Original Research Article

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Assessment of the knowledge, attitude and practice of oral hygiene among primary school teachers in Navi Mumbai

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ABSTRACT

Background: School age is an important stage in an individual's development. Early education of oral hygiene by teachers can cause lifelong benefits to students since teachers are closely involved in children during their developmental stages. Oral diseases are becoming global issues and should be considered of public health importance. Yet, oral diseases are a neglected issue, rarely seen as a priority in health policy.

Methods: This study is a descriptive cross-sectional study conducted in primary school teachers from Navi Mumbai, Maharashtra. Total 400 school teachers, selected by stratified sampling technique, had participated in this study. Participants were given self-structured questionnaires with 16 dichotomous questions.

Results: 67.5% of teachers expressed that they have never received any demonstrations/lectures in maintaining oral hygiene while 82.8% never had any professional training regarding oral hygiene. For the question, Have you received training by a professional on oral health care and hygiene? teachers with less than 1 year of teaching experience 68.8% responded negatively, 78.8% with 1-5 years of experience reported with 'no' and 85.4% and 89.4% were negative responses from teachers with 6-10 years of teaching experience and 11-35 years of teaching experience respectively, showing significant value of p=0.026.

Conclusions: From this study we understood that, some degree of awareness is seen in younger aged primary school teachers, but it is not satisfactory, suggesting that teachers still have to undergo training for the same. It is hoped that this survey will help in implementation of training programs.

Keywords: Oral hygiene, School teacher, Oral health

INTRODUCTION

Over 3.5 billion people suffer from oral diseases which continue to threaten the health, well-being, and the social and economic productivity of millions of people throughout the developing world. Oral diseases are becoming global issues and should be considered of public health importance. Health education activities have a powerful effect on the behavioral characteristics of individual like oral health knowledge, attitude, practice, eating habits, tooth decay, periodontal health, and oral hygiene. ²

In 1995, WHO introduced a global school health initiative wherein they mentioned improvement of the health of students, school personnel, families and other members of the community through schools. This program also emphasizes on delivery of health education to the school children.³ There are approximately more than 1.4 million schools present in India out of which 7,65,852 are primary schools. It has been estimated that on average a student spends 800 hours per year in school.⁴ The total Indian federal budget of 2019 is 3.4 lakh crore out of which only 93 thousand crores (27%) are spent on

education. In local educational sectors, health promotion is yet to receive any importance.⁵

School age is one of the important stages in an individual's development. Students spend the majority of their time in school with their teachers. Teachers can not only help them attain skills and knowledge, but can also empower them to differentiate between beneficial and harmful lifestyle practices. Thus, the role of the school teachers cannot be overemphasized.⁶

According to Hamilton and Coulby, teachers and parents augment their ward's dental health education, therefore teachers themselves should follow proper oral health behavior so as to discharge knowledge to their students.⁷ As services can be easily made available to a large number of children including those who do not have easy access to basic health care and those who may not receive professional dental care, school is indeed a perfect place for oral health education and promotion of good oral hygiene practices.²

It is hoped that the results of the study will provide information for the design of the oral health education program tailored for school teachers and subsequently their students.

METHODS

This survey was a descriptive cross-sectional study. The study duration was 3 months. Ethical clearance was obtained from the institutional ethics committee. Sample size was calculated to be 400 by considering Confidence interval: 95% and 10% of variability. The minimum required sample size was estimated to be 362. However, an additional 10% were included in the study (n=398.2), which is rounded off to 400 in order to compensate for potential refusals. Total 400 primary school teachers from English, Hindi and Marathi medium schools were selected randomly by stratified random sampling using the lottery method. The official permission was obtained from the concerned school authorities to implement the survey. Primary school teachers in Navi Mumbai, who were willing to participate in the survey were included in the study after taking the formal written consent.

Inclusion criteria was that the school teachers should be teaching in primary schools located in Navi Mumbai whereas the exclusion criteria was the primary school teachers not wishing to participate in the survey. Participants could withdraw from the study anytime due to health, safety, personal reasons and non-compliance.

A validated, self-structured questionnaire in 3 languages (English, Hindi and Marathi) including demographic details and 16 dichotomous response questions was administered to the teachers (Annexure).

The collected data was then entered into a computer and analyzed using the SPSS version 24.0 software.

Descriptive and inferential statistical analysis was carried out in the present study. Results on continuous measurements were presented on Mean \pm SD and results on categorical measurements were presented in number (%). Level of significance was fixed at p=0.05 and any value less than or equal to 0.05 was considered statistically significant.

