

# Oral health attitudes, behavior, and knowledge among 10–15 year-old school children in Chennai

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## ABSTRACT

**Introduction:** A good oral health is the state of mouth free of any disease affecting the oral cavity and its surrounding structures. **Objective:** The objective of the study was to assess oral health attitudes, behavior, and knowledge among 10–15-year-old school children in Chennai. **Materials and Methods:** This cross-sectional study was conducted on 176 10–15-year-old school children in Chennai. A cluster sampling methodology was used. Each school which was selected through simple random sampling was considered a cluster. New clusters were included until the desired sample size was achieved. A closed-ended, a pre-tested questionnaire was used to assess the oral health attitudes, behavior, and knowledge among the study subjects. **Results:** The study was done among school students in Chennai, Tamil Nadu. The study comprised 176 school students (96 female and 80 male). About 92% of the study participants were aware that it is necessary to brush the teeth. 51% of the subjects said they know different techniques of brushing teeth. 90% of the subjects were not aware of what halitosis is. 47% of the subjects said that they visit the dentist once a year. **Conclusion:** Based on the findings of the present study, the knowledge, attitude, and behavior of the surveyed children with regard to oral health was found to be satisfactory. Hence, there is a need for regular oral health education of the children, as well as their parents and school teachers.

**KEY WORDS:** Attitude, Behavior, Knowledge, Oral hygiene

## INTRODUCTION

A good oral health is the state of mouth free of any disease affecting the oral cavity and its surrounding structures.<sup>[1]</sup> Oral health has remained as an integral part of an individual's general health and overall well-being.<sup>[2-4]</sup> Given the prevalence and preventive nature, oral diseases present a major public health problem.<sup>[5]</sup> This problem can be effectively controlled when the target groups are addressed. School children are at a right stage to be targeted for any preventive and promotive activities regarding oral health. Habits which they get in young age will continue until their lifetime. Many overall health camps are being organized in school program but there are very few dental programs that are being organized. To follow healthy oral habits, it is important to have good knowledge and attitude toward

oral health.<sup>[6]</sup> Studies have showed that appropriate oral health education can help to cultivate healthy oral health practice.<sup>[7]</sup> The knowledge is derived from information, and the information, when accepted and believed, will be translated into an action which, in turn, becomes a habit. Parents, school teachers, and friends play an important role in grooming healthy habits in young children.<sup>[8]</sup> Chennai being a metropolitan city houses a variety of population, people migrate here with various religious background. All these variances can have an effect on the knowledge level and acceptance toward dental care. Hence, this study was conducted with an aim to assess oral health attitudes, behavior, and knowledge among 10–15-year-old school children.

## MATERIALS AND METHODS

The subjects comprising the population of this study were recruited from a randomly selected school in Chennai. A total of 176 students were invited to participate in this study. The study sample included

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96 females (55%) and 80 males (45%). The sample size was based on the studies conducted by Vyshalee *et al.* and Harikiran *et al.* at 80% power and 5% alpha. Subjects' age ranged from 10 to 15 years old with a mean age of 13.45 years. Chennai is one of the busy metropolitan city houses about 220 recognized high schools. These 220 schools formed the sampling frame. A cluster sampling methodology was used. Each school which was selected through simple random sampling was considered a cluster. New clusters were included until the desired sample size was achieved. Before the start of the study ethical clearance was obtained from the scientific review board of Saveetha University. Group informed consent was obtained from the respective school before the examination. Classes that contained children aged 10–15 years were approached to participate. These classes represent part of each school as all the schools contain students aged from 6 to 15 years. Students who were <10 years of age were not invited to participate in the study as they were too young to understand and complete the questionnaire by themselves. All subjects were requested to complete a pretested, interviewer-administered questionnaire. The data collection went over a period of 1 month.

