



## Comparison of the HU-DBI Index Between Dental and Medical Students of Tabriz University, IRAN, 2020

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### Abstract

**Objectives:** The aim of the present study is to assess oral health attitudes and behaviour of dental and medical students, and the impact of various factors such as academic level, academic field, gender, and academic achievement on their oral health attitudes and behaviour.

**Methods and Materials:** A self-administered questionnaire which is a modified form of Hiroshima University-Dental Behavior Inventory (HU-DBI) and the questionnaire used by Cortes, was prepared, was distributed between 136 medical and 200 dental students of Tabriz University of Medical Sciences, IRAN.

**Results:** The mean HU-DBI score of dental students was 4.40, which is significantly higher than medical students (3.63) ( $P < 0.001$ ). It was increasing with the progress of the study course in dental students. While in medicine this effect was not observed. There was no significant difference between male and female dental students. While in medicine, the mean HU-DBI score of female students was significantly higher than male students.

**Conclusion:** Due to the fact that the mean HU-DBI score of dental and medical students is much lower than the ideal score, there is a need for accurate and correct planning to improve their oral health attitude and behavior. Dental prevention knowledge should be part of the educational curriculum and taught in the first academic year to be reinforced during the enhanced study period, and stabilized as part of the personal care program.

**Keywords:** Oral Health; Attitudes; Behaviour; Dental Students; Medical Students

### Introduction

Education regarding the correct health behavior is reported to be an essential component for the successful prevention of diseases in numerous medical fields, such as dentistry and oral public health [1]. Being one of the most effective approaches to educate the public about oral health, the self-applied oral hygiene measures and related behavior and attitudes of dentists can immensely impact a society's oral health [2]. In a dental school setting, it is critical to evaluate yearly progress of dental students learning about self-care regimens such as oral health attitudes and behaviour.

However, little attention has been paid to annual progress due to the difficulty of outcomes measurement and lack of control group students outside the dental school [3]. To investigate dental health attitudes, perceptions and behavior, Kawamura (1988) developed the Hiroshima University- Dental Behavioral Inventory (HU-DBI). The questionnaire, based on a 20-item scoring scale, provided an instrument capable of measuring students' perceptions and attitudes to prevention as well as student' oral self-care behaviour [4].

The HU-DBI has good test/ retest reliability. This questionnaire has been translated from Japanese into English, Finnish, Chinese,

and Korean for cross-cultural comparisons. Results for these translated versions, including methods and reliability, have been reported previously [5-8].

Apart from Japanese students, the inventory has been recorded and investigated in dental students in Australia, Belgium, Brazil, China, Finland, France, Germany, Greece, Hong Kong, Indonesia, Ireland, Italy, Japan, Korea, Malaysia, Thailand, and the UK, in an effort to gain further insight into their health attitudes (Kawamura, *et al*, 1997, 2000, 2001, 2002, 2005; polychronopoulou, *et al*, 2002; komabayashi, *et al*, 2005) [4].

In this study, we aimed to examine oral health attitude and behavior of Iranian dental students as a trained group and medical students as a control group. This study indicates the effect of various factors such as education level, gender, academic field, and

academic achievement on oral health attitudes and behavior of students.

**Methods**

This study consisted of descriptive-analytical, cross-sectional survey of Medical and Dental students of Tabriz University of Medical Sciences, Iran. 136 (40.47%) medical and 200 (59.52%) dental students of Tabriz University of Medical Sciences have been called to study by stratified random sampling. In this way, students of each field and different entrance years were included in the study in equal proportions. The percentage of male students in medicine was higher (60.3% males and 39.7% females). In dentistry, male and female students had an equal ratio. The mean age (S. D.) of medical and dental respondents was 22.0 (2.4) and 21.5 (2.1) years old, respectively (Table 1).