Chi square analysis was used to find the significance of study parameters on continuous scale between two groups (Inter-group analysis) on metric parameters.

RESULTS

The results were tabulated and percentage (100%) was calculated and conclusions were drawn. This survey presented a thorough overview of knowledge, attitudes, and practices of primary school teachers in Navi Mumbai.

In the present study, total numbers of participants were 400, out of which 350 (88%) were females and 50 (12%) were males as shown in Figure 1, with the mean age of 37.7 ± 7.6 years (Figure 1).

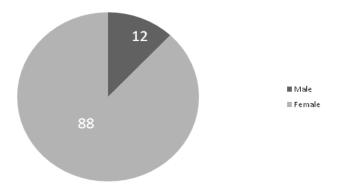


Figure 1: Percentage of female and male participants.

Maximum of population (38%) belonged to 6-10 years of teaching experience group and only 8% of participants had <1 year of teaching experience (Figure 2).

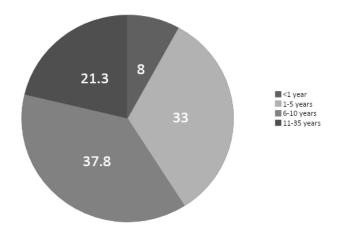


Figure 2: Percentage of years of teaching experience of different participants.

According to Figure 3, for question-6 (Do you visit the dentist every 6 months?) only 31.8% participants answered yes whereas 68.3% gave negative responses.

In question 8 (Have you attended workshop/ lectures/ demonstration regarding oral health care and hygiene?), 67.5% of participants answered as no whereas 32.5% responded with yes. Most of the teachers (98.5%) responded positively to question 10 (Do you teach your children/students/younger ones to brush twice a day?). When the question 'Has anyone made you aware about halitosis (bad breath)?' was asked, 38.3% of participants gave positive replies (Figure 3).

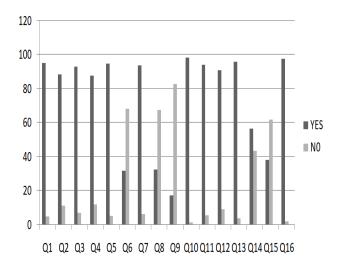


Figure 3: Responses of all the participants in yes-no format for all the 16 questions related to knowledge, attitude, and practices of oral hygiene.

From the data in Table 1, it can be seen that when the question, (If you know that tongue deposits can cause bad breath and gum disease?) was asked 96% of males and

95.1% of females gave positive responses. 98% of males and 98.6% females responded with yes when asked the question, "Do you teach your children/students/younger ones to brush twice a day?" Interestingly, 100% of males cleans their tongue daily, whereas only 95.4% of females do so. Although there is marginal difference in the result within the groups based on gender, except for question 14 nowhere else this result is statistically significant. For the question 14 (Do you use interdental (in between teeth) aids e.g., dental floss, brushes?), 76% of males responded yes and 24% males responded with no whereas, 53.7% of females gave positive responses and 46.3% gave negative responses. This question was found to be statistically significant with p=0.003 (Table 1).

As per Table 2 it can be seen that, for question number two (Do you know if sweets cause bad oral hygiene?) Teachers with less than one year of teaching experience responded positively by 96.9%. On the other hand, teachers with 1-5, 6-10 and 11-35 years of teaching experience gave positive responses of 90.2%, 87.4%, 84.7% respectively. group-1 participants have better responses than the rest three groups, but this value is not statistically significant. **Participants** responding negatively for question number 9 (Have you received training by a professional on oral health care and hygiene?), are more and maximum negative responses were by teachers with 11-35 years of teaching experience of 89.4% and least by teachers with less than 1 year of teaching experience that is 68.8%, showing statistical significance (p=0.026).

The majority of the participants answered with yes for question number-16 (Do you use toothbrush and toothpaste for cleaning your teeth?) with the highest percentage being 99.2% by the teachers belonging to the group with teaching experience of 1-5 years displaying statistically significant difference (p=0.026) (Table 2).

Categories	Q no.	Male teachers (%)		Female tea	Davidus	
		Yes	No	Yes	No	P value
Knowledge	1	96	4	95.1	4.90	0.79
	2	90	10	88.3	11.7	0.722
	3	94	6	92.9	7.1	0.767
	4	86	14	88	12	0.687
	5	92	8	95.1	4.9	0.351
Attitude	6	24	76	32.9	67.1	0.208
	7	96	4	93.4	6.6	0.482
	8	32	68	32.6	67.4	0.936
	9	22	78	16.6	83.4	0.342
	10	98	2	98.6	1.4	0.756
Practice	11	92	8	94.6	5.4	0.465
	12	90	10	90.9	9.1	0.845
	13	100	0	95.4	4.6	0.123
	14	76	24	53.7	46.3	0.003
	15	44	56	37.4	62.6	0.371
	16	98	2	97.7	2.3	0.899

Table 2: Percentage of responses based on teaching experience of the participants.

