

## A Comparative Study on Attitude, Behavior and Oral Hygiene Status In Dental Students

Bhavik Dholia<sup>1</sup>, Bhari Sharanasha Manjunatha<sup>2</sup>

<sup>1</sup>Department of Oral and Maxillofacial Pathology,

KM Shah Dental College and Hospital, Vadodara, Gujarat, India.

<sup>2</sup>Basic Dental Sciences, Faculty of Dentistry, University of Taif, Taif, Kingdom of Saudi Arabia.

### DOI:

10.21276/amdr.2017.3.1.3

### Article History

Received: 11 Apr 2017

Revised: 17 May 2017

Accepted: 28 Jun 2017

### \*Correspondence to:

Dr. B.S. Manjunatha,  
Professor (Associate),  
Faculty of Dentistry,  
Al-Hawiyah, Taif-21944  
University of Taif,  
Kingdom of Saudi  
Arabia.  
drmanju26@hotmail.com

### ABSTRACT

**Background:** Oral health is one of the important resources for any country. An oral health study was conducted for mapping out the oral health situation in a selected population of dental students.

**Objective:** The aim of the present study was to assess the attitudes, behavior and oral health between the sample groups of preclinical and clinical dental students using the Hiroshima University Dental Behavioral Inventory (HU-DBI).

**Materials and Methods:** A descriptive cross-sectional study was carried out among 360 dental students with the English version of the preformed set of questionnaire consisting of 20 questions as per Hiroshima University- Dental Behavioral Inventory (HU-DBI). The oral health status was assessed from OHI index, DMF teeth index and CPI index at time of collection of questionnaire form. The data was computerized and analyzed. Differences in responses were assessed using chi-square. The level of significance was set at  $p < 0.05$ .

**Results:** The oral health behaviors and knowledge was superior in clinical dental students. Hence, the present study showed that Dental education had a significant positive impact on the oral health and behavior improvement.

**KEYWORDS:** Oral Health Behavior, Attitudes, Dental Education, Dental Students, HU-DBI.

### INTRODUCTION

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 be a good example for oral health behavior. Also, dental students should instruct their friends, family members, patients and their society to maintain good oral health.<sup>1</sup>

Dental health is highly individualized concept, the perception of which is very much affected by individual's culture and socio-economic status. The attitude of people towards their own teeth, and attitude of dentists who provides the dental care, play an important role in determining the oral health condition.<sup>2</sup>

The BDS program comprised of four years (Eight levels), divided into two parts: preclinical years [1<sup>st</sup> and 2<sup>nd</sup> year] and clinical years [3<sup>rd</sup> year, 4<sup>th</sup> year] followed by one year internship. All over India as per Dental

Council of India rules and regulations, this programme is followed in same schedule and in English language. Preclinical students take basic science and preclinical laboratory courses during early years of the program. In the clinical years, students manage and treat patients under supervision of the instructor.<sup>1</sup>

Research on dental students has shown that the oral health attitudes and behaviours differed between preclinical and clinical years of training and it differed among different cultures and countries.<sup>3-5</sup> Moreover, these varied among the students pursuing different training programs in dentistry, dental hygiene, dental technician and pharmacy. Clearly such studies are of paramount importance as the present global trend of standardization of dental education requires inclusion of oral health promotion in dental practice. However, until now no attention has been given to oral self-care beliefs, attitudes.<sup>1,6,7</sup>

The Hiroshima University-Dental Behavioural Inventory (HU-DBI) questionnaire, developed by Kawamura, based on dichotomous response format (agree/disagree) which consists of twenty items primarily associated with tooth-brushing behaviour. HU-DBI questionnaire is used for quantitative estimate of oral health attitude and behaviour, provided by the total appropriate agree/disagree responses. The English version has shown good test-retest reliability and translation validity.<sup>8</sup> Oral health status can be measured by DMFT, OHI-S and CPI index. It is widely accepted that self-report is an imperfect predictor of behaviour. While somewhat remote, clinical indices for physical signs of compliance have limitations as well. Therefore, the most adequate assessment includes both self-report and clinical indices.<sup>8</sup> Hence this study is aimed to compare the attitude, behaviour and oral health status among 360 students of K. M. Shah Dental College and Hospital, Sumandeep Vidyapeeth University, Vadodara, India, using HU-DBI questionnaires and DMFT, OHI-S and CPI indices. These data might help in assessing and comparing the focus of curriculum of under graduate students, which ultimately may be used to improve practice of dental student's oral hygiene and serve as a positive model for the patients, family, and friends.

