (1988)¹¹ conducted a study to assess social factors and oral hygiene habits among caries free children in a low fluoride area in Srilanka. Here there were significant differences in the oral hygiene habits related to use of finger versus brush.

The distribution of students according to direction of cleaning their teeth is as follows: Of the total 1400 students, 1241(88.64%) practiced horizontal, 97(6.92%) circular and 62(4.42%) vertical cleaning of teeth. Another study done by Baral et al (2009)¹² reported 40% horizontal, 15% vertical and 45% random brushing techniques in their study subjects.

The distribution of students according to frequency of cleaning teeth is as follows: Of a total of 1400 students 52(2.71%) cleaned teeth less than once a day, 913(65.21%) once a day, 393(28.07%) twice a day, and 42(3.00%) more than twice a day. The findings are consistent with a survey done by Ghai et al (2010)⁹ in a North Indian population, where 90% of rural school children cleaned their teeth using a toothbrush once a day, twice a day brushing being reported 10%. Different studies performed in other Indian populations have reported a variety of cleaning frequencies (60% brushing once, 10% not brushing and 1% brushing twice as reported by Baral et al (2009)¹²; 59% once, 1.6% never and 38.5% twice as reported by Harikiran et al (2008)¹³.)

The distribution of students according to material used for cleaning tooth and gums is as follows: A total of 958(68.42%) used toothpaste, 306(21.8%) used toothpowder, and while 136(9.71%) used other material like neem stick and none of them used charcoal as a material to clean their teeth. Other studies in this context too, have shown similar results (88% toothpaste usage and 10% toothpowder usage reported by Ghai et al⁹, only 1.44% charcoal usage reported by Bhayya et al¹⁰.) Walia S &, Sadana GK, KaurA (2011)¹⁴ conducted a study to evaluate knowledge, attitude, practices and oral health status among 1389, 12-15 years old school children in Amritsar district using WHO oral health assessment proforma (1397) to suggest an intervention plan and recommendation accordingly. It was seen that out of 1389, about 69.9%

school children use toothbrush with toothpaste to clean their teeth. Only 58.0% school children cited improper technique of cleaning teeth as another factor for causing the dental caries. Also, Warnakulasuriya KAAS (1988)¹¹ conducted a study to assess social factors and oral hygiene habits among caries free children in a low fluoride area in Srilanka. Here there were significant differences in the oral hygiene habits related to use of toothpaste versus tooth powder among the six social groups.

Thus, the horizontal cleaning of teeth using brush is a best practice since the gums are not damaged due to vertical movement of the brush.

CONCLUSION

Assessment of oral hygiene practices of the study population revealed that majority of the population (65%) used to clean their teeth once daily using tooth brush and toothpaste in a horizontal motion, the distribution of habit being similar across both age groups and gender in the government schools, implying an overall great defect in practicing recommended methods and techniques of cleaning teeth. This is because the horizontal cleaning of teeth using toothbrush does not damage the gums.

RECOMMENDATIONS

This epidemiological study has revealed the extent of dental problems in school children and this may help to plan out the appropriate preventive measures to the population in need. The present study reveals a high proportion of unacceptable standards of oral hygiene practices in the population. It is recommended that regular dental services along with oral health education as well as community preventive programs should be developed to reduce the risk of further oral disease occurrence. Health services would need to be tailored to suit a particular rural region. School-based oral health educational programs should be established to include all schools. The importance of this system to transfer not only oral health-related knowledge, but also healthy behaviors and skills to the children should be realized, and the existing system should even be modified to better serve these aims. Also, reinforcement of dental health education could be implied to children from teachers and parents education. Professional treatment being quite expensive, primary prevention by

means of oral health education programs and preventive school dental health programs, training of school teachers and parents/care-givers can be effective in increasing knowledge, modifying attitudes and hence improving oral health.. The parent-school meetings could be one useful setting employed for communication between the community, the school, and the family. To evaluate the long-term outcomes of an oral health intervention programme and to assess employment of other sectors of the school setting in improvement of the children's oral health needs for future research.

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