ECRONICON OPEN ACCESS

EC DENTAL SCIENCE
Research Article

# Oral Health Attitude of Preclinical and Clinical Dental Students in Hamdard University Karachi

**Nadeem Hafeez Khokhar[1], Syeda Farhat Bukhari[2], Abdur Rehman[3]*, Syed Muzzamil Ali Shah[4] and Rafey Ahmed Jameel[5]**

[1]*Professor, HOD Science of Dental Material, Hamdard University Dental Hospital, Karachi, Pakistan*

[2]*Assistant Professor, Science of Dental Material, Hamdard University Dental Hospital, Karachi, Pakistan*

[3]*Associate Professor, Science of Dental Material, Hamdard University Dental Hospital, Karachi, Pakistan*

[4]*Associate Professor, HOD Community Health and Preventive Dentistry, Hamdard University Dental Hospital, Karachi, Pakistan*

[5]*Assistant Professor, Department of Oral Biology and Tooth Morphology, Foundation University Dental Hospital, Islamabad, Pakistan*

***Corresponding Author:** Abdur Rehman, Associate Professor, Science of Dental Material, Hamdard University Dental Hospital, Karachi, Pakistan.

**Received:** July 14, 2020; **Published:** July 27, 2020

## Abstract

Dental students are expected to be more concerned about their own hygiene as they play a pivotal role in educating the society of the importance of oral hygiene that will impart effect on their family, friends and patients. The purpose of the study was to explained the students and their individual queries. The pre translated English-language version of the Hu-Dbi was distributed to all outgoing preclinical (2nd year) and regular clinical (4th year) dental students at the College of Dentistry, Hamdard University. The data was analyzed using SPSS version 23. Chi square testing was done p 0.05 was considered statistically significant. It was found that there is no difference in knowledge, attitude and behavior between the preclinical and clinical students. The inculcation of oral health care education in the curriculum during the early preclinical years resulted in improvement of mean Hu-Dbi.

***Keywords:*** *Hu-Dbi; Preclinical and Clinical Students; Oral Health; Behavior and Attitude*

## Introduction

Dental hygiene practices start right from the birth as the mothers wipe the oral cavity after feeding with wet washcloth [1]. Therefore, the attitude and understanding of the ones oral health is developed by the family during early life [2]. Islam preaches personal cleanliness [3] and stresses a lot on oral hygiene practices [4]. Therefore, recommends brushing one's teeth using miswak toothbrush during ablution for five obligatory prayers and after waking up [5].

Dental students are expected to be more concerned about their own hygiene as they play a pivotal role in educating the society of the importance of oral hygiene that will impart effect on their family, friends and patients [6-8]. Dental students at Hamdard University, Karachi, Pakistan, come from varied but socially stable backgrounds. They show entirely distinct cultural attitudes towards oral hygiene behaviors and attitudes adopted from their regional practices. There is a great influence of geo-political, cultural, religious and socio-economic factors in forming of oral health attitudes and behavior in a certain society [9].

Following the publication on attitude of dental students toward their oral hygiene using Hiroshima University Dental Behavioral Inventory (Hu-Dbi) this study was done to observe the attitude in our environment.

The Hiroshima University-Dental Behavioral Inventory (Hu-Dbi), originally formulated by [10,11] and translated into numerous languages, has been utilized in studies worldwide to assess dental students' attitudes toward their oral health [9,12,13]. The Hu-Dbi comprises 20 items with dichotomous response options (agree/disagree) and has demonstrated good reliability.

This model has been tested in many countries but the data from Karachi, Pakistan is lacking. It was worthwhile to study and publish the oral health attitudes of preclinical and clinical dental students at the College of Dentistry, Hamdard University Karachi, Pakistan.

## Purpose of the Study

The purpose of the study was explained to the students and their individual queries were answered. The students completed the questionnaire anonymously and no personal information except their academic year was collected.

## Materials and Methods

The pre translated English-language version of the Hu-Dbi was distributed to all outgoing preclinical (2nd year) and regular clinical (4th year) dental students at the College of Dentistry, Hamdard University. Participation in this study was voluntary. Approval by the Ethics Committee of the College of Dentistry, Hamdard University was taken. All ethical protocols were strictly followed during the study period and informed consent was obtained from all respondents before participation. There was no gender discrimination in study groups. Statistical analysis was done by using SPSS version 23. All descriptive data was computed i.e. frequencies and percentages was calculated. The overall response rate was 97/104 (93.26%) out of whom 45/48 (93.7%) preclinical students and 52/56 (92.8%) clinical returned the questionnaire. The Hu-Dbi provides a quantitative estimate of respondents' attitudes toward oral health based on the sum of agree/disagree responses. Chi square testing was done p 0.05 was considered statistically significant.

