

# Oral Health Related Knowledge, Attitude and Practices among High School Students in Bangalore – A Cross Sectional Study

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## Abstract

**Objective:** To assess oral health related knowledge, attitude and practices among high school students in Bangalore

**Methods:** A validated, structured, pretested questionnaire was distributed to 440 high school students in using cluster random sampling, aged 14-17 years residing in Bangalore, India. **Results:** Private school students (74.09%) had better knowledge than that of government school students (70.10 %). Also the private school students (75.27%) had favorable attitude when compared to that of government school students (69.4%). The oral hygiene practices were better in private school students (59.74%) than that of government school students (43.70%). **Conclusion:** Findings from the study reveal that knowledge, attitude and practices concerning oral health among high school students in Bangalore city are in need of improvement. Comprehensive community-oriented oral health promotion programs are required to achieve this goal.

**Keywords:** Health Education Model, School Children, Oral Diseases, Health Education Approaches

## Introduction

“While the eyes may be the window to the soul, our mouth is a window to our body’s health”. The state of your oral health can offer lots of clues about your overall health. Oral health may be defined as a standard of health of the oral and related tissues which enables an individual to eat, speak and socialize without active disease, discomfort or embarrassment and which contributes to general well being<sup>1</sup>.

Oral health promotion through schools is recommended by the World Health Organization for improving knowledge, attitude, and behavior related to oral health and for prevention and control of dental diseases among school children.<sup>2</sup>

In many countries, a considerable number of children have limited knowledge of the causes

and prevention of the most common oral disease. Similarly, mother’s oral health knowledge is generally poor and school teachers oral health knowledge, while better than that of the mothers, remains unsatisfactory. Only a small proportion of children, parents and schoolteachers is aware of the harmful effects of hidden sugars and sugary drinks. Moreover, while many parents recognize parents recognize the importance of tooth brushing in general, some do not know how to prevent tooth decay and gum diseases and the role of fluoride in the prevention of dental decay is poorly understood. In many countries, less than half of mothers have received oral health advice from dentists.<sup>2</sup>

In India, the prevalence of dental caries among 12 year old is 53.8% and among 15 year old is 63.1% and still 22% of 12 year olds and 20.8% of 15 year olds use fingers to brush their teeth.DCI<sup>3</sup>.



This can be attributed to the fact that our society has not valued oral health, and the consequences of this on children are experience of pain, endurance of dental abscesses, problems with eating and chewing, embarrassment about the discoloration, damage or shape of teeth can distract children from play and effective learning. Oral health affects general health. If left untreated even for a short period of time, oral diseases can have adverse consequences. <sup>2</sup>

Strong knowledge of oral health demonstrates better oral hygiene practice <sup>4</sup>. Similarly for those with more positive attitude towards oral health are influenced by better knowledge in taking care of their teeth. Studies have showed that appropriate oral health education can help to cultivate healthy oral health practice <sup>5</sup>. The change to healthy attitude and practice can be occurred by given adequate information, motivation and practice of the measures to the subjects <sup>4</sup>. In order to create such health education, the assessment of knowledge, attitude and practice is essential <sup>6</sup>. It is the primary concern of oral health professionals to impart a positive oral health knowledge and behavior in the children and society as whole.

### **Objective**

To assess oral health related knowledge, attitude and practices among high school students in Bangalore

### **Materials and Methods**

The tool was developed in two phases. In the first phase, a questionnaire was prepared which included, 21 questions to assess their knowledge, attitude and practice regarding oral health. The tool was subjected to content validation. All the questions were found to be essential pertaining to the objective of the study and the tool received positive CVR from the subject matter expert raters.

In the second phase the tool was subjected to

linguistic validation, to ensure that the questions were translated in a reliable way. To achieve this, the questionnaire was sent to Institute of Translation Studies, Rajajinagar for linguistic evaluation. Back translation to English was done and the translation was found to be valid.

The validated tool, was then piloted study on 50 private and government school children in Bangalore with the objective of pre-testing the tool to assess the children's ability to understand the questions and answer them without any help and to estimate sample size for the main study. From the pilot study conducted, it was observed that the average percentage score of knowledge about oral hygiene was 79.30 (in %). Therefore using the formula  $4pq/l^2$  with 95% confidence interval and 5% of relative precision, sample size was estimated to be 419, it was rounded of to 440 to get equal representation in 4 government and 4 private school.

