



**ORIGINAL RESEARCH PAPER**

**Dental Science**

**ORAL HEALTH KNOWLEDGE, ATTITUDE AND BEHAVIOR AMONG DENTAL STUDENTS**

**KEY WORDS:** Oral Hygiene, Students, Knowledge, Practice, Patients.

<b>Dr. Aravinth V*</b>	Senior Lecturer, Department of Public Health Dentistry, Madha Dental College and Hospital, Chennai. *Corresponding Author
<b>Dr. Konasala Vijay Sahithya</b>	Undergraduate Student, Madha Dental College and Hospital, Chennai.
<b>Dr. Sunder Kote K</b>	Professor and Head of the Department, Department of Public Health Dentistry, Madha Dental College and Hospital, Chennai.
<b>Nanda Balan I</b>	Reader, Department of Public Health Dentistry, Madha Dental College and Hospital, Chennai.

**ABSTRACT**

**BACKGROUND:** Attitude and behavior of dental student towards oral health holds a crucial part in estimating their capability in delivering a good dental service.  
**OBJECTIVES:** The objective of the study is an attempt to determine and compare the oral health attitude and behavior among dental students.  
**METHODOLOGY:** A cross-sectional survey of 195 dental students from third year, final year and internship was conducted from Department of Public Health Dentistry, Madha Dental College and Hospital, Chennai. A self administered questionnaire was used to conduct the survey. Convenience sample was the chosen method of sampling.  
**RESULTS:** On an average the knowledge obtained by the students about oral health is 75.5% and their attitude towards maintaining their personal oral hygiene is 64.3%.  
**CONCLUSION:** It has been found that the knowledge in oral health increased over years of education and the implementation of this knowledge in improving their personal oral hygiene was satisfactory.

**INTRODUCTION:**

Oral health is considered as a window into our general health. Despite many oral hygiene products being available, oral diseases continue to prevail<sup>[1]</sup> because, oral health is always being taken for granted. It is on the part of a dentist to help people maintain good oral hygiene. The attitude of dentist determines the quality of health care provided to the population.<sup>[2]</sup> Dental students, as future dental health care providers, have to be observed throughout their academic years. Their knowledge and attitude towards oral hygiene has to be assessed, to evaluate their capacity in providing oral health care to the public, as a dental practitioner.<sup>[3]</sup> Oral behavior indicates an individual perception on one's own oral health. Attitude and behavior of dental student towards oral health holds a crucial part in estimating their capability in delivering a good dental service to the public.<sup>[4]</sup>

WHO (2012) defines oral health as "a state of being free from chronic mouth and facial pain, oral and throat cancer, oral infection and sores, periodontal (gum) disease, tooth decay, tooth loss, and other diseases and disorders that limit an individual's capacity in biting, chewing, smiling, speaking, and psychosocial wellbeing."<sup>[5]</sup>

There are many controversies about the impact of education on attitude, behavior and oral hygiene among the dental students.<sup>[6]</sup> Certain researches have shown a positive impact of education on oral health attitude and behavior of dental students. Cortes et al 2002,<sup>[7]</sup> in their study found that dental students were motivated about maintaining their oral hygiene and their knowledge had a positive impact on this behavior. On the other hand, certain researches have shown differences in their attitude and behavior. El-Mostehy et al 2013,<sup>[8]</sup> in an investigation found lack of an improvement in the practices of oral hygiene in students, despite having received education and motivation. In spite of these controversies, the current study aims to determine and compare the oral health knowledge, attitude and behavior among dental students at Madha Dental College & Hospital, Chennai.

**MATERIALS AND METHOD:**

Cross sectional study was conducted among 195 dental students at Madha Dental College and Hospital, Kundrathur, Chennai.

**ETHICAL CLEARANCE:**

Prior to the study, ethical clearance was obtained from Madha Dental College and Hospital Ethics Committee, Kundrathur, Chennai.

**PILOT STUDY:**

A pilot study was conducted among 20 participants, where a pre tested questionnaire was circulated and responses were collected. Adjustments were made in the question model and recording the response before finalizing the survey proforma.

**INCLUSIVE CRITERIA**

All the dental students studying in final year and internship were included.

**EXCLUSIVE CRITERIA:**

All the dental students studying from first year to third year were excluded and the students absent on the day of the survey, and all the students not willing to take part in survey were excluded.