Level	Dental			Medical		
	Male	Female	Total	Male	Female	Total
Year 6	18(50%)	18(50%)	36(100%)	26(56.5%)	20(43.5%)	46(100%)
Year 5	16(50%)	16(50%)	32(100%)	20(83.3%)	4(16.7%)	24(100%)
Year 4	16(50%)	16(50%)	32(100%)	14(70.0%)	6(30.0%)	20(100%)
Year 3	12(40%)	18(60%)	30(100%)	8(80.0%)	2(20.0%)	10(100%)
Year 2	22(57.9%)	16(42.1%)	38(50%)	10(50.0%)	10(50.0%)	20(100%)
Year 1	16(50%)	16(50%)	32(100%)	4(25.0%)	12(75.0%)	16(100%)
Total	100(50%)	100(50%)	200(59.52%)	82(60.3%)	54(39.7%)	136(40.47%)

**Table 1:** Descriptive statistics of medical and dental participant students of Tabriz University of Medical Sciences by academic field, academic year, and gender.

A self-administered questionnaire which is a modified form of HU-DBI global questionnaire [9] and the questionnaire used by Cortes [10] was prepared. This questionnaire, consists of 21 dichotomous responses (agree- disagree) regarding oral health attitudes and behavior of students toward dental recommendations. a Persian version of HU-DBI and Cortes questionnaire was made from the English version using a translation procedure led by Persian and English bilingual experts having experience with questionnaires and survey research. Back-translation was used during this translation process. The questionnaire was sent to ten bilingual internal referee who were expert in oral health. All of them (100%) confirmed the validity of questionnaire. The reliability of the questionnaire was assessed using Cronbach’s alpha coefficient and in a pilot study among 30 people ( $\alpha = 83\%$ ). The questionnaire was distributed among the students and they were asked to fill it

in at the same time. An overall rating was made, based on the individual’s assessment of dental issues.

**Statistical analysis**

Data were coded, computerized and analyzed by SPSS program, Version 16. The frequency distribution of qualitative variables was reported as number (percentage) and age variable was reported as mean  $\pm$  standard deviation.

“Agree” responses were presented as percentages and tested for association with academic year and field of study by chi-square test. Each positive answer was given one point and each negative answer was given zero.

10 items were used to calculate the total score. “agree” responses for items: 1, 11, 13, 15 were given one point each. “disagree” re-

sponses for items: 3, 4, 12, 14, 16, 17, were given one point each. Hence the total score of oral health attitude and behavior was out of 10 for each student. The scores, for the whole sample and by gender, academic field and year were presented as mean. Then ANOVA was performed and the results of Tukey HSD (high significant difference) was reported. Kolmogorov-Smirnov test was used to check the normal distribution.

To examine the differences in score means between two groups, Independent t-test and for most of two groups, One-way ANOVA was used. Significance level in all tests was considered 0.05.

### Results

Table 2 and 3 shows the percentage of positive responses in two-choice and three-choice questions, respectively. The data are classified by academic field and academic year. Significant differences were found between medical and dental students and are described in detail under in following sections:

A) Oral health attitudes; B) oral hygiene behavior; C) self-reported oral health and dental visits.