### METHODOLOGY

This study was done in first to final year students studying at K. M. Shah Dental collage and hospital, Vadodara city. Student identification number, gender and age are recorded.

#### Inclusion Criteria

- Students who gave consent for the study.

#### Exclusion Criteria

- Students in which oral examination is not possible such as restricted mouth opening, students undergoing major or minor oral surgery or due to any other pathologies

The study was conducted after the approval from Ethical Committee of Sumandeep Vidyapeeth, Vadodara. All the participants were informed about the nature of the study and its importance. Interested students were given (HU-DBI) questionnaires in English language. A Total of 400 questionnaire forms were circulated to students of K. M. Shah Dental Students and only 360 students returned with responses. Oral health examination was done using DMF index, CPI index and OHI-S index to those students who responded. All indices were measured as per WHO criteria.

### RESULTS

A total of 360 dental students from the 1st, 2nd, 3<sup>rd</sup> and 4<sup>th</sup> year participated in the study. Participant's description by year wise is given in Table-1. Total 180 pre-clinical and 180 clinical students were included. Mean age of preclinical (Male: 34 and Female: 146) was 19 years and clinical students is (Male:27 and Female:153) was 21 year. Table-2 is showing analysis of Agree-Disagree responses according to years of their study. Out of 20 questions 6 questions (Q1, Q6, Q8, Q10, Q11, Q15) shows statistically significant difference between knowledge of preclinical and clinical students. Amongst those statistically significant questions except for question-11 rest all 5 questions showed higher statistical difference between the preclinical and clinical students.

**Table 1: Participants distribution by year of study (N:360)**

			Number of participants	Percentage of participants	Mean age
1ST YEAR	MALE	16	89	24.72%	18.36
	FEMALE	73			
2ND YEAR	MALE	18	91	25.28%	19.12
	FEMALE	73			
PRICLINICAL	MALE	34	180	50%	18.74
	FEMALE	146			
3RD YEAR	MALE	16	88	24.44%	20.58
	FEMLAE	72			
4TH YEAR	MALE	11	92	25.56%	21.2
	FEMALE	81			
CLINICAL	MALE	27	180	50%	20.89
	FEMALE	153			

OHI index, DMF teeth index and CPI index was measured at time of collection of questionnaire form. The average DMFT of all examined subjects was 1.44

(SD=1.73). Higher DMFT of 2.15 was noted in First year students (SD= 2.15) followed by second year (SD=1.62), third year (SD = 1.64) and final year BDS

students of 1.2 (SD=1.54) which is almost equal result in rest of the years. Table-3 also suggest that higher value of 0.76 for filled or F in DMFT index in final year (SD=1.48) suggesting the high awareness to filled the decayed teeth. Oral hygiene index were measured in students which shows that overall mean value for

OHI was  $0.6925 \pm 0.31$  which less than 1 suggesting that overall oral hygiene is good in all dental students. The CPI for dental students was recorded and it 1.21 (SD=1.70), while, at the same time, in only one of the respondents we did find the index corresponding to 3, i.e. periodontal pockets 4-5 mm.