**SAMPLING METHODOLOGY:**

195 samples of third year, final year and internship students were collected using a self administered hand to hand questionnaire. The purpose of the study was explained to the participants and informed consent was obtained from the participants. Each participant was given 10 minutes to answer the questionnaire and after which it was collected. The personal information of the participants was kept confidential and the participants were assured that their biographic data will not be enclosed to anyone.

Convenience sampling method was chosen.

The questionnaire consisted of 16 questions divided into 2

sections. Section 1 consisted of Demographic data and 8 questions related to the oral health behavior of the students. Section 2 consisted of 8 questions related to the oral health attitude of the student. All the questionnaires were scrutinized. Data obtained was uploaded into an Excel sheet and the results were subjected to statistical analysis.

**RESULTS:**

The present study comprised of 195 dental students from final year and internship. Of these 62 were from third year, 61 from final year and 72 were from internship. Majority of the students were from internship. The mean age range of the students was from 21 to 23.5 years.

The questionnaire used in the study is as follows. Side A or Section 1 of the questionnaire consisted of questions related to the oral health behavior of the dental students which included questions like the type of tooth brush used by the student, duration of brushing their teeth, usage of other oral hygiene aids, etc. Side B or Section 2 of the questionnaire consisted of questions related to the oral health knowledge and attitude of the dental students which included questions like the type of tooth brush, duration of brushing and any oral hygiene aids they would prescribe their patient, etc.

NAME:

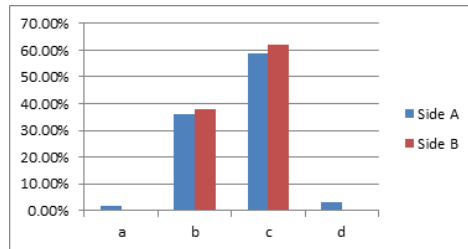
AGE/GENDER:

1. What kind of bristled tooth brush do you use?
  - a. Hard bristles b. Medium bristles c. Soft bristles d. Never noticed.
2. How often do you brush your teeth?
  - a. Once b. Twice c. Thrice d. occasionally twice
3. What is the duration of your brushing ?
  - a. <2 min b. 2-3 min c. 3-5 min d. > 5min
4. Which method of brushing do you follow?
  - a. Vertical b. Horizontal c. Circular d. Any combination of the above
5. Do you use any other oral hygiene aids?
  - a. Mouth wash b. Interdental brush or dental floss c. tongue cleaner d. Any combination of the above e. Never
6. How often do you rinse your mouth?
  - a. After every meal b. After eating sweet food c. Occasionally d. Never
7. How often do you undergo scaling?
  - a. Once in 6 months b. 6-12 months c. > 12 months d. symptomatically ( halitosis , bleeding gums, excess deposits )
8. How often do you change your tooth brush ?
  - a. < 3months b. 3-6 months c. 6-12 months d. when the bristles flare

**Figure -1**

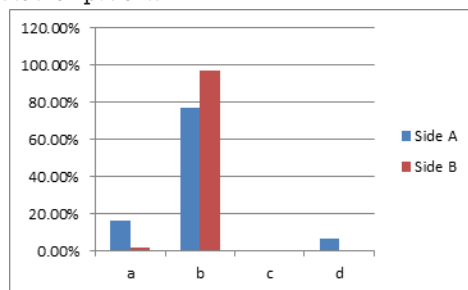
1. What kind of bristled tooth brush do you prescribe your patient?
  - a. Hard bristles b. Medium bristles c. Soft bristles d. Not prescribed
2. How often do you advice your patient to brush his/her teeth?
  - a. Once a day b. Twice c. Thrice d. Occasionally twice
3. What is the duration of brushing you recommend your patient ?
  - a. <2min b. 2-3 min c. 3-5 min d. > 5 min
4. Which method of brushing to you advice your patient?
  - a. Vertical b. Horizontal c. Circular d. Any combination of the above
5. Do you motivate your patient to use any other oral hygiene aids ?
  - a. Mouth wash b. Interdental brush or dental floss c. Tongue cleaner d. Any combination of the above e. Never
6. Do you suggest your patient to rinse their mouth ?
  - a. After every meal b. After eating sweet food c. Occasionally d. Never
7. How often do you advice your patient to undergo scaling?
  - a. Once in 6 months b. 6-12 months c. > 12 months d. Symptomatically ( halitosis , bleeding gums , excess deposits )
8. How often do you recommend your patient to change his/her tooth brush?
  - a. < 3 months b. 3- 6 months c. 6-12 months d. when the bristles flare

