

Original article**AWARENESS, KNOWLEDGE AND PRACTICE OF ORAL HYGIENE AMONG SCHOOL TEACHERS
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ABSTRACT

Background: School is an important avenue for promoting oral health and teachers play a major role in planning and implementation of oral health programs. **Purpose:** The aim of this study is to evaluate the level of knowledge and attitude towards oral health among the teachers and its correlation with motivating their students to maintain good oral health. **Materials and Method:** A cross sectional survey was conducted among school teachers of Chennai city. Structured questionnaire was used to collect information about oral self-care practices, use of toothpaste, consumer preferences, fluoride, and dental visiting habits. Teachers were categorized based on their age as Group I (21-30 years), Group II (31-40 years), Group III (41-50 years) and Group IV (51 or more years). **Results:** A total of 810 teachers responded to this survey, with basic demographic data showing 85.60% were female and 14.40% were male teachers. More than half the sample had done postgraduate degree. Considering years of experience 31% had less than five years experience, while 28.40% had sixteen years and above as experience. Majority chose their tooth brushes based on the brand. Fluoridated tooth paste was used by 71% of the teachers. Most of the teachers educated their students on topics related to oral health but majority of them had not received training on that. **Conclusion:** In conclusion, the younger age group teachers had better knowledge of basic oral hygiene measures, whereas the older age group teachers were willing to update themselves and impart dental education to students.

Introduction

Oral diseases are the most common public health problems worldwide.(1) In the past fifty years we have witnessed a reduction in the severity and prevalence of oral disease among the population of the developed countries.(2,4) It also resulted in more adults being able to keep their natural dentition functional into a later age.(2,5) Evidence had showed that strong knowledge of oral health demonstrates better oral health care practice.(6) Oral health knowledge is considered to be an essential prerequisite for health-related behavior.(7) Oral hygiene promotion involves any combination of

educational, organizational, economic and environmental supports for behaviour conducive to oral health.(8)

Health education in schools is a function of the school teachers.(9) In a life cycle perspective, childhood and adolescence are crucial periods for the development of health practices. Both parents and schoolteachers have a great potential to influence this process. As a platform, school can provide both a supportive environment for promoting oral health and important networks to the local community and families.(10) In recent years, a wide variety of projects have been

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Table -1 Socio Demographic Data

		N	%
Gender	Male	117	14.4
	Female	693	85.6
Age group	21 - 30 yrs	168	20.7
	31 - 40 yrs	317	39.1
	41 - 50 yrs	212	26.2
	51 yrs or more	113	14.0
Graduation level	UG	303	37.4
	PG	423	52.2
	Others	84	10.4
Main Subject in degree	Science	368	45.4
	Arts & Commerce	358	44.2
	Others	84	10.4
Teaching experience	< 5 yrs	251	31.0
	6 - 10 yrs	191	23.6
	11 - 15 yrs	138	17.0
	16 yrs or more	230	28.4
Total		810	100.0

undertaken to improve public awareness and knowledge of oral health in general, and periodontal health in particular.(11) The etiology of caries and periodontal diseases is well known to be influenced by the person’s way of life.(12) Now a days there is an increasing public awareness about the value of personal oral hygiene with more number of people aware about the prevention of dental caries and periodontal diseases, in order to retain their teeth and new emphasis

Table -2 Brushing Habits

		N	%
Method of cleaning the tooth	Tooth brush and paste	788	97.3
	Tooth brush and powder	13	1.6
	Finger and powder	2	.2
	Neem stick	4	.5
	Others	1	.1
	No answer	2	.2
Type of tooth brush use	Soft bristles	372	45.9
	Medium bristles	402	49.6
	Hard bristles	21	2.6
	Don't know	8	1.0
	No answer	7	.9
Basis of selecting toothbrush	Dentist	146	18.0
	Dealers	6	.7
	Brand	534	65.9
	Design	40	4.9
	Advertisements	38	4.7
	Cost factor	20	2.5
	Others	16	2.0
	No answer	10	1.2
How often tooth brush changed	Once in 3 months	492	60.7
	Once in 6 months	189	23.3
	Yearly once	13	1.6
	When bristles damaged	88	10.9
	Don't know	22	2.7
	No answer	6	.7
Total		810	100.0

on cosmetically attractive dentition. The reasons for the improved oral health are complex but may involve a