Bangalore was arbitrarily divided into two zones (North and South). 4 private and 4 government schools were selected from these zones. High school students (8<sup>th</sup>, 9<sup>th</sup> and 10<sup>th</sup> std) in the age group of 12 to 17 years (mean age of 14.5 years) who were present at the day of data collection participated in the study.

Ethical clearance was obtained from "Institutional Review Board, M.S.Ramaiah Dental College and Hospital" and consent from the head of the schools was obtained. The students received instruction of how to fill in the questionnaire. It took the students about 15 min to fill all the questionnaires. Interaction amongst themselves was not allowed and the children were informed of the importance of answering the questions honestly. Questionnaires were completed under the supervision of investigator.

Knowledge refers to oral hygiene information possessed by individual. This was measured by asking 9 questions of dichotomous scale whereby



1 indicates 'Agree' and 0 indicates 'Disagree' or 'Don't know' (except item 7 where 1 indicates 'Disagree' and 0 indicates 'Agree').

Attitude is a positive or negative evaluation of a practice, and that performance of that practice will lead to valued outcome. This was measured by asking questions of dichotomous scale whereby 1 indicates 'Agree' and 0 indicates 'Disagree' or 'Don't know' (except item 11, 12, 13 where 1 indicates 'Disagree' and 0 indicates 'Agree').

Practice refers to all of a person's actions that affect oral health. This was measured by a dichotomous scale whereby 1 indicates 'Yes' and 0 indicates 'No' or 'Rarely'.

### Statistical Analysis

Descriptive statistics were obtained and the Average % score of Knowledge, Attitude and Practice was analyzed and presented in terms of mean with S.D and its 95% confidence interval using computer statistical program, SPSS 16.0. Independent t-test was used to compare the average % score of Knowledge, Attitude and Practice between the schools.

### Result

The study was conducted among 440 students (220 students of private schools and 220 students of Government schools) in North and South Bangalore, in which 223 male and 217 female students of mean age 14.5 participated. The result of the study shows that private school students (74.09%) had better knowledge than that of government school students (70.10 %). Also the private school students (75.27%) had favorable attitude when compared to that of government school students (69.4%). The oral health related practices were better in private school students (59.74%) than that of government school students (43.70%).

**Table 1. Knowledge, Attitude, Practices score of oral health (N=440)**

Variable	Average score (%)
Knowledge	72.09
Attitude	72.33
Practice	51.72

**Table 2. Relationship between type of school and Knowledge, Attitude, Practices score of oral health**

Variable	Private School Average Score (%)	Government School Average Score (%)	P - Value
Knowledge	74.09	70.10	0.05
Attitude	75.27	69.40	0.96
Practice	59.74	43.70	0.07

\*Significant ( $p < 0.05$ )

### Discussion

This study assessed the knowledge, attitude, practice regarding oral hygiene among high school students in Bangalore. From the result obtained, it can be observed that the overall oral hygiene knowledge among the high school students was 72.09%, attitude was 72.33% and practice was 51.72%. Also, it shows that to a level, the overall oral hygiene knowledge, attitude and practice were better in private high school children than the government high school students. But this mild difference is just seen in the bigger picture. When we dissect and observe the individual statistics, the following things can be noted.



**Table 3. Relationship between type of school and knowledge towards oral health**

	Variable	Average % Score				p - Value
		Private School		Government School		
		Agree %	Disagree/ Don't know %	Agree %	Disagree/ Don't know %	
1.	Brushing teeth twice daily prevents teeth problems	97.72	02.28	91.81	08.19	0.00
2.	Visiting the dentist once in 6 months is good for the oral health	93.60	06.40	89.54	10.46	0.02
3.	Regular brushing of teeth and flossing prevents gum diseases	71.36	28.64	44.54	55.46	0.00
4.	Brushing with tooth brush and paste is best for the teeth	95.90	04.10	93.63	06.37	0.03
5.	Rinsing of mouth after every meal prevents teeth problems	95.45	04.55	87.27	12.73	0.00
6.	Use of Fluoridated tooth pastes prevents tooth decay	14.54	85.46	37.72	62.28	0.00
7.	Tooth powder is better than tooth paste	57.20	42.80	52.70	37.30	0.24
8.	With brushing, also using materials like dental floss, mouth rinses, tongue scrapers etc., prevents teeth problems	65.00	35.00	65.45	34.55	0.84
9.	There are different types of tooth brushes available in the market and it is important to select the right tooth brush for my teeth	90.45	09.55	83.63	16.37	0.00