**Figure -2**



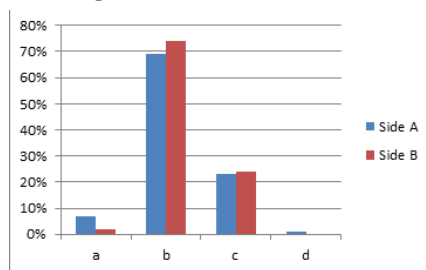
**Figure 3-Type of Tooth Brush**

On the comparison between the first questions from side A “what type of bristled tooth brush do you use?” and from side B “what type of bristled tooth brush do you prescribe your patient?” 59% (n=115) of the students responded to Side A that they would use soft bristles and 62% (n=120) of the students responded to Side B that they would prescribe soft bristles to their patients.



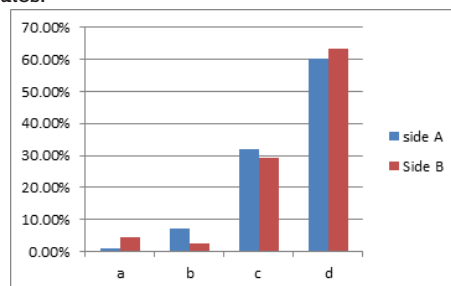
**Figure 4-Frequency of Brushing**

The comparison between the second questions from Side A and Side B, which are – “how often do you brush your teeth?” and “how often do you advice your patient to brush his/her teeth?” respectively showed that 77% (n=152) of the students responded to side A that they would brush their teeth twice a day, whereas 97% (n=190) of students responded that they would advice their patient to brush his/her teeth twice a day.



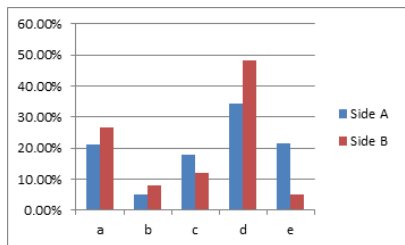
**Figure 5-Duration of Brushing**

The response of students for the third questions from Side A and Side B which are- “what is the duration of your brushing?” and “what is the duration of brushing you recommend your patient?” respectively is that, 69% (n=135) of the students responded to side A question that they would brush for 2-3 minutes and 74% (n=144) of the students responded to side B question that they would recommend the patient to brush for 2-3 minutes.



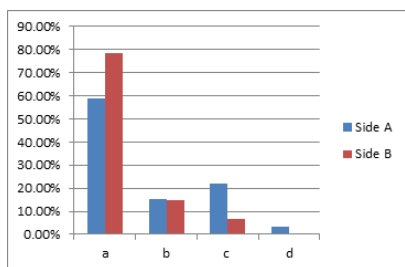
**Figure 6-Method of Brushing**

On comparison between the fourth questions from Side A and Side B which are- “which method of brushing do you follow?” and “which method of brushing do you advice your patient?” respectively, 60.11% (n=117) of the students responded to Side A question that they would follow any combination of vertical, horizontal, and circular motion of brushing. 63.50% (n=124) of the students responded to question from Side B, that they would advice their patients to follow any combination of vertical, horizontal and circular motion of brushing.



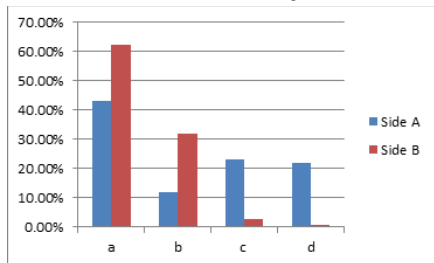
**Figure 7-Other Oral Hygiene Aids**

Figure 7 depicts the comparison between the fifth questions from Side A and Side B which are- “do you use any other oral hygiene aids?” and “do you motivate your patient to use any other oral hygiene aids?” respectively, 78.4% (n=153) of the students responded that they use oral hygiene aids (mouth wash or tongue cleaner or dental floss or inter dental brush). 94.8% (n=185) of the students responded that they motivate their patients to use other oral hygiene aids.



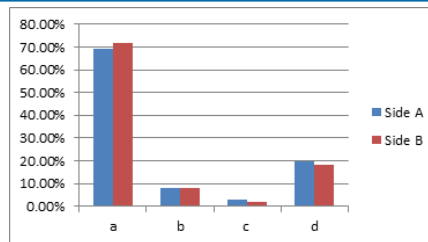
**Figure 8-Rinsing the Mouth**

The comparison between the sixth questions from Side A and Side B which are- “how often do you rinse your mouth?” and “do you suggest your patient to rinse your mouth?” Respectively, showed that 59% (n=115) of the students responded to the question from Side A that they rinse their mouth after every meal and 78.34% (n=153) of the students responded to the question from Side B that they suggest their patients to rinse their mouth after every meal.



