



RESEARCH ARTICLE

ORAL HEALTH ATTITUDE, KNOWLEDGE AND PRACTICES OF DENTAL STUDENTS-  
A QUESTIONNAIRE STUDY

<sup>1</sup>Gowri Katekar, <sup>2,\*</sup>Dr. K. A. Kamala, <sup>3</sup>Sankethguddad, S., <sup>4</sup>Dr. Ajay Nayak,  
<sup>5</sup>Dr. Abhijeeth Sanadi and <sup>6</sup>Dr. Ashwini Rani S. R.

<sup>1</sup>School of Dental Sciences, KIMSDU, Karad, Maharashtra, India

<sup>2, 4, 5, 6</sup>Department of Oral Medicine and Radiology, School of Dental Sciences, KIMSDU, Karad, Maharashtra, India

<sup>3</sup>Department of Periodontology, Manjunath Dental Clinic, Above Hegade Medicals, Dharwad, India

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ABSTRACT

**Objectives:** To evaluate the oral health knowledge, attitude and practices of undergraduate dental students and also to correlate the difference between the students of clinical and preclinical courses.

**Methods:** The study was conducted among 203 dental students, using English version of Hiroshima University - Dental Behavioral Inventory (HU-DBI) questionnaire consisted of 30 questions with multiple choice regarding oral health attitude, knowledge practices.

**Results:** Among 203 participants, 100 participants (49.3%) belong to preclinical year of study and 103 (50.7%) from clinical year of study. Mean per question was higher in clinical year students when compared to preclinical year students, indicating the improvement in the attitude with the progress in the academic years which was statistically highly significant ( $p < 0.001$ ).

**Conclusion:** The overall knowledge and behaviors of oral health among dental students was found to be satisfactory and it found to increase with increasing level of education. This may be due to the year wise education of the clinical knowledge among dental students. Hence, there is a need for implementation of more preventive programs immediately on oral health promotion which can further help in increasing the knowledge, attitude and practices of the students.

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INTRODUCTION

Oral health is essential for general health and well-being throughout life and is a marker for overall health status. Poor oral health can have a significant effect on quality of life. (Pradhan et al., 2016) Dental professionals are the authority for educating the general population on oral health, for which they themselves should be role models (Mani et al., 2013). One of the general objectives of teaching dentistry is to train experts whose principal task is to motivate patients to adopt good oral hygiene practices. In addition, the behaviour of oral health providers and their attitudes towards oral health could affect their capacity to deliver oral health care and thus might affect the oral health of their patients. (Neeraja et al., 2011 and Peker and Alkurt, 2009) They are more likely to be able to do this if they themselves are motivated (Maatouk et al., 2006).

Hence the present study was undertaken to evaluate the oral health knowledge, attitude and practices of undergraduate dental students and also to correlate the difference between the students of clinical and preclinical courses.

MATERIALS AND METHODS

The study was conducted among 203 dental students, using English version of Hiroshima University - Dental Behavioral Inventory (HU-DBI) questionnaire consisted of 30 questions with multiple choice regarding oral health attitude, knowledge practices. Institutional Ethical Committee approval was obtained before commencement of the study. Students those were willing to participate in the study were included in this study. Written consent was obtained from all the study participants. Then the questionnaire was administered. In order to avoid bias only one person from the investigating team was allotted for any queries regarding the questionnaire. The participants gave their responses according to five point Likert scale. (Sullivan and Artino, 2013) High scores indicated the strength of the positivity in the attitude.

\*Corresponding author: Dr. Kamala, K.A.,  
Department of Oral Medicine and Radiology, School of Dental Sciences, KIMSDU, Karad, Maharashtra, India