## Result

A total number of Second Year students was 48 out of whom 45 (93.7%) responded and the total number of Final Year students was 56 out of whom 52 (92.8%) responded. The overall response rate was 97/104 (93.26%). The distribution in male and female candidates was not done due to small sample size. The response of preclinical and clinical students to each question is given in table 1. Significant difference was found in 4 of 20 items questioned between preclinical and Clinical students. Majority of the preclinical students 98% didn't use child size tooth brush as compared to clinical students 85% (p 0.05).

| S. No | Question | Pre-Clinical | | Clinical | |
|---|---|---|---|---|---|
| | | Agree | Disagree | Agree | Disagree |
| 1. | I don't worry about visiting the dentist | 27 (60%) | 18 (40%) | 39 (75%) | 13 (25%) |
| 2. | My gums bleed when I brush my teeth (D) | 7 (15.6%) | 38 (84.4%) | 6 (11.5%) | 46 (88.5%) |
| 3. | I worry about the color of my teeth | 35 (77.8%) | 10 (22.2%) | 35 (67.3%) | 17 (32.7%) |
| 4. | I have noticed some white sticky deposits on my teeth (A) | 20 (44.4%) | 25 (55.6%) | 13 (25%) | 39 (75%) |
| 5. | I use a child-sized toothbrush | 1 (2.2%) | 44 (97.8%) | 8 (15.4%) | 44 (84.6%) |
| 6. | I think I cannot help having false teeth when I am old (D) | 17 (37.8%) | 28 (62.2%) | 14 (26.9%) | 38 (73.1%) |
| 7. | I am bothered by the color of my gums | 17 (37.8%) | 28 (62.2%) | 20 (38.5%) | 32 (61.5%) |
| 8. | I think my teeth are getting worse despite my daily brushing (D) | 15.6 (13.0%) | 38 (84.4%) | 9 (17.3%) | 43 (82.7%) |
| 9. | I brush each of my teeth carefully (A) | 41 (91.1%) | 4 (8.9%) | 45 (86.5%) | 7 (13.5%) |
| 10. | I have never been taught professionally how to brush | 8 (17.8.0%) | 37 (82.2%) | 7 (13.5%) | 45 (86.5%) |

| | | | | | |
|---|---|---|---|---|---|
| 11. | I think I can clean my teeth well without using toothpaste (A) | 9 (20%) | 36 (80%) | 6 (11.5%) | 46 (88.5%) |
| 12. | I often check my teeth in a mirror after brushing (A) | 41 (91.1%) | 4 (8.9%) | 44 (84.6.1%) | 8 (15.4%) |
| 13. | I worry about having bad breath | 34 (75.6%) | 11 (24.4%) | 28 (53.8%) | 24 (46.2%) |
| 14. | It is impossible to prevent gum disease with tooth brushing alone (D) | 21 (46.7%) | 24 (53.3%) | 25 (48.1%) | 27 (51.9%) |
| 15. | I put off going to a dentist until I have a toothache (D) | 31 (68.9%) | 14 (31.1%) | 29 (55.8%) | 23 (44.2%) |
| 16. | I have used a dye to see how clean my teeth are (A) | 12 (26.7%) | 33 (73.3%) | 17 (32.7%) | 35 (67.3%) |
| 17. | I use a toothbrush with hard bristles | 10 (22.2%) | 35 (77.8%) | 10 (19.2%) | 42 (80.8%) |
| 18. | I don't feel I have brushed unless I brush with strong strokes | 14 (31.1%) | 31 (68.9%) | 10 (19.2%) | 42 (80.8%) |
| 19. | I feel I sometimes take too much time to brush my teeth (A) | 29 (64.4%) | 16 (35.6%) | 23 (44.2%) | 29 (55.8%) |
| 20. | I have had my dentist tell me that I brush very well | 31 (68.9%) | 14 (35.6%) | 35 (67.3%) | 17 (32.7%) |

***Table 1:*** *The response of preclinical and clinical students to each question.*

The Hu-Dbi inventory has total of 20 dichotomous agree/disagree items (Table 2). It is designed in such a way that it records oral health of dental students based on three aspects i.e. Knowledge, Attitude and Behavior. The mean Hu-Dbi score were specified (Table 3).