The questionnaire included 15 items designed to evaluate the knowledge, attitudes, and behavior of young school children regarding their oral health and dental treatment. Assessment of participants' oral health knowledge included items on the effects of brushing and using fluoride on the dentition, the meaning of halitosis, the meaning of dental plaque, the number of deciduous and permanent teeth, and the meaning of bleeding gums. Assessment of participants' oral health behavior included brushing activity (such as frequency, duration, time, and brushing aids), the parents' role in participants' oral hygiene and dental education and dental visits (such as regularity, reason behind the visit, effect of pain and economics on dental attendance, information on first visit, and sought treatments). Items that assessed participants' dental attitudes included questions on fear from dental treatment, feelings regarding the treatment, thoughts about involvement in the dental treatment, opinions about and attitudes toward the dentist and the dental care, attitudes toward dental care and body care in general, and attitudes toward regular dental visits. Subjects were asked to respond to each item according to the response format provided at the end of each. Response formats included forced-choice format in which subjects choose one or more responses from a provided list of options, write-in the response, or perform a combination of the two. The subjects received a full explanation of how to score their responses. Furthermore, one of the investigators was always available during the completion of the questionnaire, and the participants were encouraged to approach him whenever they needed clarification of any point. Descriptive statistics were obtained and means,

standard deviation, and frequency distribution were calculated. Data were analyzed using SPSS software.

## RESULTS

A total of 176 students were invited to participate in this study. The study sample included 96 females (55%) and 80 males (45%). A total of 176 students were invited to participate in this study. The study sample included 96 females (55%) and 80 males (45%). About 47% of the study sample reported that they visit dentist a dentist once a year and 18% reported that they visit a dentist seldom. Approximately 31% of the study subjects visited dentist due to dental pain where 30% reported for dentist's advice; about 20 and 17% of study subjects said they visited a dentist due to family and friend's advice and other reasons, respectively [Table 1].

About 92% of the study samples were aware that it is necessary to brush the teeth. 74% of the subjects reported that they were instructed how to brush [Table 1]. Among the study samples, 56% reported that visit a dentist when gums bleed, and about 28% of subjects said that they will brush gently, 11% of the subjects said they stop brushing when gums bleed. approximately 90% of the subjects did not know what is halitosis and about 9% of the study samples knew what is halitosis [Table 1]. About 51% of the study sample reported that they know different techniques of brushing teeth where about 49% did not know about it. 5% reported using dental floss, 11% reported using mouthwash, and 14% reported using toothpicks as extra aids for oral hygiene. Approximately 42% of the study sample brushed their teeth at least twice daily, while 50% reported once daily. Approximately 74% of the subjects reported using a toothbrush and toothpaste to clean their teeth. However, most subjects brushed their teeth before going to bed and/or in the morning [Table 1]. About 27% of the study subjects knew how many are the deciduous tooth and the rest 73% did not know. About 58% knew how many are the permanent tooth and 41% did not know it. Approximately 89% of the study subjects knew that brushing tooth prevents tooth decay and 11% of the study subjects did not know it. About 38% of the students did not know what is bleeding gums, approximately 8% reported it as healthy gum, 27% reported it has gum recession and about 26% reported it as inflamed gum. Approximately 53% of the study samples did not know what is plaque, about 14% reported it as soft debris on tooth, about 24% reported it as staining of teeth, and about 7% reported it as dental caries. Different age groups and genders demonstrated no significant differences in their responses.