**Table:2 Analysis of Agree-Disagree responses according to years of study**

	1st YEAR (N=89)		2nd YEAR (N=91)		PRE- CLINICAL (N=180)		3rd YEAR (N=88)		4th YEAR (N=92)		CLINICAL (N=180)		TOTAL (N=360)		P Value	Odds Ratio
	A*	D**	A	D	A	D	A	D	A	D	A	D	A	D		
QUESTION-1	66	23	47	44	113	67	49	39	37	55	86	94	199	161	0	0.349
QUESTION-3	62	27	68	23	130	50	58	30	64	28	122	58	252	108	0.256	0.769
QUESTION-4	25	64	34	57	59	121	37	51	29	63	66	114	125	235	0.429	1.193
QUESTION-5	10	79	18	73	28	152	7	81	13	79	20	160	48	312	0.145	0.262
QUESTION-6	36	53	38	53	74	106	26	62	21	71	47	133	121	239	0.002	0.5
QUESTION-7	51	38	51	40	102	78	43	45	60	32	103	77	205	155	0.862	0.963
QUESTION-8	21	68	32	59	53	127	18	70	13	79	31	149	84	276	0.004	0.479
QUESTION-9	75	14	76	15	151	29	73	15	80	12	153	27	304	56	0.878	1.046
QUESTION-10	31	58	51	40	82	98	17	71	22	70	39	141	121	239	0	0.323
QUESTION-11	15	74	17	74	32	148	9	79	10	82	19	161	51	309	0.029	0.501
QUESTION-12	73	16	70	21	143	37	72	16	72	20	144	36	287	73	0.975	0.992
QUESTION-13	67	22	44	47	111	69	53	35	54	38	107	73	218	142	0.487	0.86
QUESTION-14	54	35	56	35	110	70	45	43	57	35	102	78	212	148	0.257	0.783
QUESTION-15	59	30	55	36	114	66	40	48	40	52	80	100	194	166	0	0.47
QUESTION-16	18	71	19	72	37	143	9	79	15	77	24	156	61	299	0.46	0.559
QUESTION-17	21	68	22	69	43	137	20	68	18	74	38	142	81	279	0.47	0.831
QUESTION-18	30	59	26	65	56	124	27	61	21	71	48	132	104	256	0.332	0.796
QUESTION-19	49	40	43	48	92	88	40	48	50	42	90	90	182	178	0.594	0.893
QUESTION-20	49	40	38	53	87	93	49	39	54	38	103	77	190	170	0.178	1.333

\*A (Agree); \*\*D (Disagree)

**Table 3: Showing Average DMF score of BDS students**

	D±SD	M±SD	F±SD	DMF±SD
<b>First year</b>	1.5± 2.04	0.08±.43	0.24±0.75	2.16±2.15
<b>Second year</b>	0.87±1.43	0.07±0.36	0.26±0.87	1.2±1.62
<b>Third year</b>	0.64±1.44	0.07±0.36	0.5±0.88	1.2±1.64
<b>Forth year</b>	0.49±.59	0.01±0.18	0.76±1.48	1.2±1.54

**Table 4: Showing Average OHI-S score of BDS students**

	DI-S	CI-S	OHI-S
<b>First year</b>	0.69±0.31	0.4±0.04	0.81±0.31
<b>Second year</b>	0.55±0.32	0.07±0.04	0.56±0.32
<b>Third year</b>	0.76±.30	0.04±0.04	0.8±0.31
<b>Forth year</b>	0.54±0.31	0.06±0.04	0.6±0.31

## DISCUSSION

It is the duty of oral health professionals is to educate their patients, to correct and improve oral hygiene habits to control and prevent oral diseases. It was reported that education about dental health care in the pre-university curriculum could be an important factor that can influence the oral health attitudes of students entering dental field.<sup>6</sup>

The BDS program comprised of four years (Eight levels), divided into two parts: preclinical years [1<sup>st</sup> and 2<sup>nd</sup> year] and clinical years [3<sup>rd</sup> year, 4<sup>th</sup> year] followed by one year internship. All over India as per DCI norms and regulation this programme is followed in same schedule and in English language. Preclinical students take basic science and preclinical laboratory courses during early years of the program. In the clinical years, students manage and treat patients under supervision of the instructor.<sup>1</sup>

Research on dental students has shown that the oral health attitudes and behaviours differed between preclinical and clinical years of training and it differed among different cultures and countries.<sup>1,3-5</sup> Moreover, these varied among the students pursuing different training programs in dentistry, dental hygiene, dental technician and pharmacy. Clearly such studies are of paramount importance as the present global trend of standardization of dental education requires inclusion of oral health promotion in dental practice. However, until now no attention has been given to oral self-care beliefs, attitudes.<sup>6</sup>

In present study we found that dental students were concerned considerably, about the appearance of their teeth and gums and halitosis. Similar findings were reported by Komabayashi et al (students of China), Stenberg P et al (students of Sweden), Al-Omari QD et al (students of Jordan).<sup>9-11</sup> We also find oral health behaviour and attitude of dental students improved with increasing level of dental education. This finding could

be explained by the fact that with increased levels of education, students become more concerned about their dentition and more aware of the limitations and the impact of the loss of teeth on their dental function and aesthetics.