| S. No | Question | Pre-Clinical | | Clinical | |
|---|---|---|---|---|---|
| | | Agree | Disagree | Agree | Disagree |
| 1. | My gums bleed when I brush my teeth (D) | 7 (15.6%) | 38 (84.4%) | 6 (11.5%) | 46 (88.5%) |
| 2. | I have noticed some white sticky deposits on my teeth (A) | 20 (44.4%) | 25 (55.6%) | 13 (25%) | 39 (75%) |
| 3. | I think I cannot help having false teeth when I am old (D) | 17 (37.8%) | 28 (62.2%) | 14 (26.9%) | 38 (73.1%) |
| 4. | I think my teeth are getting worse despite my daily brushing (D) | 15.6 (13.0%) | 38 (84.4%) | 9 (17.3%) | 43 (82.7%) |
| 5. | I brush each of my teeth carefully (A) | 41 (91.1%) | 4 (8.9%) | 45 (86.5%) | 7 (13.5%) |
| 6. | I have never been taught professionally how to brush | 8 (17.8.0%) | 37 (82.2%) | 7 (13.5%) | 45 (86.5%) |
| 7. | I think I can clean my teeth well without using toothpaste (A) | 9 (20%) | 36 (80%) | 6 (11.5%) | 46 (88.5%) |
| 8. | I often check my teeth in a mirror after brushing (A) | 41 (91.1%) | 4 (8.9%) | 44 (84.6.1%) | 8 (15.4%) |
| 9. | It is impossible to prevent gum disease with tooth brushing alone (D) | 21 (46.7%) | 24 (53.3%) | 25 (48.1%) | 27 (51.9%) |
| 10. | I put off going to a dentist until I have a toothache (D) | 31 (68.9%) | 14 (31.1%) | 29 (55.8%) | 23 (44.2%) |
| 11. | I have used a dye to see how clean my teeth are (A) | 12 (26.7%) | 33 (73.3%) | 17 (32.7%) | 35 (67.3%) |
| 12. | I feel I sometimes take too much time to brush my teeth (A) | 29 (64.4%) | 16 (35.6%) | 23 (44.2%) | 29 (55.8%) |

***Table 2:*** *Hu-DBI 12 question for data analysis.*

| Sr. No. | Oral Health awareness | Item no. | Mean Score | Mean Score Pre-Clinical | Mean Score Clinical |
|---|---|---|---|---|---|
| 1 | Knowledge | 5: (2, 8, 10, 15, 19) | 3.463 | 3.466 | 3.461 |
| 2 | Attitude | 3: (6, 11, 14) | 1.36 | 1.377 | 1.346 |
| 3 | Behavior | 4: (4, 9, 12, 16) | 2.402 | 2.533 | 2.288 |

***Table 3:*** *The mean DBI score on the basis on the knowledge attitude and behavior.*

## Knowledge

Item 2, 8, 10, 15, 19 compares the knowledge of dental students:

1. More clinical students 88.5% disagreed to Bleeding gums while brushing as compared to preclinical students 84.4%.
2. 84.4% students think their teeth are getting worse despite daily brushing as compared to clinical 82.7%.
3. Pre-clinical students 82.2% and clinical students 86.5% are trained professionally to brush their teeth. Both clinical 55.8% as well as preclinical students 68.9% putt off going to a dentist until they have toothache.
4. Preclinical students 64.4% are significantly more concerned about taking too much time to brush their teeth as compared to clinical student 44.2% (p = 0.05).

**Attitude**:

Item 6, 11, 14 compared the attitude of the dental students:

1. 62.2% preclinical students as compared to 73.1% disagree to having false teeth when they grow old.
2. 80% and 53.3% preclinical and 88.5% and 51.9% clinical students respectively think they need tooth paste to clean their teeth and tooth brushing alone cannot prevent gum disease.

**Behavior**:

Item 4, 9, 12, 16 compared the behavior of the dental students:

1. Preclinical students significantly noticed white sticky deposits on their teeth 44.4% as compared to clinical students 25% P 0.05.
2. Preclinical students brush their teeth carefully 91.1% as well as check them in mirror while brushing 91.1% as compared to their clinical seniors 86.5% and 84.6% respectively.
3. Very few students both preclinical 26.7% and clinical 32.7% use dye to see how clean their teeth are.
4. Items 4, 9, 11, 12, 16 and 19 are given 1 point if the respondent agrees. Also, Items 2, 6, 8, 10, 14 and 15 are given 1 point if the respondent disagrees. Hence, the maximum possible score is out of 12 and the minimum score is 0. The higher the score means the better the oral health attitude and behavior for each student. Hu-Dbi questionnaire included eight dummy items which are not included in the final scoring system. The mean Hu-Dbi score of our study was 7.22 (Table 4).