Categories	Q no.	Teaching experience <1 year (%)		Teaching experience 1-5 years, (%)		experie	Teaching experience 6-10 years, (%)		Teaching experience 11-35 years, (%)	
		Yes	No	Yes	No	Yes	No	Yes	No	
Knowledge	1	93.8	6.2	94.7	5.3	95.4	4.6	96.5	3.5	0.912
	2	96.9	3.1	90.2	9.8	87.4	12.6	84.7	15.3	0.269
	3	90.6	9.4	93.2	6.8	94	6	91.8	8.2	0.865
	4	87.5	12.5	87.9	12.1	86.8	13.2	89.4	10.6	0.948
	5	87.5	12.5	96.2	3.8	94	6	96.5	3.5	0.203
Attitude	6	25	75	27.3	72.7	36.4	63.6	32.9	67.1	0.324
	7	90.6	9.4	93.9	6.1	92.7	7.3	96.5	3.5	0.595
	8	34.4	65.6	34.8	65.2	28.5	71.5	35.3	64.7	0.615
	9	31.2	68.8	21.2	78.8	14.6	85.4	10.6	89.4	0.026
	10	96.9	3.1	97.7	2.3	99.3	0.7	98.8	1.2	0.597
Practice	11	87.5	12.5	96.2	3.8	94	6	94.1	5.9	0.303
	12	96.9	3.1	90.2	9.8	90.7	9.3	89.4	10.6	0.644
	13	90.6	9.4	98.5	1.5	95.4	4.6	95.3	4.7	0.187
	14	65.6	34.4	56.1	43.9	57	43	52.9	47.1	0.672
	15	50	50	40.2	59.8	35.1	64.9	36.5	63.5	0.42
	16	90.6	9.4	99.2	0.8	97.4	2.6	98.8	1.2	0.026

DISCUSSION

Primary school is an ideal setting after home for instilling good oral hygiene practices in growing children. From a number of studies, it has been manifested that behaviors assimilated during early age remain throughout life.2,6 School teachers play a major role after parents in instilling good habits in children.^{2,7} Thus, for the purpose of inculcating good oral hygiene habits in children, it is very important that primary school teachers ought to be very well habituated with good oral hygiene practices with a positive attitude towards it along with sound knowledge of the same. Community based oral hygiene promotional programs are still not put into effect and followed. Therefore, in this study efforts were made to assess the knowledge, attitude and practices of oral hygiene of the studied population. Various studies have already been conducted in different parts of India, and worldwide on the primary school teachers to judge their knowledge, attitude and practices towards oral health and hygiene.8-15 The strength of this study is that a large number (400) of primary school teachers representing all the primary school teachers in Navi Mumbai region were studied with 100% response rate. The limitations of this study are that there was no clinical assessment of oral cavity done to support and authenticate their responses.

Knowledge

The 11.5% teachers reported that they don't have any idea if sweets cause bad oral hygiene. The 7% of the teachers claimed that there is no knowledge of oral hygiene maintenance in their curriculum. The 12.3% don't know that circular motion is the correct method of brushing. But 94.8% of the teachers are aware that tongue

cleaning helps to improve oral hygiene. As per the data gathered, males answering yes is more than females for questions numbered as 1, 2 and 3 suggesting that males probably have better knowledge about oral hygiene than females' percentage wise. But for questions-4 and 5 females are answering more positively than males indicating that they have better understanding and knowledge of correct technique of brushing and importance of tongue cleaning for oral hygiene. Participants of this study had good knowledge overall about oral hygiene but it is definitely not adequate enough.