The Israeli population had higher scores 72.4% and 88.6% for “My gums tend to bleed when I brush my teeth” (Q-2) and “I have noticed some white sticky deposits on my teeth” (Q-4), respectively, which were 17.13% and 35.11% in the present study. And only 33.9% was agree for those had never been professionally instructed on how to brush their teeth (Q-10),<sup>8</sup> This demonstrates that dental students have better oral cleanliness hones over the overall public due to better oral health attitude and behavior.

Half of the participants indicated that “they would postpone going to the dentist until they had a toothache” (Q-15), “It is impossible to prevent gum disease with tooth-brushing alone.”(Q-14), “I have had my dentist tell me that I brush very well.” (Q-20) Thus, it is vital for oral wellbeing experts to perceive the hugeness and significance of preventive exercises to make their patients mindful and aware. Consequently, an organized mediation leading towards an improved dental status by enhancing the population’s knowledge, attitude and behaviour is needed.

The dental students who took part in the present study learn preventive dentistry and dental awareness during 3<sup>rd</sup> year (clinical years), according to the University curriculum. The level of dental education did not demonstrate a significant correlation with higher aggregate mean score of dental awareness among clinical years (3 and 4) compared to pre-clinical years (1 and 2). Minor contrast may be on grounds that preventive aspects of oral health are introduced in the clinical years, which impact students to improve their attitude and behavior to personal oral health. This notice may be because of a few variables. First, Dental students

had low oral health awareness and poor knowledge when they started their dental education. A reasonable justification of this is the lack of effective school-based oral health advancement programs at a national level that could assist schoolchildren to enhance and maintain their oral health.<sup>12,13</sup>

Oral health is usually estimated by prevalence of caries, which is usually determined by the DMFT index, presence of periodontal disease (CPI index), status of oral hygiene (OHI-S), diet and frequency of visits to the dentist.<sup>14</sup> High DMFT index values in general population are often a result of poor organization and preventive measure of dental care and can be an indicator of the socio-economic status.<sup>15</sup>

DMFT of the first-year students is (2.16±2.15) which decreases gradually in final year (1.2±1.54). Our findings are in accordance with Spanish survey of oral health of dental and medical students showed a higher DMFT value at the beginning of the study. Finnish researchers have found a DMFT reduction in the first year students from Helsinki in the period of 20 years (1982-2002) from 11.0 to 2.9. In a study carried out in 2002 they found 27.9% of patients with a DMFT value 0, whereas in 1982 they did not find any subjects without caries.<sup>16</sup> Dabrowska et al.<sup>17</sup> reported an average value of DMFT to be 11.91 in the first year of Poland's population of dental students, while Polish students of the fourth and fifth year of dentistry had a DMFT value of 13.56.<sup>18</sup> In the neighbouring Bosnia and Herzegovina in the combined population of students of medicine and dentistry (University of East Sarajevo) the DMFT was 12.8.<sup>19</sup>

All these findings suggest that DMF index value is lower than rest of the study. As the total male and female participants are not same number in present study, so it is should not be compared. Few studies also shown no major differences among male and female.<sup>20,21</sup> Hence, gender is not a major factor influencing the HU-DBI percentage of agree/disagree responses. It would be of interest to conduct a similar study including a greater number of dental students and compare the results.

The findings of the present study highlight the relatively good oral health behaviour and believes that a scope to improve in order to serve as a positive model. It is also suggestive of improving dental education in India, with special emphasis on prevention-oriented dental health.

## REFERENCES

1. Baseer MA, Rahman G, Kawaey ZA, Awamy BA, Manmeen ZA, Shalaty FA. Evaluation of Oral Health Behavior of Female Dental Hygiene Students and Interns of Saudi Arabia by Using Hiroshima University Dental Behavioural Inventory (HU-DBI). *Oral Health Dent Manag.* 2013;12(4):255-61.
2. Davis P (1980) *Social context of dentistry.* Elsevier, London, 21-7.