Table -3 Type of Paste

		N	%
Type of tooth paste used	With fluoride	575	71.0
	Without fluoride	79	9.8
	Don't know	143	17.7
	No answer	13	1.6
Benefit of fluoride	Good taste	40	4.9
	Makes teeth white	233	28.8
	Strengthens the teeth	370	45.7
	Don't know	147	18.1
	No answer	20	2.5
Amount of tooth paste used	Full length	236	29.1
	Half of length	389	48.0
	Pea size amount	178	22.0
	No answer	7	.9
Placement of tooth paste in brush	On the top	569	70.2
	In between bristles	204	25.2
	Not aware	32	4.0
	No answer	5	.6
Total		810	100.0

more sensible approach to sugar consumption, improved oral hygiene practices, fluorides in toothpaste, topical fluoride application, and effective use of oral health services and establishment of school-based preventive programmes. (13-18)

Studies have showed that appropriate oral health education can help to cultivate healthy oral health practice. (19) In order to create such health education, the assessment of knowledge, attitude and practice is essential. (20) The aim of this study is to evaluate the level of knowledge and attitude towards oral health

among the teachers in Chennai and to determine the relationship between their oral health knowledge,

practice and their attitude to motivate their students to maintain good oral health.

MATERIALS AND METHOD

The subjects for the study were chosen at random. The research work was carried out between January to April 2016. The preferred target population for the study was determined as preschool, elementary school, middle and higher secondary school teachers. The nature and purpose of the study was explained to the teachers, its voluntary nature was emphasized and strict confidentiality was assured as names were not required on the questionnaires. At the end of the survey, we collected 810 questionnaires filled by the participants. For each respondent group, a self-administered structured questionnaire which was designed to have multiple responses was used to collect information about oral self-care practices, use of toothpaste, consumer preferences, fluoride knowledge, and dental visiting habits (Figure 1). The questionnaire included 18 items designed as “Part A” to evaluate the knowledge, attitudes, self-care practices and behaviour of school teachers regarding their oral health. The participant was asked to select one response, or more than one for some of the questions. It includes the following:

1. Personal information: Age, sex, Qualification and years of experience.
2. Questions on toothbrush: The type of tooth bristles, Selection of toothbrush.
3. Questions on toothpaste: Use of toothpaste with or without fluoride, benefits of fluoride

Table -4 Brushing details

		N	%
Time of brushing teeth	Morning	306	37.8
	Morning & Night	497	61.4
	After every meal	7	.9
Duration of brushing teeth	1 minute or less	117	14.4
	2 - 4 minutes	610	75.3
	5minutes & above	77	9.5
	No answer	6	.7
Clean the tongue	Yes	685	84.6
	No	117	14.4
	No answer	8	1.0
Total		810	100.0
Method of cleaning the tongue	Tongue cleaner	432	63.1
	Tooth brush	174	25.4
	Fingers	66	9.6
	Others	8	1.2
	No answer	5	.7
Total		685	100.0
Habit of rinsing mouth	Yes	539	66.5
	No	74	9.1
	Sometimes	177	21.9
	No answer	20	2.5
Use of any oral hygiene aids	Dental floss	26	3.2
	Mouth wash	268	33.1
	Tooth pick	83	10.2
	Nil	384	47.4
	Others	10	1.2
	No answer	39	4.8
Total		810	100.0

Table -5 Oral care

		N	%
Visited a dentist	Yes	554	68.4
	No	249	30.7
	No answer	7	.9
Total		810	100.0
Purpose of visit	General check up	160	28.9
	Emergency	124	22.4
	Extraction	49	8.8
	Gum treatment	23	4.2
	Filling	111	20.0
	Cleaning	82	14.8
	No answer	5	.9
Received any oral health instruction manual	Yes	322	58.1
	No	207	37.4
	No answer	25	4.5
Total		554	100.0