No. Item Descriptions	Academic field	Year							M-H $\chi^2$	
		1	2	3	4	5	6	Total	Odds ratio	P*
1. I always/ sometimes use dental floss.(A)	Dentistry	5/37	6/52	3/73	5/62	8/68	2/72	0/61	12/0	07/0
	Medicine	0/25	0/50	40/0	0/60	0/75	6/69	8/58		
2. I brush my teeth according to scientific principles.	Dentistry	8/43	4/47	0/80	5/87	0/75	4/94	0/71	95/0	129/0
	Medicine	0/50	0/60	0/60	0/60	3/58	2/65	3/60		
3. I have never been taught professionally how to brush. (D)	Dentistry	3/56	4/44	9/42	8/18	5/12	1/11	6/30	71/0	04/0*
	Medicine	5/12	4/44	0/0	0/30	0/25	1/39	9/29		
4. I put off going to a dentist until I have a toothache. (D)	Dentistry	3/81	7/73	7/46	3/31	7/26	4/29	0/49	47/1	02/0*
	Medicine	0/75	9/88	7/66	0/60	8/81	7/72	6/74		
5. I do not worry about visiting the dentist.	Dentistry	3/31	9/57	0/80	0/75	3/93	4/94	7/71	05/1	19/0
	Medicine	5/12	7/66	0/80	0/100	7/91	1/39	2/61		
6. I worry about the color of my teeth.	Dentistry	0/100	5/89	3/93	0/100	8/68	9/88	9/89	89/0	27/0
	Medicine	5/87	0/100	0/80	9/88	0/100	6/69	1/85		
7. I am bothered by the color of my gums.	Dentistry	9/76	7/94	0/80	3/81	5/62	3/83	4/80	49/0	04/0*
	Medicine	5/87	0/80	0/60	0/70	7/91	2/65	0/75		
8. I worry about having bad breath.	Dentistry	7/66	7/73	0/80	3/81	7/66	4/82	3/75	30/1	25/0
	Medicine	0/50	0/80	0/20	0/60	3/83	6/69	2/66		
9. I use a toothbrush with hard bristles.	Dentistry	5/37	1/42	0/20	0/25	3/13	1/11	3/25	18/0	03/0*
	Medicine	0/50	0/30	0/40	0/50	0/50	47/8	4/32		

10. I don't feel I have brushed unless I brush with strong strokes. (A)	Dentistry	8/18	8/36	7/26	5/12	3/33	2/22	3/25	06/0	25/0
	Medicine	0/25	0/40	0/20	0/50	0/25	7/21	4/29		
11. I feel I sometimes take too much time to brush my teeth. (A)	Dentistry	3/13	1/11	0/40	3/6	7/35	7/16	8/19	49/1	30/0
	Medicine	0/0	0/20	0/0	0/20	3/8	7/21	7/14		
12. I think my teeth are getting worse despite my daily brushing. (D)	Dentistry	3/31	5/10	7/26	7/26	7/6	0/0	5/16	23/0	17/0
	Medicine	9/42	0/20	0/0	0/30	0/25	1/26	4/25		
13. I often check my teeth in a mirror after brushing. (A)	Dentistry	0/100	0/100	3/93	8/68	5/87	4/94	8/90	36/2	14/0
	Medicine	0/100	0/70	0/60	0/80	8/81	3/77	5/78		
14. My gums tend to bleed when I brush my teeth. (D)	Dentistry	5/12	1/21	0/0	0/0	0/0	0/0	0/6	12/0	025/
	Medicine	5/37	0/10	0/0	0/20	0/25	3/4	7/14		
15. I think I can clean my teeth well without using toothpaste. (A)	Dentistry	0/50	9/57	7/46	0/75	8/93	7/66	0/65	25/3	001/0*
	Medicine	0/75	0/30	0/0	0/80	1/9	1/26	8/35		
16. It is impossible to prevent gum disease with tooth brushing alone. (D)	Dentistry	0/75	1/61	0/80	8/68	5/62	5/76	4/70	02/1	96/0
	Medicine	5/87	0/60	0/60	0/90	3/83	5/56	6/70		
17. I think that I cannot help having false teeth when I am old. (D)	Dentistry	5/37	7/16	0/20	3/13	0/0	7/16	3/17	07/0	32/0
	Medicine	0/25	0/10	0/20	0/20	7/41	4/30	5/26		
18. I am smoker.	Dentistry	3/6	5/10	3/13	5/12	3/6	8/27	0/13	31/1	45/0
	Medicine	5/12	0/10	0/20	0/20	7/16	1/26	1/19		

**Table 2:** Logistic regression analysis on each modified HU-DBI question to compare the percentage of "agree" response between medical and dental students, controlling the effect of academic year attended.

Mantel Haenszel chi-square tests were done in each level of dental and medical education.