**Figure 9-Visiting a Dentist**

The response of students for the seventh questions from Side A and Side B which are- “how often do you undergo scaling?” and “how often do you advice your patient to undergo scaling?” respectively is as follows. 43.07% (n=84) of the students responded to Side A that they would visit a dentist or undergo scaling once in every 6 months. 62.37% (n=122) of the students responded to the question from Side B that they advise their patients to undergo scaling once in every 6 months.



**Figure 10- Changing the Tooth Brush**

On comparison between the eighth questions from Side A and Side B which are- “how often do you change your tooth brush?” and “how often do you recommend your patient to change his/her tooth brush?” respectively, 69% (n=134) of the students responded to the question from Side A that they would change their tooth brush once in 3 months. 72% (n=139) of the students responded to the question from Side B that they would recommend their patients to change his/her tooth brush once in every 3 months.

**DISCUSSION:**

Dental students must be an example of good oral health attitude and behavior to their family, friends, relatives and patients.<sup>[9]</sup> One of the general objectives of dentistry is to train experts whose principal task is to educate and motivate patients to maintain a good oral health and hygiene<sup>[10]</sup>. In this present survey self reported oral hygiene practices of the dental students and their behavior towards patients were evaluated. This study showed not much significant differences between the oral health attitude of the dental students towards themselves and oral health behavior towards their patients.

About 77% of the students brush their teeth twice a day. This percentage in this sample is higher than that reported among the students of Bangalore which was 73.6%.<sup>[9]</sup> In accordance with other studies, 74% of the students brush their teeth twice daily.<sup>[11]</sup> Corresponding to the oral health knowledge of the students, 96.60% of the students, advice their patients to brush their teeth twice daily. Though the difference is not much significant, a little improvement is required in the attitude of students towards the frequency of brushing.

The studies conducted in Japan and and Hong kong showed that 56% and 67% of students put off going to a dentist unless there is a need(pain or any other symptom).<sup>[12]</sup> Contrary to this, it is reported in the present survey that only 22.07% of students visit a dentist or undergo scaling only in symptomatic situation, but 62.37% of students suggest their patients to visit a dentist once in every 6 months.

It is reported that about 69% of students brush their teeth for 2-3 minutes and 74% of students, advice their patients to brush their teeth for the same duration.60.11% of students suggested their patients to brush in combination of vertical, horizontal and circular strokes and almost similar percentage (63.50%) of the students brush their teeth in combination of horizontal, vertical and circular strokes, which is more than that reported among the Finnish dental students which was 12%.<sup>[13]</sup> It is evident that majority of the students practice what they preach.

About 78.4% of the students used other oral hygiene aids like mouth wash, tongue cleaner, interdental brush, dental floss which is higher than that reported among the students of Jordan.<sup>[14]</sup> It is shown that 97.4% of the students motivate their patients to use other oral hygiene aids. This illustrates that dental students have a good self care when compared to those students who took part in other various studies.

About 72% of the students recommended their patients to change their tooth brush once in every 3 months, and it was implemented by majority of the students in maintaining their

personal oral hygiene practice because almost 69% of students said that they would change their tooth brush once in every 3 months. This finding represents a correlation between the acquired knowledge and practice among dental students.

The results in this study are contrast to various studies conducted in other countries depicting significant differences in oral health attitude and behavior among the dental students.<sup>[14]</sup> One of the advantages of this study includes the inclusiveness of students with clinical exposure (third year, final year and internship). In consonance with various studies,<sup>[15] [16] [17]</sup> the oral health behavior of the dental students improved with increase in the level of education. On an average the knowledge obtained by the students about oral health is 75.5% and their attitude towards maintaining their personal oral hygiene is 64.3%. This shows that the oral health knowledge of the dental students from clinical years- third year, final year and internship, is good in motivating and treating their patients. Their behavior in maintaining their personal oral hygiene is satisfactory. It is also proven that the students participated in this study have better knowledge about oral hygiene, when compared to other studies performed in various places.

The results of this study are constrained with the same drawbacks as any other cross sectional study which prohibits us from drawing casual references. Further longitudinal studies are required to determine the oral health knowledge, attitude and behavior of the dental students. The ultimate attempt of this study is to assess the self care in the dental students who will be the upcoming oral health practitioners.