## DISCUSSION

To improve oral health worldwide, promoting oral health of adolescents through health promoting schools has been prioritized by the World Health

**Table 1: Oral health attitudes, knowledge, and behavior among the study subjects**

Questions	Male	Female	Total
	n (%)	n (%)	n (%)
How often do you visit a dentist			
Seldom	14 (7.95)	19 (10.80)	33 (18.75)
Infrequently	6 (3.41)	9 (5.11)	15 (8.52)
Once a year	39 (22.16)	45 (25.57)	84 (47.73)
More than once a year	21 (11.93)	23 (13.07)	44 (25.00)
Do you think it is necessary to brush the teeth			
Yes	71 (40.34)	91 (51.70)	162 (92.05)
No	9 (5.11)	5 (2.84)	14 (7.95)
Did anyone instruct you on how to brush?			
Yes	56 (31.82)	75 (42.61)	131 (74.43)
No	24 (13.64)	21 (11.93)	45 (25.57)
What do you do when your gums bleed?			
Stop brushing	2 (1.14)	2 (1.14)	4 (2.27)
Brush gently	21 (11.93)	30 (17.05)	51 (28.98)
Brush more thorough	12 (6.82)	9 (5.11)	21 (11.93)
Visit a dentist	45 (25.57)	55 (31.25)	100 (56.82)
How often do you consume sweets?			
Not at all	8 (4.55)	4 (2.27)	12 (6.82)
Not everyday	43 (24.43)	57 (32.39)	100 (56.82)
Once a day	20 (11.36)	28 (15.91)	48 (27.27)
Several times a day	9 (5.11)	7 (3.98)	16 (9.09)
Do you know what halitosis is?			
Yes	8 (4.55)	8 (4.55)	16 (9.09)
No	72 (40.91)	88 (50.00)	160 (90.91)
Do you know different techniques for brushing teeth?			
Yes	42 (23.86)	48 (27.27)	90 (51.14)
No	38 (21.59)	48 (27.27)	86 (48.86)
What do you use for cleaning your teeth?			
Brush+toothpaste	46 (26.14)	85 (48.30)	131 (74.43)
Dental floss	9 (5.11)	1 (0.57)	10 (5.68)
Mouthwash	15 (8.52)	6 (3.41)	21 (11.93)
Tooth picks	9 (5.11)	3 (1.70)	12 (6.82)
Others	1 (0.57)	1 (0.57)	2 (1.14)
When do you brush your teeth?			
Morning	37 (21.02)	52 (29.55)	89 (50.57)
Before going to bed	8 (4.55)	2 (1.14)	10 (5.68)
Morning and night	34 (19.32)	41 (23.30)	75 (42.61)
Other times	1 (0.57)	1 (0.57)	2 (1.14)
The last reason for your visit to your dentist			
Dental pain	19 (10.80)	37 (21.02)	56 (31.82)
Family and friend advice	18 (10.23)	18 (10.23)	36 (20.45)
Dentist's advice	30 (17.05)	24 (13.64)	54 (30.68)
Other reasons	13 (7.39)	17 (9.66)	30 (17.05)
How many are the deciduous teeth			
20	27 (15.34)	22 (12.50)	49 (27.84)
Other numbers	53 (30.11)	74 (42.05)	127 (72.16)
How many are the permanent teeth			
32	44 (25.00)	59 (33.52)	103 (58.52)
Other numbers	36 (20.45)	37 (21.02)	73 (41.48)
Brushing tooth prevents tooth decay			
Yes	73 (41.48)	83 (47.16)	156 (88.64)
No	7 (3.98)	13 (7.39)	20 (11.36)
What does gum bleeding mean?			
Healthy gum	10 (5.68)	4 (2.27)	14 (7.95)
Gum recession	32 (18.18)	17 (9.66)	49 (27.84)
Inflamed gum	20 (11.36)	26 (14.77)	46 (26.14)
I don't know	18 (10.23)	49 (27.84)	67 (38.07)
What does plaque mean?			
Soft debris on teeth	16 (9.09)	10 (5.68)	26 (14.77)
Staining of teeth	19 (10.80)	24 (13.64)	43 (24.43)
Dental caries	10 (5.68)	3 (1.70)	13 (7.39)
I don't know	35 (19.89)	59 (33.52)	94 (53.41)