| Academic Year | Total number | Participating students | Mean of HU_DBI |
|---|---|---|---|
| Pre-Clinical | 48 | 45 | 7.37 |
| Clinical | 56 | 52 | 7.09 |

***Table 4:*** *The mean HU-DBI score of our study.*

## Discussion

The dental students voluntarily chose dental medicine as a professional career, therefore it is expected of them to be role models for the entire society as far as oral health practices are concerned [14]. They should automatically change their hygiene attitudes and practice them since they will soon be working as healthcare providers who should be able to motivate others (community) to follow their examples [9]. The annual induction of dental students at Hamdard University is 50 students. The participants of this study were students of outgoing second year and fresh final year. Total students of both the years was 104 (48 preclinical students and 56 clinical) out of whom 97 participated in this study. Dentistry program in Pakistan constitutes of 4 years' annual program. First two years are preclinical years whereas last two years are clinical years. The dental curriculum followed at Hamdard University is designed to inculcate oral hygiene practices right from the beginning of the preclinical years. Community and preventive dentistry is taught in the second year of 4 years BDS program where Pre Clinical students are taught the basic brushing techniques and impact of oral hygiene on overall health of the patient. This effectively has shown a positive impact of higher overall mean Hu-Dbi 7.22. The mean Hu-Dbi of present study is higher than reported elsewhere. In India the mean DBI is reported to be 6.0 [2], Jordan 6.2 [15], Greece 6.8 [16]. It reinforces the idea that inculcation of knowledge since the beginning of the dental program helps students to develop better understanding and behavioral attitudes towards maintaining better oral health practices themselves. The impact of early knowledge shows that the mean Hu-Dbi score (7.37) among the preclinical dental students was slightly higher as compared to clinical students (7.07). In agreement with the result of present study [2,17,18]. Dagli and coworkers in 2008 and Al Shiekh 2014 and Halboub2016 found that the level of dental education did not improve the mean DBI score between clinical and preclinical students.

When knowledge was tested individually the mean DBI of preclinical students was slightly higher 3.463 as compared to the Clinical students 3.461 statistically not significant p 0.05. It shows that the knowledge which is imparted in the preclinical years sustains in the clinical years. The result is consistent with the mean DBI score of attitude and behavior between preclinical 1.377 and 2.533 and clinical, l 1.346 and 2.288 respectively. Our case is a perfect example that if the students are positively motivated in the earlier years, it would leave lasting effect on their. Our result showed that majority of the dental students are concerned about their oral health. However, low response rate on worrying to visit the dentist is due the fact that the restorative dentistry is fairly commonly provided. Hamdard University Dental Hospital is located amidst an educated and a cultured neighborhood. Overall patients attending the dental clinics are far more concerned about saving their teeth rather than extraction. This influences the dental students to visit restorative dentistry department regularly and hence restorative care is high. Our result is in accordance with the study from Turky Yeldiz and Dogan 2011 [14].

Dental student's awareness about microbial dental plaque was reported in item 4 if they noticed some white sticky deposits on their teeth. The response was significantly high among preclinical students as compared to clinical students. This may be due to change in behavior after newly imparted knowledge. A higher total response for item 9 brush each of my teeth carefully and item 12 checking the teeth in mirror after brushing were reported in both the study groups, reflecting higher aesthetic awareness among dental students. This result is in agreement with Egypt al Wesabi [7] and Bangalore Vangipuram [19].

Most preclinical students were concerned about bad breath as compared to their clinical counterparts. This result was significant. This also shows that as the knowledge is imparted the awareness becomes high. Most of the student agree that it is impossible to prevent gum disease with tooth brushing alone(item-14) as they are well aware of the other methodologies besides brushing. My gums bleed when I

brush my teeth. This result is similar with Egypt [7] and UAE Rehman and Kawas [20]. Most of dental students reported that they put off going to the dentist until they have toothache item-15, which is similar to frequencies stated among dental students from Japan [21] and Egypt [7]. The major reason being cost, fear of pain, and frequent visits in agreement with the study done by Dagli., *et al* [2]. The second year students have acquired basic dental education but lack clinical exposure as compared with the clinical students. However, it did not impart any significant effect in mean DBI score between preclinical and clinical students. The result of mean DBI of knowledge showed no significant improvement among the clinical students.

Based on results of our findings, over all the pre-clinical students were found to be more concerned about their oral hygiene as compared to the clinical students. This study was carried out in one private dental school and thus the result cannot be generalized to all over Pakistan. So, more studies are needed in different dental school in Pakistan.

## Conclusion

Within the limitation of our study we conclude:

1. There is no difference in knowledge, attitude and behavior between the preclinical and clinical students.
2. The inculcation of oral health care education in the curriculum during the early preclinical years resulted in improvement of mean Hu-Dbi.