Further studies must be carried in order to compare in detail, the behavior of dental students towards self oral health care and their attitude towards the patient's oral health. Dental students must be monitored throughout their academic years and it is essential to instill a positive oral health attitude and behavior in them.

**CONCLUSION:**

Based on the results, the following conclusion can be drawn from this survey into the oral health knowledge, attitude and behavior of dental students. In this study it was found that the overall knowledge of oral health attitude among the dental students from third year, final year and internship was good. The implementation of the oral health knowledge in improving their personal oral hygiene was satisfactory.

**ACKNOWLEDGMENTS:** Nil

**REFERENCES:**

1. Gift HC, Corbin SB, Nowjack-Raymer RE. Public knowledge of prevention of dental disease. *Public Health Rep* 1994;109(3):397-404. (PMID:8190863 PMID:PMC1403504)
2. Baseer MA, Rahman G. Oral health attitudes and behaviour among a group of female Saudi dental students. *Saudi J Oral Sci* 2014;1:25-9. DOI: 10.4103/WKMP-0056.124182
3. Ana Badovinac, Darko Bo i ,Ivana Vu inac, Jasna Vešligaj, Domagoj Vra i and Darije Plan ak, Oral Health Attitudes and Behavior of Dental Students at the University of Zagreb, Croatia, September 2013, 77 (9) 1171-1178;
4. Do an B. Differences in oral health behaviour and attitudes between dental and nursing students. *M U S B E D* 2 0 1 3 ; 3 : 3 4 - 4 0 . doi10.5455/musbed.20130102082831.
5. World Health Organization, World Health Report 2003. Published 2003. Accessed 15 February, 2018.
6. Betul Rahman, Sausan Al Kawas, The relationship between dental health behavior, oral hygiene, gingival status of dental students in the United Arab Emirates. *Eur J Dent.* 2013 Jan; 7(1): 22-27. PMID: PMC3571505 PMID: 23409498
7. Cortes FJ, Nevot C, Ramon JM, Cuenca E. The Evolution of Dental Health in Dental Students at the University of Barcelona. *J Dent Educ.* 2002;66:1203-1208. PMID:12449215
8. El-Mostehy MR, Zaki HA. The dental student's attitude towards the profession as reflected in his oral cavity. *Egypt Dent J.* 1969;15:104-109. PMID:5258392
9. R.Neeraja, G.Kayalvizhi, P Sangeetha. Oral health attitude and behavior among a group of dental students in Bangalore, India. *Eur J Dent,* 2011 Apr, 5(2):163-167. PMID:PMC3075990 PMID:21494383. 14
10. F.Maatouk, W. Maatouk, H. Ghedira, S. Ben Mimoun. Effect of 5 years of dental studies on the oral health of Tunisian dental students. *Eastern Mediterranean Health Journal.* 2006;12;5:625.
11. Ganss C, Schlueter N, Preiss S, Klimek J. Tooth brushing habits in uninstruced

- adults--frequency, technique, duration and force. *Clin Oral Investig.* 2009 Jun; 13(2):203-8.
12. Kawamura M, Wright FA, Declerck D, et al. An exploratory study on cultural variations in oral health attitudes, behavior and values of freshman dental students. *Int Dent J.* 2005;55:205-211.
13. Kawamura M, Honkala E, Widstrom E, Komabayashi T. Cross- cultural differences of self-reported oral health behavior in Japanese and Finnish dental students. *Int Dent J.* 2000;50:46-50.
14. Al- Omari QD, Hamasha AA. Gender- specific oral health attitudes and behavior among dental students in Jordan. *J Contemp Dent Pract.* 2005;6:107-114.
15. Bakdash MB, Proshok JM. Oral hygiene status of dental students as related to their personal and academic profiles. *J Periodontol Res.* 1979;14:438-443.
16. Al-Wahadni AM, Al-Omiri MK, Kawamura M. Differences in self-reported oral health behavior between dental students and dental technology/dental hygiene students in Jordan. *J Oral Sci.* 2004;46:191-197.
17. Lang NP, Cumming BR, Loe HA. Oral hygiene and gingival health of Danish dental students and faculty. *Oral epidemiology,* 1977, 5:237-42.
18. Cavaillon JP et al. Longitudinal study on oral health of dental students at Louis VII University. *Community dentistry and oral epidemiology,* 1982, 10:137-43.