**Table 1. Questionnaire items of the HU-DBI and percentage of the responses**

| S.No | Questions  | Strongly Agree | Agree     | Undecided | Disagree  | Strongly Disagree |
|------|--|----------------|-----------|-----------|-----------|-------------------|
|      |  | No. (%)        | No. (%)   | No. (%)   | No. (%)   | No. (%)           |
| 1    | I do not worry much about visiting the dentist   | 28(13.8)       | 59(29.1)  | 18(8.9)   | 70(34.5)  | 28(13.8)          |
| 2    | I do worry if my gums bleed during brushing  | 57(28.1)       | 97(47.8)  | 8(3.9)    | 19(9.4)   | 22(10.8)          |
| 3    | I worry about the colour of teeth  | 79(38.9)       | 100(49.3) | 12(5.9)   | 3(1.5)    | 9(4.4)            |
| 4    | I am concerned about sticky deposits on my tooth                                       | 73(36.0)       | 106(52.2) | 8(3.9)    | 8(3.9)    | 8(3.9)            |
| 5    | Using of child- sized tooth brush is improper  | 77(37.9)       | 78(38.4)  | 29(14.3)  | 13(6.4)   | 6(3.0)            |
| 6    | I think that i cannot help having false teeth when i'm old                             | 18(8.9)        | 48(23.6)  | 75(36.9)  | 45(22.2)  | 17(8.4)           |
| 7    | I am bothered by the colour of my gums   | 46(22.7)       | 98(48.3)  | 25(12.3)  | 27(13.3)  | 7(3.4)            |
| 8    | I am worried that my teeth are getting worse despite my daily brushing                 | 21(10.3)       | 68(33.5)  | 42(20.7)  | 61(30)    | 11(5.4)           |
| 9    | Spending to much time on brushing will damage the tooth structure                      | 33(16.3)       | 117(57.6) | 22(10.8)  | 27(13.3)  | 4(2.0)            |
| 10   | It is necessary to teach the correct brushing procedure                                | 125(61.6)      | 64(31.5)  | 1(0.5)    | 7(3.4)    | 6(3.0)            |
| 11   | I think i can clean my teeth well without using toothbrush                             | 5(2.5)         | 23(11.3)  | 9(4.4)    | 75(36.9)  | 91(44.8)          |
| 12   | I often check my teeth in a mirror after brushing                                      | 74(36.5)       | 96(47.3)  | 9(4.4)    | 16(7.9)   | 8(3.9)            |
| 13   | I am bothered having bad breath  | 71(35)         | 79(38.9)  | 14(6.9)   | 32(15.8)  | 7(3.4)            |
| 14   | It is impossible to prevent gum disease with tooth brushing alone                      | 22(10.8)       | 98(48.3)  | 37(18.2)  | 39(19.2)  | 7(3.4)            |
| 15   | It is not necessary to visit a dentist until i get tooth ache                          | 5(2.5)         | 22(10.8)  | 17(8.4)   | 100(49.3) | 59(29.1)          |
| 16   | Use of a dye will clean the teeth  | 7(3.4)         | 33(16.3)  | 57(28.1)  | 74(36.5)  | 32(15.8)          |
| 17   | Use of a toothbrush with hard bristles will damage the gums                            | 55(27.1)       | 105(51.7) | 20(9.9)   | 16(7.9)   | 7(3.4)            |
| 18   | Brushing of teeth with strong strokes is not ideal                                     | 47(23.2)       | 101(49.8) | 34(16.7)  | 20(9.9)   | 1(0.5)            |
| 19   | I feel sometimes i take too much time to brush my teeth                                | 7(3.4)         | 77(37.9)  | 41(20.2)  | 70(34.5)  | 8(3.9)            |
| 20   | I have had my dentist tell me that i brush very well                                   | 18(8.9)        | 97(47.8)  | 50(24.6)  | 36(17.7)  | 2(1.0)            |
| 21   | Brushing the teeth more than once is deal  | 44(21.7)       | 106(52.2) | 22(10.8)  | 28(13.8)  | 3(1.5)            |
| 22   | Eating sweets leads to poor oral hygiene   | 23(11.3)       | 100(49.3) | 26(12.8)  | 45(22.2)  | 9(4.4)            |
| 23   | Dental floss should be used regularly  | 39(19.2)       | 83(40.9)  | 46(22.7)  | 33(16.3)  | 2(1.0)            |
| 24   | Mouth wash should be used regularly  | 44(21.7)       | 100(49.3) | 33(16.3)  | 23(11.3)  | 3(1.5)            |
| 25   | I am worried about taking carbonated drinks very frequently                            | 37(18.2)       | 104(51.2) | 25(12.3)  | 32(15.8)  | 5(2.5)            |
| 26   | I am satisfied with the appearance of my teeth   | 34(16.7)       | 97(47.8)  | 22(10.8)  | 39(19.2)  | 11(5.4)           |
| 27   | I am not bothered about chewing tobacco  | 15(7.4)        | 18(8.9)   | 2(1.0)    | 53(26.1)  | 115(56.7)         |
| 28   | I am not concerned about the ill effect of smoking                                     | 16(7.9)        | 19(9.4)   | 5(2.5)    | 47(23.2)  | 116(57.1)         |
| 29   | I am bothered about attending oral health camp   | 39(19.2)       | 100(49.3) | 34(16.7)  | 21(10.3)  | 9(4.4)            |
| 30   | It is necessary to create awareness of dental problems among family member/peer groups | 142(70)        | 52(25.6)  | 2(1.0)    | 2(1.0)    | 5(2.5)            |