Attitude

When teachers were asked about if they visit the dentist every 6 months, only 31.8% answered yes whereas 68.3% gave negative responses suggesting their negligent attitude towards oral hygiene maintenance and for this reason primary school teachers should be made more aware and educated regarding regular dental check-ups and its importance. In question-8 (Have you attended workshop/lectures/demonstration regarding oral health care and hygiene?), 67% of participants are saying no according to Figure-3. In the present study, 82.8% of teachers claimed that they have never received any formal training from dental professionals on oral health care and hygiene. This result is still almost the same when compared with the study conducted in 2010 by Mota et al amongst pre-primary and primary school teachers in Mumbai.¹¹ There is still a lack of sufficient proper training for teachers by professionals from dental backgrounds. It is evident that the majority of teachers are teaching their children/students/younger ones to brush twice a day, which is an excellent thing. 100% of male

teachers and 95.4% female teachers answered yes when they were questioned if they clean their tongue daily suggesting their good attitude towards maintenance of oral hygiene. In comparison, according to their teaching experience, we realized that teachers with lesser years of teaching experience are getting some sort of proper training and knowledge by attending workshops, lectures, and demonstrations. But the older age group has not got any training whatsoever.

Practice

Overall majority of primary teachers practice good oral hygiene habits, still some more awareness is needed as 2.3% of them still don't use basic equipment like toothbrush and toothpaste which has been universally accepted. Inter-dental aids are an important part of oral hygiene as they are needed daily for plaque removal and to take out any particulate matter stuck in between the teeth and gingival margins. 16 43.5% do not use available inter-dental aids like dental floss or inter-dental brush. 5.8% of participants reported that they don't clean their teeth twice a day. As per study conducted in "Guntur city," Andhra Pradesh, India in 2014 only 18.5% were aware that the toothbrush is to be changed after a specific duration.9 But now only 9.3% don't change their toothbrush every 3 months, indicating that teachers are significantly made aware of the fact that they need to replace their toothbrush every three months. The 38.3% said that they were made aware of halitosis in some time of their lives. When comparing responses based on gender of participants, we found that the oral hygiene practices habits male teachers follow are better than female teachers to some extent. All these data suggest that primary school teachers still need some degree of sensitization towards oral hygiene maintenance. After analyzing the results, it can be said that knowledge, attitude and practices of oral hygiene in school teachers can be improved. Though some degree of awareness is seen, it is not satisfactory, which means that teachers still have to undergo training for the same.

According to Hamilton and Coulby, As teachers and parents augment their ward's dental health education, therefore teachers themselves should follow proper oral health behaviour so as to discharge knowledge to their students.7 Teacher training programs should include lectures stating importance of oral hygiene, well-informed knowledge with demonstrations and workshops of proper brushing techniques, usage of floss and interdental brushes along with tongue cleaners so that they can educate their students, children about importance of maintaining oral hygiene and teach them basic oral hygiene maintenance habits. This can be achieved by introducing new policies in not only the teacher's curriculum but also in students. One important goal of this survey is that lawmakers and officials are made aware of the situation and they do the needful. Education of the Teacher can not only improve the young generation's hygiene habits but also help empower them to take care of their own health through their vigilance. By doing so, it is possible to reach the mass of future generations for betterment of their oral health.

CONCLUSION

From this study we understood that, some degree of awareness is seen in younger aged primary school teachers, but it is not satisfactory, suggesting that teachers still have to undergo training for the same. It is hoped that this survey will help in implementation of training programs.

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Conflict of interest: None declared

Ethical approval: The study was approved by the

Institutional Ethics Committee

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ANNEXURE

Questionnaire

Name:	
Age:	
Gender: Male/Female/Other	
Teaching experience: Less than 1 year □, 1-5 years □, 5-10 years □, 10-35 years	
Please tick yes or no against each question.	

Questions related to knowledge about oral hygiene.

- 1. Do you know that tongue deposits can cause bad breath and gum disease?
- 2. Do you know if sweets cause bad oral hygiene?
- 3. Do you have knowledge on 'how to maintain oral hygiene' in your curriculum?
- 4. Do you know that circular motion brushing is the correct technique of brushing?
- 5. Do you know if tongue cleaning helps to improve oral hygiene?

Questions related to attitude about oral hygiene.

- 6. Do you visit the dentist every 6 months?
- 7. Do you think that improving and maintaining your oral health is in your control?
- 8. Have you attended workshop/lectures/demonstration regarding oral health care and hygiene?
- 9. Have you received training by a professional on oral health care and hygiene?
- 10. Do you teach your children/students/younger ones to brush twice a day?

Questions related to practices of oral hygiene

- 11. Do you clean your teeth twice a day?
- 12. Do you change your toothbrush every three months?
- 13. Do you clean your tongue daily?
- 14. Do you use interdental (in between teeth) aids e.g., dental floss, brushes?
- 15. Has anyone made you aware about halitosis (bad breath)?
- 16. Do you use a toothbrush and toothpaste for cleaning your teeth?