Organization.<sup>[9,10]</sup> This study presented a comprehensive overview of the oral health attitudes, knowledge, and behavior among 10–15-year-old school children in Chennai. In the present study, the data were collected

by means of structured questionnaires. Around 18% of the study sample recorded that they seldom visit the dentist and about 47% said they visit once in a year; in the previous studies, it is recorded there was about

6% and 17% of the study sample who seldom visit and visited once a year.<sup>[11]</sup> 92% of the subjects were aware that it is important to brush

the teeth which were in accordance with previous studies.<sup>[11]</sup> 74.4% of the study sample said they were instructed on how to brush and this result also was in accordance to studies done in South India. 74.43% of the study subjects said that they use toothpaste and toothbrush for cleaning teeth; there is a slight increase in the percentage when compared to the result of the previous study, as it reported 71.4%.<sup>[12]</sup> However, when compared to studies done in Jordan it was reported around 83%.<sup>[13]</sup> The manner of tooth brushing may lead to harboring of microorganisms which can explain this observation. Involving parents in improving oral hygiene practices for their children, they need more focus.<sup>[14]</sup> On the daily practice of brushing teeth 50% of the study subjects brushed only in the morning and 42% of them brushed both morning and night; this on compared with the result of studies done in Bengaluru it shows only 38% of children who brushed both morning and night.<sup>[15]</sup> A need to focus on instructions on correct oral hygiene practices for effective behavior has been recommended.<sup>[16]</sup> Majority of the study sample reported that they visited a dentist due to dental pain. A few reported their visits were due to family, friends, and dentists advice which is in accordance with the previous survey.<sup>[12]</sup> About the knowledge on the deciduous and permanent tooth, 72.16% and 42% of the study sample reported wrongly.

Around 88% of the study subjects were aware that brushing tooth prevents tooth decay. 38.07% of the study subjects do not know what is gum bleeding; around 27% and 26% of the study subjects reported it is gum recession and inflamed gum. This report, when compared to previous studies, say that 17% of the study sample reported that they do not know what is gum recession and 69% of the study subjects reported that it is inflamed gum.<sup>[16]</sup> When the study subjects were asked about their knowledge on plaque around 53% reported that they do not know what plaque is, where 24% said it is staining teeth, 14.7% of the study sample reported that it is soft debris on teeth. Through the medium of schools, effective oral health promotion of school staff, students, and their families occur. Oral health promotion can be easily integrated with that of general health, school curriculum, and activities. Unfortunately, these efforts are limited and insufficient nationwide; hence, there is a need for comprehensive national education programs to improve the oral health attitudes, knowledge, and behavior of the general population.

## CONCLUSION

Based on the findings of the present study, oral health knowledge, attitude, and behavior of the surveyed

children is poor. Hence, there is a need to improve their knowledge by regular oral health education of children, as well as parents and teachers. This can be done by initiating an oral health promotion program covering all the schools of this area. Such a program will require the support of school authorities, dental colleges, and the public health department. The findings of this questionnaire survey provide baseline information that can be useful for initiating such a program [Annexure 1].