**Table 2. Comparison of Pre-Clinical and Clinical Students towards their Oral Health Care**

| Level of Agreement | Score   | Level of Pre Clinical Students |                | Level of Clinical Students |                |
|--------------------|---------|--------------------------------|----------------|----------------------------|----------------|
|                    |         | Frequency                      | Percentage (%) | Frequency                  | Percentage (%) |
| Stongly Disagree   | 1-30    | 0                              | 0              | 0                          | 0              |
| Disagree           | 31-60   | 5                              | 5              | 0                          | 0              |
| Undecided          | 61-90   | 5                              | 5              | 0                          | 0              |
| Agree              | 91-120  | 90                             | 90             | 96                         | 93.2           |
| Strongly Agree     | 121-150 | 0                              | 0              | 7                          | 6.8            |
| Total              |         | 100                            | 100            | 103                        | 100            |

The data were analyzed using SPSS (statistical package for social science version 16). The percentages of the responses were calculated. Descriptive statistics such as mean and standard deviation were calculated. The difference of the oral health knowledge, attitude and behavior between preclinical and clinical students was assessed by Student's *t*-test.

## RESULTS

Questionnaire was distributed to 203 students, out of which 100 (49.3%) students were from pre clinical, and 103 (50.7%) students were from clinical. The responses are shown in Table 1. A total of 60.6% of students agreed eating sweets lead to poor oral hygiene; 69.4% of students accepted their concern regarding carbonated drinks consumed very frequently. A total of 56.7% and 57.1% of students strongly agreed about the ill effects of tobacco and smoking. Regarding creating the awareness in general population, 88.3% of students preferred the 'camping' method and 95.6% of students accepted the need for creating the awareness of dental problems among family

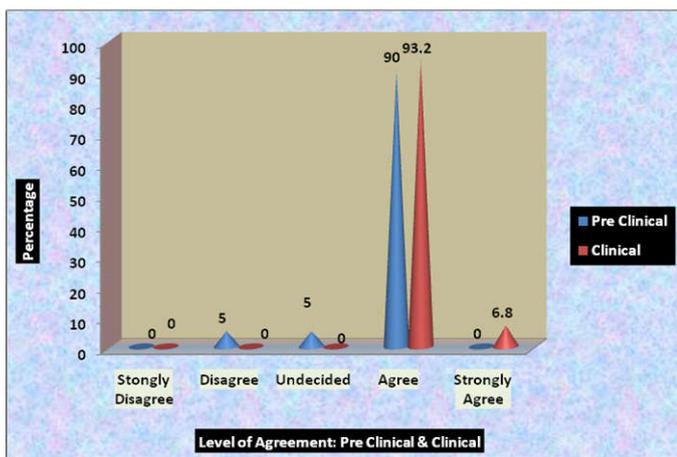
member/peer groups. Comparison between pre clinical and clinical dental students towards their oral health care (table 2, fig 1) showed that the pre-clinical students data depicted that majority of dental students 90 (90%) had agreed towards questionnaire regarding their oral health care, whereas 5 (5%) of students have disagreed and 5 (5%) of students have undecided attitude.

**Table 3. Comparison of the scoring between Pre-Clinical and Clinical Students towards their Oral Health Care**

| Year of Study         | Mean $\pm$ SD   | p- value |
|-----------------------|-----------------|----------|
| Pre Clinical (n =100) | 99.7 $\pm$ 10.9 |          |
| Clinical (n =103)     | 106.1 $\pm$ 8.2 | <0.001   |

The clinical students data depicted that, majority dental students 96 (93.2%) had agreed towards questionnaire regarding their oral health care, whereas 7 (6.8%) of students had strong agreement. This comparison shows that clinical students scored better than pre-clinical students. Comparison of mean of preclinical and clinical students score (table 4) was

99.7 and 106.1 respectively, which showed clinical students scored better which was statistically highly significant ( $p < 0.001$ ).