## Bibliography

1. Shah Rohit., *et al*. "Protocol to Manage Oral Health-Tips for the Community-a Review". *World Journal of Advanced Scientific Research* 1 (2018): 56-60.
2. Dagli Rushabh J., *et al*. "Self Reported Dental Health Attitude and Behavior of Dental Students in India". *Journal of Oral Science* 50.3 (2008): 267-272.
3. Al-Bukhari Sahih. Sahih Muslim. Sunan Abu Daud, Sunan Al-Tirmizi, Sunan al-Nasai, Sunan Ibn Majah, Musnad Ahmad bin Hanbal, Muwatta'Malik, Sunan al-Darami, Mustadrak al-Hakim (CD. Maktabah Syamilah) (1933).
4. Al-Bukhari Sahih. Sahih Muslim. The Book of Al-Jumuah (Friday)". Sahih Bukhari: 589-595.
5. Bukhari. "The Book of Al-Jumuah (Friday)". Sahih Bukhari. USC-MSA web (English) reference. Hadith 887.
6. Gallagher Eugene B and Philip M Moody. "Dentists and the Oral Health Behavior of Patients: A Sociological Perspective". *Journal of Behavioral Medicine* (1981): 283-295.
7. Al-wesabi., *et al*. "Oral Health Knowledge, Attitude and Behaviour of Dental Students in a Private University". *BDJ Open* 5.1 (2019): 1-5.
8. Khami Mohammad R., *et al*. "Prevention-Oriented Practice of Iranian Senior Dental Students". *European Journal of Dental Education* 11.1 (2007): 48-53.
9. Kalevski Katarina., *et al*. "The Research of Health Education Program Efficiency in Adjusting the Attitudes and Behaviours of Dental Students in the Field of Oral Health". *Vojnosanitetski Pregled* (2020): 7-7.
10. Kawamura M. "Dental Behavioral Science Part Ix. Bilinguals' Responses to the Dental Behavioral Inventory (Hu-Dbi) Written in English and in Japanese". *Journal of Hiroshima University Dental Society* 24 (1992): 185-91.

11. Kawamura M., *et al*. "Relationship between Cpitn and Oral Health Behaviour in Japanese Adults". *Australian Dental Journal* 38.5 (1993): 381-388.

12. Kateeb E. "Gender-Specific Oral Health Attitudes and Behaviour among Dental Students in Palestine". (2010).

13. Kumar Santosh., *et al*. "Attitudes of Dental and Pharmacy Students to Oral Health Behaviour at Jazan University, Kingdom of Saudi Arabia". *Archives of Orofacial Sciences* 7.1 (2012): 9-13.

14. Yildiz Sinem and Basak Dogan. "Self Reported Dental Health Attitudes and Behaviour of Dental Students in Turkey". *European Journal of Dentistry* 5.03 (2011): 253-259.

15. Al-Wahadni., *et al.* "Differences in Self-Reported Oral Health Behavior between Dental Students and Dental Technology/Dental Hygiene Students in Jordan". *Journal of Oral Science* 46.3 (2004): 191-197.

16. Kawamura M., *et al*. "An Exploratory Study on Cultural Variations in Oral Health Attitudes, Behaviour and Values of Freshman (First-Year) Dental Students". *International Dental Journal* 55.4 (2005): 205-11.

17. Al-Shiekh Lubna., *et al*. "Evaluation of Dental Students' Oral Hygiene Attitude and Behavior Using Hu-Dbi in Sudan". *Science* 1.2 (2014).

18. Halboub Esam S., *et al*. "Self-Reported Oral Health Attitudes and Behavior of Dental and Medical Students, Yemen". *Global Journal of Health Science* 8.10 (2016): 56676.

19. Vangipuram Swathi., *et al*. "Assessment of Oral Health Attitudes and Behavior among Undergraduate Dental Students Using Hiroshima University Dental Behavioral Inventory Hu-Dbi". *Journal of Indian Association of Public Health Dentistry* 13.1 (2015): 52.

20. Rahman Betul and Sausan Al Kawas. "The Relationship between Dental Health Behavior, Oral Hygiene and Gingival Status of Dental Students in the United Arab Emirates". *European Journal of Dentistry* 7 01 (2013): 22-27.

21. Polychronopoulou Argy and Makoto Kawamura. "Oral Self-Care Behaviours: Comparing Greek and Japanese Dental Students". *European Journal of Dental Education* 9 4 (2005): 164-170.

**Volume 19 Issue 8 August 2020**