**Table 3. Relationship between type of school and attitude towards oral health**

	<b>Variable</b>	<b>Average % Score</b>				<b>p - Value</b>
	<b>Attitude</b>	<b>Private School</b>		<b>Government School</b>		
		<b>Agree %</b>	<b>Disagree/ Don't know %</b>	<b>Agree %</b>	<b>Disagree/ Don't know %</b>	
10.	Teeth are an important part of the body	95.00	05.00	95.90	04.10	0.36
11.	Keeping teeth clean is not needed as tooth loss is natural and inevitable	15.00	85.00	26.80	73.20	0.00
12.	I select my tooth paste seeing the advertisements on the T.V.	44.50	55.50	61.80	38.20	0.01
13.	I don't go to the dentist until I have pain in my teeth	52.70	47.28	56.80	43.20	0.11
14.	Proper brushing method should be learnt for keeping the teeth healthy	93.63	06.37	93.36	03.64	0.00
	<b>Variable</b>	<b>Average % Score</b>				<b>p - Value</b>
	<b>Practices</b>	<b>Private School</b>		<b>Government School</b>		
		<b>Agree %</b>	<b>Disagree/ Don't know %</b>	<b>Agree %</b>	<b>Disagree/ Don't know %</b>	
15.	I brush my teeth once in the morning and once before sleeping at night	66.80	33.20	26.81	73.19	0.00
16.	I brush my teeth for about 2-3 minutes	86.36	13.64	80.90	19.10	0.00
17.	I change my tooth brush once in every 3-4 months or sooner if the bristles of the brush are frayed	71.36	28.64	26.36	73.64	0.28
18.	I visit my dentist once in every 6 months	49.09	50.91	26.36	73.64	0.00
19.	I brush my teeth in the way my dentist taught me.	82.27	17.73	65.27	34.73	0.00
20.	I use tooth paste with fluoride in it	23.63	76.37	35.90	64.10	0.00
21.	I use other materials like dental floss and/or mouth rinse etc., daily	38.63	61.37	33.63	66.37	0.03



### Oral Health Related Knowledge

School children studied had good knowledge about oral health in the areas of brushing teeth twice daily, visiting dentists once in 6 months, brushing with tooth brush and paste and about rinsing of mouth after every meal. These findings demonstrate that the school children had good information about basic aspects of oral hygiene. But when we look in to the other individual statistics, item 3, 6, 7 (Table 3) are noteworthy.

In item 3 (Table 3), 71.36 % of the private school students answered that they agree that regular brushing of teeth and flossing prevents gum diseases, 55.46% of government school students did not have knowledge about it. This correlates with the results from the previous study by Harikiran AG et al <sup>7</sup> and Varenne et al <sup>8</sup> in which awareness of students thought that brushing teeth prevents tooth decay and gum diseases was high. The knowledge about the use of dental floss and gum diseases were less in the government high school students as compared to the private high school students. This difference may be due to, the information the government school students get about oral health and hygiene from their parents or in the school from their syllabus and teacher, is comparatively less than that the private school students receive.

In item 6 (Table 3), only 14.54% of private high school students and 37.72% of government high school students answered that they agreed that the use of fluoridated tooth paste prevents tooth decay. When we look in to the individual statistics, the government school students had better knowledge about this than private school student and the difference is a significant one. But the overall knowledge about fluoridated tooth paste is very poor in both the schools. This less knowledge about fluoridated tooth paste may be due to the information provided to these students about the importance of fluoride and its uses in maintaining healthy teeth is not sufficient. This results when compared to the study by Harikiran

AG et al, <sup>7</sup> it was similar where in there 36.3% of the students said fluoride prevents tooth decay.