**Graph 1. Percentage of Pre-Clinical and Clinical Students towards their Oral Health Care**

## DISCUSSION

The behavior of oral health providers and their attitudes towards their own oral health reflect their understanding of the importance of preventive dental procedures and improving the oral health of their patients. The dental students are expected to set a good example for oral health behavior. Also, dental students should direct their friends, family members, patients and their society to maintain good oral health (Nusair, 2006; Al-Wahadni *et al.*, 2004). The dental students in India spend their first 2 years in preclinics and next 3 years in clinics. Researchers have found that oral hygiene practices among dental students differ as per the years of study in dental school (Al-Omari and Hamasha, 2005). This study was formulated to study the oral health knowledge, attitude and practices of undergraduate dental students and also to correlate the difference between the students of clinical and preclinical courses. Only 48.3% students were concerned about their color of the gums, 47.8% were satisfied with appearance of their teeth, 11.3% students thought they were able to clean their teeth well without tooth brush, 52.2% students were concerned about sticky deposits on their teeth. About 49.3% and 40.9% dental students used mouth wash and dental floss regularly and 38.9% were worried about having bad breath. About 49.3% agree that eating sweets leads to poor oral hygiene and 51.2% students were worried about consuming carbonated drinks.

These findings were in much lower proportion compared to other Indian studies (Mani *et al.*, 2013 and Neeraja *et al.*, 2010). About 29.1% dental students do not worry about visiting dentist. This proportion was lower than 32% study results obtained by Neeraja *et al.*, 2010 and also in Jordanian students 86% (Al-Wahadni, *et al.*, 2004). About 49.3% dental students put off going to dentist until they had tooth ache. This was much lower compared to other studies from India (68%), (Neeraja *et al.*, 2010) China (64%), (Komabayashi *et al.*, 2005) and Korea (65%) (Kawamura M *et al.*, 2002) and slightly higher than Turkish (46.5%) (Peker and Alkurt, 2010) dental students. The frequency of brushing their teeth more than once daily in this study is very low (52.2%) compared to other Indian studies (90%) (Mani *et al.*, 2013), (74%) (Neeraja *et al.*, 2011) and Turkish (74.1%), (Peker and Alkurt, 2010)

Mongolia (81%), (Tseveenjav *et al.*, 2004) Australia (80%), (Messer and Calache, 2012) France (78%). (Cavaillon *et al.*, 1982) The percentage was higher than Nigerian dental students (47.5%) (Folayan *et al.*, 2013). About 10.8% students did not worry about bleeding gums. This proportion was much lower than findings from India (14%), (Neeraja *et al.*, 2011) Finnish (45%) and Japanese (25%) dental students who had bleeding gums. About 49.3% students worried about their color of teeth, this was less compared to Indian (84%) (Kawamura M *et al.*, 2000) (Neeraja R *et al.*, 2011) and Jordanian (67%) (Al-Omari QD and Hamasha, 2005) dental students. In the present study, the correlation between pre clinical and clinical dental students showed that the scores of the clinical students (106%) were higher than the preclinical (99.7%) students ( $P < 0.001$ ). This reflects the variation in the educational training experience of the dental students according to years of study ( $P < 0.001$ ). These results were in accordance to the other studies by Mani *et al.*, 2013, Neeraja *et al.*, 2011, Pekar *et al.*, 2009 Sharda *et al.*, 2008, Alam Moheet *et al.*, 2013, Lang *et al.*, 1977, and Cavaillon *et al.*, 1982. The findings were in contrast to the studies done by Dagli *et al.*, 2008, Al-Shiekh *et al.*, 2015, Halawany *et al.*, 2015, Ainamo *et al.*, 1978, el-Mostehy *et al.*, 1969, and Meister Jr F., 1980, which showed non-significant increase in the scores of clinical students when compared with preclinical students. Several studies (Nusair *et al.*, 2006, Al-Wahadni *et al.*, 2004, Kawamura *et al.* 2002 and Kawamura *et al.*, 1997) reported that the dental health attitudes changes to more positive way and is improved with increasing level of education. The improvement of personal oral health among dental students has shown to be linked to their dental education experience and oral health attitudes and behavior seem to increase significantly in the fourth and fifth year of dental education.

## Conclusion

From the study results, we conclude that the awareness regarding knowledge and behaviors among dental students was found to be satisfactory and it found to increase with increasing level of education. This may be due to the year wise education of the clinical knowledge among dental students. Hence, there is a need for implementation of more preventive programs immediately on oral health promotion which can further help in increasing the knowledge, attitude and practices of the students. In order to achieve this, more and more continuing dental education programmes on oral health promotion and awareness should be conducted and implemented in their curriculums.

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