3. Polychronopoulou A, Kawamura M, Athanasouli T. Oral self-care behavior among dental school students in Greece. *J Oral Sci* 2002; 44: 73-8.
4. Kawamura M, Honkala E, Widström E, Kobayashi T. Cross-cultural differences of self-reported oral health behavior in Japanese and Finnish dental students. *Int Dent J* 2000; 50: 46-50.
5. Kawamura M, Yip HK, Hu DY, Kobayashi T. A cross-cultural comparison of oral attitudes and behavior among freshman dental students in Japan, Hong Kong and West China. 2001; *Int Dent J* 51, 159-63.
6. 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. *Journal of Oral Science* 2004; 46: 191-197.
7. Santosh Kumar, Busaly IA, Tadakmadla J, Tobaigy F. Attitudes of dental and pharmacy students to oral health behaviour at Jazan University, Kingdom of Saudi Arabia. *Archives of Orofacial Sciences.* 2012; 7: 9-13.
8. Levin L, Shenkman A. The relationship between dental caries status and oral health attitudes and behavior in young Israeli adults. *J Dent Educ.* 2004 Nov;68(11):1185-91.
9. Komabayashi T, Kwan SYL, Hu DY, Kajiwaru K, Sasahara H, Kawamura M (2005) A comparative study of oral health attitudes and behaviour using the Hiroshima University – Dental Behavioural Inventory (HU-DBI) between dental students in Britain and China. *J Oral Sci* 47, 1-7.
10. Stenberg P, Håkansson J, Åkerman S (2000) Attitudes to dental health and care among 20 to 25-years-old Swedes: results from a questionnaire. *Acta Odontol Scand* 58, 102-106.
11. Al-Omari QD, Hamasha AA (2005) Gender-specific oral health attitudes and behavior among dental students in Jordane. *J Contemp Dent Pract* 1, 107-114.
12. Topaloglu-Ak A, Eden E, Frencken JE. Managing dental caries in children in Turkey--a discussion paper. *BMC Oral Health.* 2009 Nov 25;9:32.
13. Chrysanthakopoulos NA. Self-Reported Oral Health Attitude and Behaviour of Greek Medical Students. *Acta Stomatol Croat.* 2012;46(2):126-135.
14. Suman M, Spalj S, Plancak D, Dukic W, Juric H. The influence of war on the oral health of professional soldiers. *Int Dent J.* 2008 Apr;58(2):71-4.
15. Lalloo R, Myburgh NG, Hobdell MH. Dental caries, socio-economic development and national oral health policies. *Int Dent J.* 1999 Aug;49(4):196-202.
16. Peltola JS, Ventä I, Haahtela S, Lakoma A, Ylipaavalniemi P, Turtola L. Dental and oral radiographic findings in first-year university students in 1982 and 2002 in Helsinki, Finland. *Acta Odontol Scand.* 2006 Feb;64(1):42-6.
17. Dabrowska E, Letko R, Balunowska M. Assessment of dentition status and oral hygiene in first year dental

students, Medical University of Białystok. *Adv Med Sci*. 2006;51 Suppl 1:104-5.

18. Stypułkowska J, Łyszczarz R, Wichliński J, Pawłowska K, Solska- Kuczerek A. Oral health state in dentistry students of Medical College, Jagiellonian University in Cracow. *Przegl Lek*. 2003; 60 Supp 16: 122-5.

19. Stojanović N, Krunic J. The prevalence of dental caries in students in medicine and Dentistry in Foca municipality. *Serbian Dental J*. 2007;54(2):89-96.

20. Dagli RJ, Tadakamadla S, Dhanni C, Duraiswamy P, Kulkarni S. Self reported dental health attitude and behavior of dental students in India. *J Oral Sci*. 2008 Sep;50(3):267-72.

21. Tseveenjav B, Vehkalahti M, Murtomaa H (2000) Preventive practice of Mongolian dental students. *Eur J Dent Educ* 6, 74-78.

**Copyright:** © the author(s) and publisher AMDR. This is an open access article distributed under the terms of the Creative Commons Attribution Non-commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

**How to cite the article:** Bhavik Dholia, Bhari Sharanesha Manjunatha. A Comparative Study on Attitude, Behavior and Oral Hygiene Status In Dental Students. *Adv Med Dent Res* 2017; Jan-Jun; 3(1); 15-20.