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ORIGINAL RESEARCH ARTICLE

Assessment of tooth brushing habits among school going children aged 11-14 years in Janakpur

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ABSTRACT

Background: Oral hygiene plays a fundamental role in maintaining overall general health of human and in this regards tooth brushing is one of the most influential methods for preventing dental caries and periodontal diseases. Brushing behaviors that children learn in their early years become strongly embedded in their minds for longer time.

Objective: To assess toothbrushing habits among school going children aged 11-14 years in Janakpurdham.

Methods: This was a descriptive cross-sectional study done for assessment of tooth brushing habit among school going children aged 11-14 years in Janakpurdham. Study includes 139 students studying at Zenith Nathanial school, Janakpurdham. This was a questionnaire-based study including parameters like frequency of brushing, timing and duration of brushing, parental supervision in brushing, type of brush used, awareness regarding need of maintaining oral hygiene etc.

Results: The study included 139 students; out of which 77.7 % were brushing once daily while only 22.3 % participants were brushing twice daily. Regarding duration of brushing; 38.8% brushed their teeth for more than 2 minutes, 38.3% brushed between 1-2 minutes, while 23.7%brushed their teeth for less than a minute; 85.6% participants rinsed their mouths after brushing teeth. Only 37.4% students received regular parental supervision during brushing; 39.6% occasionally, while 23% were never checked.

Conclusions: Results obtained in this study point towards need of school based oral health education programs for installation of positive attitude and behavior in children of this age group with regards of maintaining good oral hygiene.

INTRODUCTION

Constant accumulation of microbial deposits in oral cavity known as "plaque " is associated with diseases like dental caries and periodontal problems leading to discomfort, pain and untimely tooth loss causing significant derailment of oral health.[1] Poor oral health has significant impact on quality of life as a result of irreversible dental damage, more serious escalation of general health problem and missed school attendance. [2] Simple yet most effective method of maintaining good oral health is via regular teeth brushing habit which disrupts oral biofilm formation; ultimately preventing from diseases like dental caries and gingivitis.[3]Various studies recommend initiation of tooth brushing as early as with eruption of first primary teeth with supervised brushing twice daily for two minutes with fluoridated toothpaste in pre-schoolars.[4]

Children of age group above 11 are able to perform oral hygiene procedures without parental supervision as manual dexterity for teeth brushing usually completely develops by age of 10.[5] Piaget's theory of cognitive development places children of age above 11-years-old at the formal operational stage who are amenable to deductive reasoning where regular and proper tooth brushing habit can be instilled via trainings and education.[1,6] In school children, particularly those between the ages of 11 and 14 years, oral hygiene habits are essential since this is the age at which developmental changes are taking place, such as the change from primary to permanent dentition. At this time, children are learning to be more independent in their personal hygiene, and thus it is a good time to develop healthy habits for a lifetime.[7]

This study aimed to assess the tooth brushing habit among the school going children of age 11-14 years in Janakpurdham to establish baseline data of oral hygiene and oral health status

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which will be used as a foundation of further oral health related trainings and education strategies in future.

METHODS

A descriptive cross-sectional study was conducted among 11-14 years school going children in Janakpurdham with the main purpose to assess the tooth brushing habits. This study was carried out among students of age 11-14 years of Zenith Nathinal Academy. Permission to conduct the study was taken from school authorities. The ethical clearance for this study was obtained from Institutional Review Committee of Madhesh Institute of Health Sciences (MIHS-IRC/081/082-013). The inclusion criteria for this study were age group, health and students studying in same school.

Written consent letters with objectives of study, information sheet were sent to parents a day earlier to all the students of the age group. The consents were signed by only 139 parents. Only 139 students of age 11-14 years participated in the study. They filled the form in their classrooms. The questionnaire contained personal information, brushing techniques, habits, frequency.

The collected data were compiled and organized in Microsoft Excel vs. 2013 for windows. It was then exported to the Statistical Package of Social Science (SPSS version 23; Chicago Inc., USA). Data were analyzed for frequencies, percentage, mean and standard deviation.

RESULTS

The study encompassed children aged between 11 and 14 years, with a mean age of 11.8 years and a standard deviation of 2.75 years. Out of the total sample of 139 children, 54(38.8%) were females and 85 (61.2%) were males. 108 children (77.7%) reported brushing their teeth once daily. The remaining 31 (22.3%) stated that they brushed twice daily.

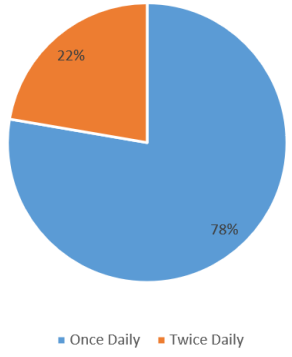

Figure 1: Frequency of tooth brushing

Similarly, on questioning about the time of the day, 127 (91.4%) children brushed in at morning, while 8(5.4%) brushed after breakfast, and only 4(2.9%) brushed after lunch. About 54(38.8%) brushed their teeth for more than 2 minutes, 54(38.3%) brushed between 1-2 minutes, while 33(23.7%) brushed their teeth for less than a minute.

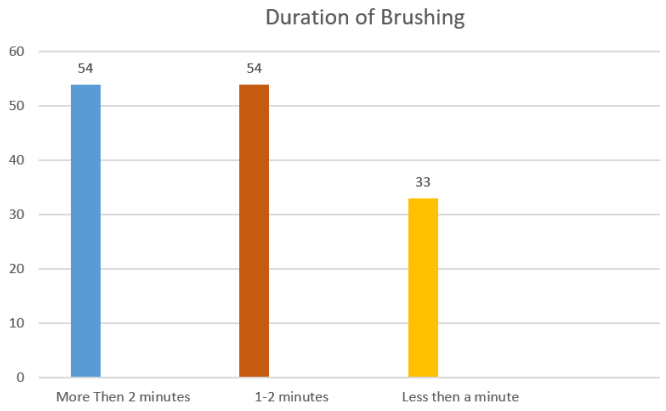

Figure 2: Duration of brushing among study participants

About 124 students (89.2%) reported using the manual method of tooth brushing, while 12(8.6%) used traditional ways like datiwan. 3 students (2.2%) were found to be using electric toothbrush.133 (95.7%) students were using toothpaste while brushing their teeth .