4. Questions on oral hygiene practice and teeth cleaning aid: Tooth brush, dental floss and times of cleaning teeth.

5. Questions on dental visiting habit: Treatment delivered, oral health instruction provided by dentist or auxiliary.

Addressing attitudes towards promoting schoolchildren's oral health 8 items were included in "Part B" of the questionnaires. The questionnaire was pretested/ piloted prior to their use, with one hundred and three selected school teachers who were requested to complete the questionnaire. The questionnaire was modified based upon responses and the survey format was finalized. The questionnaire was organized into

two sections. A letter explaining the purpose of the study was sent to selected school Principal in order to get permission to conduct the study. The study was

approved by the ethical approval committee at Meenakshi University. Descriptive statistics the data were analyzed using the Statistical Package for Social Science 11.0 (SPSS 11.0, Inc., Chicago, IL). To compare proportions Chi Squared test was applied.

RESULTS

A total of 810 teachers responded this survey. The basic demographic data showed that 85.60% were female, 14.40% only were male teachers. Majority of them were in the age group of 31-40 years (39.10%). More than half the sample 52.20% had done postgraduate degree, with almost 45.40% was having Science as the subject which they taught. Considering the years of experience 31% had less than five years experience, while 28.40% had sixteen years and above as experience in their career. (Table1)

We categorized the teachers based on their age for comparing their knowledge and practice as Group I (21-30 years), Group II (31-40 years), Group III (41-50 years) and Group IV (51 or more years). The oral hygiene practices among teachers are summarized as follows:

1. Type of Brush

Regarding their practice of oral hygiene majority of the teachers 97.30% used tooth brush and paste to clean their teeth. There were 49.60% teachers who preferred medium type of bristles, selection of the tooth brush was based on brand for 65.90% of them. In Group II 68.80% of the teachers purchased their tooth brush from the market based on brand (p-value 0.002). There

Table -6 Oral Hygiene education imparted to students

		N	%
Type of education given to students	Type, eruption, structure, and function of teeth	45	13.4
	Brushing, dietary habits and oral injuries	227	67.4
	Decay, gum problem, irregular teeth their causes treatment and prevention	46	13.6
	Others	11	3.3
	No answer	8	2.4
Method adopted to educate students	Oral health talks	205	60.7
	Models, Charts, Posters	68	20.1
	Audio visual aids	56	16.6
	Others	2	.6
	No answer	7	2.1
Students' response to the dental education	Favourable	302	89.3
	Unfavourable	29	8.6
	No answer	7	2.1
Thought that dental education benefited the students	Yes	298	88.2
	No	29	8.6
	No answer	11	3.3
Total		338	100.0
Want to educate the students about dental health care	Yes	685	84.6
	No	44	5.4
	No answer	81	10.0
Total		810	100.0

were 60.70% of them who would change their tooth brush once in three months. (Table 2)

1. Type of tooth paste

The results related to tooth paste reveals that 71% of them used tooth paste with fluoride, and 45.70% of

them were aware about the benefits of fluoride that it makes the tooth stronger. When questioned about the amount of tooth paste used 48% responded that they used half the length of the tooth brush, among which 55.40% fell in Group I (p-value 0.009). Furthermore 70.20% of them placed the tooth paste on the top of the tooth brush, among which 77.40% fell in Group III (p-value 0.001). (Table 3)

2. Oral hygiene practice

Most of the teachers nearly 61.40% brushed their teeth twice in the morning and night, among which 70.80% fell in Group IV (p-value 0.003). The duration of brushing observed in 75.30% of the teachers was 2-4 minutes brushing. Tongue brushing (from back to front) to reduce the accumulation of plaque and debris on the tongue can reduce halitosis. Apart from brushing 84.60% of the teachers would clean their tongue, among which 89.30% fell in Group I (p-value 0.012). There were 63.10% of the teachers who used tongue cleaner, among which 70.70% fell in Group I (p-value 0.028). Majority of the teachers 66.50% had the habit of rinsing their mouth after every meal. With regards to the use of other oral hygiene aids, 47.40% had never used any aids and 33.10% of the teachers used mouth wash. (Table 4)

3. Dental visiting habits

There were 68.40% of teachers who had visited a dentist, among which 78.80% fell in Group III (p-value 0.001). The purpose of their visit for 28.90% was general check up, 22.40% sought dental service for emergency purpose, among which 42.60% fell in Group III (p-value 0.020) and 20% had restorations done by their dentist. When questioned about whether/they received any oral health instruction manual from the dentist during their visit 58.10% responded positive for receiving them. (Table 5)