In item 7 (Table 3), 57.2% and 62.7% private and government high school students respectively agreed that the tooth powder is better than tooth paste. It can be observed from this that majority of the students still feel that tooth powder is better than tooth paste, where in the excess use of tooth powder is bad for the teeth as it causes abrasion.

### Oral Health Related Attitude

The overall attitude towards the oral health was found to be favorable (75.27 % in private high school students and 69.4% in government high school students). Here again there is a difference between the two schools.

From the items 10, 11, 14 (Table 3) it can be observed that the students had favorable attitude towards maintaining oral health. They demonstrated that they had a positive attitude towards oral health by agreeing to the question that teeth are important part of the body (95% students) and they desired to learn proper methods to keep their teeth healthy which contrasts to the study conducted by Harikiran AG et al.,<sup>7</sup> where in only 20.9% considered keeping natural teeth was important.

But in item 12 (Table 3) it can be seen that 44.5% and 61.8% of private and government school students agreed that they select their tooth paste randomly seeing the advertisements on the T.V. Lack of child oral health education might explain these findings. In item 13 (Table 3), it is clearly portrayed that 56.8% and 52.72% of private and government school students visit their dentist only if they have pain. This reflects on their lack of positive drive to have regular dental checkups to maintain good oral health. These findings agreed with the previous results conducted by Al-Omiri MK et al., in North Jordan school children where irregular visits to dentists were common. <sup>6</sup>



### Oral Health Related Practice

From the group statistics it is seen that overall oral health related practices was not up to the mark in both the schools (51.72%).

This survey found that 46.80% brushed their teeth twice which was similar to a study by Zhu et al<sup>9</sup> (44.4%) but differed from a study by Harikiran AG et al.<sup>7</sup> which reported lesser (38.5%). The children in the study believed brushing teeth twice daily prevent teeth problem, item 1 (94.76%)

From item 15, 17, 19 (Table 3) it can be inferred that oral health related practices of the government high school students were significantly poor as compared to their private high school counterparts. This is similar to the results obtained in the study carried out among the students of Nigeria by Sa'adu,<sup>10</sup> where all respondents also brushed their teeth at least once a day and did not change their brush in every 3-4 months. The reason might be due to their lower socio-economic status.

In item 18 (Table 3) it is observed that the both the school students do not visit their dentist once in 6 months or in frequent dental visits (37.72%) and it is similar to the results of the study by Al-Omiri MK et al., in North Jordan school children<sup>6</sup> but in contrast to studies by Petersen et al (66%)<sup>11</sup> and Wierzbicka et al (61%)<sup>12</sup>. This result is correspondence to their attitude seen in item 13 that they visit their dentist only when they are in pain.

In item 20, (Table 3) most of the students answered that they rarely/ never use fluoridated tooth pastes (29.76%). This finding contrasts with that of the results seen in the study conducted by Harikiran AG et al where 50.9% of students said they used fluoridated tooth paste for tooth brushing<sup>7</sup>, reason might be because of lack of awareness of benefits of fluoridated tooth paste which is demonstrated in item 6 (26.13%).

### Conclusion

Result of the present study suggest that the Knowledge, attitude and practice regarding oral health among the study participants are in need for improvement.

The responsibility of providing good oral health to the school students falls on the parents, dental care professionals and most importantly the school and teachers as they form a vital role in shaping students for their better future.

They must provide education to the children covering the importance of good oral hygiene and how it can affect their general health, also their performance academically and in other aspects.

Parents are essential to act as role models by setting examples to their children by demonstrating them the importance of learning and practicing the oral hygiene practices. Oral health education should be lifelong practice and incorporated into the school environment with the support of teachers and parents.<sup>13</sup>

Dental professionals also play an essential role in monitoring the dental health and treating or preventing any problems in the students at an early stage. Access to good dental care, including regular check-ups is important. For some students, especially those from lower socio-economic groups, access to dental professionals may be limited.

This can be achieved by comprehensive community-oriented oral health promotion programs has to be conducted with the collaboration of Government, Dental professionals, and NGOs emphasizing on school children, teacher and parents by using various methods such as using dental education modules with all information about maintaining oral hygiene and its importance in children, are needed to target lifestyles and the needs of school children.



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