Majority of students (84.9%) reported that they learned about tooth brushing from their parents while 12.2% of participants revealed that they learned it on their own. Most of the children (85.6%) rinsed their mouths after brushing teeth.

About one-third of the children, 52 (37.4%), were checked daily by their parents to ensure proper tooth brushing. Another 55 (39.6%) were checked occasionally, while 32 (23%) were never checked.

When asked about the importance of brushing teeth, 83 children (59.7%) responded that it helps prevent dental caries, 25 (18%) said it keeps the mouth smelling fresh, 24 (17.3%) believed it maintains healthy teeth and gums, while 7 (5%) were unsure.

Among the children surveyed, 53 (38.1%) reported visiting the dentist every 6 months, 2 (1.4%) visited once a year, 70 (50.4%) went only when they had a problem, and 14 (10.1%) had never visited a dentist. 88 children (63.3%) reported having experienced a toothache, while 51 (36.7%) had not.

DISCUSSION

In a study conducted by Ibrahim et al[8] in Sudan, about 15.9% participants brushed two or more times a day while almost 55.8% practiced brushing only once daily. In our study, more than 2/3rd of children(77.7%) were found to brush only once daily with only 22.3% adhering to routine of brushing twice daily which varied from similar study conducted in kaski, Nepal where more than half of the children (52.6%) were brushing twice daily. [9]This variation could be due to different sociodemographic construct of these two regions . The study by Namal et al conducted in Turkey found that likelihood of developing dental caries was found to be 4.09 times higher in children who did not adhere to regular tooth brushing habit in comparison to those who brushed daily while it was 4.20 times higher than who brushed twice daily.[10] It is of concern in our

Table 1: Assessment of toothbrushing habits

Distribution of response		Frequency	Percent
When do you brush your teeth?	Morning	127	91.4
	After breakfast	8	5.8
	After lunch	4	2.9
What type of toothbrush do you use?	Manual	124	89.2
	Electric	3	2.2
	Traditional	12	8.6
Do youuse toothpaste?	Yes	133	95.7
	No	6	4.3
Who taught you to brush your teeth?	Guardian	118	84.9
	Teachers	1	0.7
	Dental	3	2.2
	Self	17	12.2
Do you rinse your mouth after brushing your teeth?	Everytime	119	85.6
	Sometimes	11	7.9
	Not really	9	6.5
Do your parents check you if you have brushed your teeth properly?	Everyday	52	37.4
	Sometimes	55	39.6
	Never	32	23.0
Why is it necessary to brush your teeth?	Teeth save from dental carries	83	59.7
	Fresh smell	25	18.0
	Healthy dental	24	17.3
	Dont know	7	5.0
How often do you visit dentist?	Every 6 month	53	38.1
	Once a year	2	1.4
	If any problem regarding tooth	70	50.4
	Never	14	10.1
Have you ever experienced tooth pain?	Yes	88	63.3
	No	51	36.7

community where only minority (22.3%) of students are following the routine of brushing their teeth twice daily.

It is believed that increased brushing time results in more plaque removal. Some studies have recommended three minutes as ideal for manual brushing while some concluded that little advantage could be realized when brushing for more than two minutes at a force of 150 grams.[11,12] Powered toothbrush designs have incorporated this understanding by incorporating timers, typically set for two minutes for accurate assessment of brushing duration.[12]

The study by shakya et al[2] found that oral health related problems contributed as major reason for loss of attendance with 32% of participants taking a sick leave due to dental pain. This burden was found to be increased in our study with 63.3% of students experiencing severe pain due to dental decay. Poor brushing habit has been found to be associated with dental caries in studies conducted in various countries. In study done by Dixit et al[13], 31% children suffering from toothache were found to have poor brushing habit.

Parent's oral hygiene behavior are often mimicked by their children. In study done by ozbek et al[14], significant association was found with regards to frequency of tooth brushing, the material used for oral hygiene, the duration of tooth brushing and method of tooth brushing between children and their parents ($p<0.01$). Parental supervision while brushing teeth was found in about 1/3rd of our students which was similar to study by Ozbek et al.[14]

In school children, particularly those between the ages of 11 and 14 years, oral hygiene habits are essential since this is the age at which developmental changes are taking place, such as the change from primary to permanent dentition. At this time, children are learning to be more independent in their personal hygiene, and thus it is a good time to develop healthy habits for a lifetime. [7]

With gain of age and experience, children start analyzing cause and consequences representing their cognitive maturation. Children are more open to deductive reasoning and abstract ideas by age of 11 years.[15]Thus, groundwork for ultimate achievement of good oral health can be laid by integrating oral health in school and community health education programs.

CONCLUSION

In conclusion, while some positive oral hygiene practices were observed, such as 91.4% of children brushing in the morning

and 95.7% using toothpaste, significant gaps remain in the frequency and quality of brushing, parental supervision, and access to regular dental care. There is a clear need for school-based oral health programs, greater parental involvement, and community health initiatives to promote preventive dental care and establish lifelong healthy habits among children.

CONFLICT OF INTEREST: None

FINANCIAL DISCLOSURE: None

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AVAILABILITY OF DATA AND MATERIALS: The datasets used and analyzed for the study are available from the corresponding author upon reasonable request

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