1. 5. Oral health programme executed by school teachers

Majority of the teachers (64%) were educating their students on topic related to teeth and mouth, among which 68.50% fell in Group II (p-value 0.023). Even though 73.10% disclosed that they were not trained related to dental care, among which 84.10% fell in Group IV (p-value 0.008). There were 51.40% of the teachers who attempted to motivate their students on dental care. The topics related to brushing, dietary habits and oral injuries were shared by 67.40% of teachers, mainly through oral health talks by 60.70% of teachers. Majority of the teachers (89.30%) were content that their student responded favorably to their dental education, Of which 88.20% felt that it was beneficial to their student in some manner, among which 93.50% fell in Group IV (p-value 0.010). It is observed that 84.60% of the teachers were willing to educate and motivate their students related to oral health care. (Table 6)

DISCUSSION

This represents the first study of its kind that explored the issues about oral health knowledge, practice and teacher's role in promoting oral health in school. Given the general state of living as observed during the study, the very high response rate (97.30%) of the teachers reported using a tooth brush to clean their teeth. This finding is similar to that observed by Nabil Al-Beirut, Mohd. Abdullah were 76.20% and 74.90% respectively. (21, 22) With regards to the material of the bristles in the tooth brush all the participants used nylon bristles and the texture of the bristles (49.60%) used was medium type which is higher than that reported in the Syrian Arab Republic 14.30%. (21) However when questioned about the selection of the

tooth brush 65.90% selected based on the brand which is in contrast with the finding observed by Nabil Al-Beirut (39%), where the respondent selected the tooth brush based on dentist's advice. (21)

The usage of fluoridated tooth paste by 71% teachers agreed with a study done in earlier studies of school teachers and middle aged adults living in urban areas of China and contrast to the findings of Nabil Al-Beirut were only 41% used fluoridated tooth paste. (21,23,26) Interestingly nearly half of the teachers 45.70% reported that brushing the teeth with fluoride tooth paste can strengthen resistance of tooth surfaces which is similar to the findings of Nabil Al-Berirut 57.10%. (21) The teachers were aware about fluoride through mass media. However this result does not agree with the observations made by Mohd. Abdullah (14.90%) and Bondarik Elena (88%) about the profit of fluoride using. (22, 27) The low level knowledge about fluoride use found among respondent might be the result of the limited emphasis placed on this preventive method by dental professionals. (28)

Most of the subjects in our study performed the recommended practice of brushing twice a day. Nearly three fourth of them brushed their teeth for 2-4 minutes which is in contrast to the findings of Nabil Al-Berirut where most of them brushed for less than one minute. (21) The mechanical oral hygiene measures have been supplemented by chemotherapeutic agents that can greatly improve oral hygiene. Even though dental floss is the most effective means for removing interdental plaque and reducing interdental gingival inflammation, it is surprising to note that very few teachers were using other oral hygiene aids like mouth wash, dental floss and nearly half of them are not even aware of the usage of other aids. The findings of this study suggest that awareness of the importance of oral health

definitely needs to be enhanced among teachers. Since shortage of trained dental personnel means teachers are often expected to teach as well as to provide basic dental treatment and oral health education, responsibilities that teachers are considered ill-equipped to carry out. (29)

The driving force for the teachers to visit the dentist was general checkup (28.90%) followed by dental emergency of tooth ache (22.4%), which does not agree with the findings of Nabil Al-Beriruti were 69.50% reported that they visit the dentist when they have tooth ache.²¹ On questioned about whether they received any instruction in oral hygiene practice 58.10% responded affirmative which is contrary to the study done by Nabil Al-Beriruti were 57.10% responded negatively. (21)

Health promotion programs must take into account the characteristics, abilities and lifestyle of the community, with realistic expectations for what skills is achievable. (8)

Most importantly, the dissemination of oral health messages in school was also poor and about half of the schoolteachers did not sufficiently understand their role in promoting children's oral health. Children spend considerable time in school and health education may target children at an age when their health habits are being formed. Most of the teachers (84.60%) wanted to educate their students on dental health practice which is similar to the findings of Bondarik Elena (73%). (27) Nevertheless, establishing good hygiene habits is valuable for present and future oral health.