## REFERENCES

1. Fox C. Evidence summary: What do we know from qualitative research about people's care seeking about oral health? *Br Dent J* 2010;20:225-31.
2. Gift HC, Atchison KA. Oral health, health, and health related quality of life. *Med Care* 1995;44:601-8.
3. Dolan TA, Gooch BF, Bourque LB. Associations of self-reported dental health and general health measures in the rand health insurance experiment. *Commun Dent Oral Epidemiol* 2006;191:1-8.
4. Sabbah W, Tsakos G, Chandola T, Sheiham A, Watt RG. Social gradients in oral and general health. *J Dent Res* 2007;86:992-6.
5. Petersen PE. The world oral health report 2003: Continuous improvement of oral health in the 21<sup>st</sup> century the approach of the WHO global oral health programme. *Community Dent Oral Epidemiol* 2003;31:3-23.
6. Kuusela S, Honkala E, Rimpela A, Karvonen S, Rimpela M. Attitudes to oral health among adolescents with high caries risk. *Acta Odontol* 2007;65:206-13.
7. Murat NA, Watt RG. Chief dentists perceived strengths and weaknesses of oral health promotion activities in Malaysia. *Ann Dent Univ Malaya* 2006;13:1-5.
8. Poutanen R, Lahti S, Tolvanen M, Hausen H. Parental influence on children's oral health-related behavior. *Acta Odontol* 2006;64:286-92.
9. Kwan SY, Petersen PE, Pine CM, Borutta A. Health-promoting schools: An opportunity for oral health promotion. *Bul WHO* 2005;83:677-85.
10. Mbawalla HS, Masalu JR, Astrom AN. Socio-demographic and behavioural correlates of oral hygiene status and oral health related quality of life, the Limpopo Arusha school health project (LASH): A cross-sectional study. *BMC Pedia* 2010;10:1-10.
11. Kuppuswamy VL, Murthy S, Sharma S, Surapaneni KM, Grover A, Joshi AI. Oral hygiene status, knowledge, perceptions and practices among school settings in rural South India. *Oral Health Dent Manag* 2014;13:146-54.
12. Mehta A, Kaur G. Oral health-related knowledge, attitude, and practices among 12-year-old schoolchildren studying in rural areas of Panchkula, India. *Indian J Dent Res* 2012;23:293.
13. Al-Omiri MK, Al-Wahadni AM, Saeed KN. Oral health attitudes, knowledge, and behavior among school children in North Jordan. *J Dent Educ* 2006;70:179-87.
14. Lateefat S, Musa OI, Kamaldeen AS, Saka OI. Determinants of oral hygiene status among junior secondary school students I Ilorin West local government area of Nigeria. *IOSR J Pharm Biolo Sci* 2012;1:44-8.
15. Harikiran AG, Pallavi SK, Hariprakash S, Ashutosh, Nagesh KS. Oral health-related KAP among 11- to 12-year-old school children in a government-aided missionary school of Bangalore city. *Indian J Dent Res* 2008;19:236-42.
16. Chauhan D. Integration of Preventive and Promotive Oral Health Care Practices through School Health Systems an Unexplored Indian need Report. Mumbai: Observer Research Foundation Mumbai; 2010.

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## Annexure 1: Questionnaire survey

1. How often do you visit a dentist
  - A. Seldom
  - B. Infrequently
  - C. once a year.
  - D. Twice a year or more than
2. Do you think it is necessary to brush the teeth
  - A. Yes
  - B. No
3. Did anyone instruct you on how to brush??
  - A. Yes
  - B. No
4. What do you do when your gums bleed?
  - A. I stop brushing my teeth
  - B. I'll brush gently
  - C. I brush more thorough
  - D. I visit the dentist
5. How often do you consume sweets?
  - A. Not at all
  - B. Not everyday
  - C. Once a day
  - D. Several times a day
6. Do you know what halitosis is?
  - A. Yes
  - B. No
7. Do you know different techniques for brushing teeth?
  - A. Yes
  - B. No
8. What do you use for cleaning your teeth?
  - A. Brush+ toothpaste
  - B. Dental floss
  - C. Mouth wash
  - D. Toothpicks.
  - E. Others (specify)
9. When do you brush your teeth?
  - A. Morning
  - B. Before going
  - C. both A and B
  - D. Other times (specify)
10. The last reason for your visit to your dentist.
  - A. Dental pain
  - B. Family and friend advice
  - C. A dentist advice
  - D. Other reason (specify)
11. How many are the deciduous teeth?
12. How many are the permanent teeth?
13. Brushing tooth prevents tooth decay. Yes/No
14. What does gum bleeding means?
  - A. Healthy gum
  - B. Gum recession
  - C. Inflamed gum
  - D. I don't know
15. What does plaque mean?
  - A. Soft debris on teeth
  - B. Staining of teeth
  - C. Dental caries
  - D. I don't know