CONCLUSION

In conclusion, the younger age group teachers (Group I and II) had better knowledge of basic oral hygiene measures, whereas the older age group teachers (Group III and IV) were willing to update themselves and

impart dental education to their students. There is a pressing need for oral health to be promoted in schools worldwide. The findings of this study suggest that awareness on the importance of oral health needs to be enhanced among the school teachers as they can be a powerful source of motivating the children to maintain good oral hygiene.

Figure 1: Awareness about dental hygiene among school teachers.

(Please put a circle for the appropriate answer for all questions)

PART- A Sl no ___ ___ ___

1. Personal information.

Age (years): _____ Sex: Male / Female

Qualification: _____

A01a. Subject you teach:

- 1) Language 2) Science 3) Math
4) Others _____

A01b. Number of years of experience: _____ years

A02. How do you clean your teeth?

- 1) Tooth brush and tooth paste 2) Tooth brush and tooth powder 3) Finger and tooth powder 4) Neem stick 5) Others _____

A03. What is the type of tooth brush you use?

- 1) Soft bristles 2) Medium bristles 3) Hard bristles
4) Don't know

A04. On what basis do you select your toothbrush?

- 1) Dentist 2) Dealers 3) Brand 4) Design
5) Advertisements 6) Cost factor
7) Others _____

A05. How often you change your tooth brush?

- 1) Once in 3 months 2) Once in 6 months 3) Yearly once 4) When the bristles get frayed 5) Don't know exactly

A06. What type of tooth paste do you use?

- 1) With fluoride 2) Without fluoride
3) Don't know

A07. According to you, what is the benefit of fluoride?

- 1) Good taste 2) Makes teeth white 3) Strengthens the teeth 4) Don't know

A08. The amount of tooth paste you use to brush?

- 1) Full length 2) Half of length 3) Pea size amount

A09. Where do you place the tooth paste in the tooth brush?

- 1) On top of the bristles 2) In between the bristles
3) Not aware

A10. When do you brush your teeth?

- 1) Morning 2) Morning & night 3) After every meal 4) Irregularly

A11. How long do you brush your teeth?

- 1) 1 min or less 2) 2-4 min 3) 5 min & above

A12. Do you clean your tongue?

- 1) Yes 2) No (If NO, go to question A14)

A13. How do you clean your tongue?

- 1) Tongue cleaner 2) Tooth brush 3) Fingers
4) Others _____

A14. Do you have the habit of rinsing your mouth after every meal?

- 1) Yes 2) No 3) Sometimes

A15. Do you use any other oral hygiene aids?

- 1) Dental floss 2) Mouth wash 3) Tooth pick 4) Nil
5) Others _____

A16. Did you visit a dentist?

- 1) Yes 2) No (If NO, go to PART- B)

A17. What was the purpose of visit?

- 1) General checkup 2) Emergency (Tooth pain)
3) Extraction 4) Gum treatment 5) Filling
6) Cleaning

A18. Did you receive any oral health instruction manual during that visit?

- 1) Yes 2) No

PART- B

B01. Do you educate topics related to teeth and mouth to your students in your school?

1) Yes 2) No

B02. Are you trained to give education on topics related to dental care?

1) Yes 2) No

B03. Have you made any attempt to educate your students related to dental care?

1) Yes 2) No **If answer is NO, go to C08.**

B04. What was the dental education you have given to your students?

1) Type of teeth, eruption, structure and function.

2) Brushing, dietary habits and oral injuries.

3) Tooth decay, gum problem, irregular teeth their causes, treatment and prevention.

4) Others _____

B05. What method do you adopt to educate your students?

1) Oral health talks 2) Models, charts, posters

3) Audio visual aids 4) Others _____

B06. What is the student's response for the oral health education?

1) Favourable 2) Unfavourable

B07. Do you think oral health education has benefited your students?

1) Yes 2) No

B08. Do you want to educate your students about dental health care awareness?

1) Yes 2) No

Thank you for your participation.

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