Significant differences between dental and medical students; \*: P<0.05

In the calculation of the HU-DBI;

(A)= one point is given for each of these agree responses.

(D)= one point is given for each of these disagree responses.

PD = P value between levels of dental education.

PM = P value between levels of medical education.

Times	Dentistry							Medicine						
	1	2	3	4	5	6	Total	1	2	3	4	5	6	Total
19. How many times a day do you brush your teeth?														
<1 time	3/6	0/0	0/0	0/0	0/0	6/5	<b>0/2</b>	5/12	0/10	0/20	0/0	0/0	7/21	8/11
1 time	3/81	4/68	3/73	3/81	5/62	2/22	<b>0/64</b>	5/62	0/40	0/20	0/70	7/41	0/13	8/36
>1 time	5/12	6/31	7/26	8/18	5/37	2/72	<b>0/34</b>	0/25	0/50	0/60	0/30	3/58	2/65	5/51
P<0.001 *														
20. How many minutes do you spend each time?														
<1 minute	0/0	2/22	0/0	0/0	1/7	6/5	<b>2/6</b>	5/12	0/0	0/40	0/10	7/16	1/9	9/11
1-3 minutes	0/75	1/61	7/66	5/37	9/42	6/55	<b>7/56</b>	5/87	0/80	0/60	0/80	7/66	1/59	1/70
>3 minutes	0/25	7/16	3/33	5/62	0/50	9/38	<b>1/37</b>	0/0	0/20	0/0	0/10	7/16	8/31	9/17
P<0.001 *														
21. How often do you change your toothbrush?														
Whenever toothbrush hair falls out	5/12	7/16	7/26	3/6	5/37	7/16	<b>2/19</b>	5/12	0/40	0/0	0/20	7/16	3/14	5/18
<6 months	3/56	0/50	7/66	3/56	3/56	7/66	<b>6/58</b>	0/50	0/40	0/75	0/60	7/41	7/66	4/55
>6 months	3/31	3/33	7/6	5/37	3/6	7/16	<b>2/22</b>	5/37	0/20	0/25	0/20	7/41	0/19	2/26
P = 0.714														

**Table 3:** Dental health habits by academic field and year (percentage)  
Significant differences between dental and medical students; \*: P<0.05.

### Oral health attitudes

There is no significant difference between dental and medical students about "worry about going to the dentist". In both fields, this worry has decreased as the level of education progressed. (Item 5, PD < 0.001, PM < 0.001). Dental students were significantly worried about discoloration of their gums when compared with medical students (80.4% and 75%, respectively). (Item 7, OR = 0.49, P = 0.04). 16.5% of dental students believed that "I think my teeth are getting worse despite my daily brushing", which has decreased as the level of dental education progressed. (Item 12, PD = 0.002). The belief that "teeth can be brushed well without use of toothpaste" is significantly higher among dental students than medical students (65.0% and 35.8%, respectively). (Item 15, OR = 3.25, P = 0.001) and there was significant difference in both fields between different academic years. (Item 15, PD = 0.001, PM < 0.001). A high percentage of medical and dental students (70.6% and 70.4%, respectively) believe that "brushing alone cannot prevent gum disease" (Item 16, P = 0.96). 17.3% of dental students believed that "tooth loss in old age is inevitable", which has decreased as the level of education progressed. (Item 17, PD = 0.006).

### Oral hygiene behaviour

In "flossing" there is no significant difference between medicine and dentistry, but in both disciplines it has increased with progressing educational level. (Item 1,

PD = 0.021, PM= 0.021). The "brushing frequency" was higher in dental students than medicals (98.0% and 88.2%, respectively). (Item 19, P < 0.001). Most dental students brush their teeth once a day (64.0%) and most medical students brush their teeth more than once a day (51.5%). Also, "brushing duration" was longer in dental students when compared with medical students (93.8% and 88.1%, respectively), (Item 20, P < 0.001) and most of them in both disciplines spend 2-3 minutes to brush. "Improving the brushing method" is seen as the level of education progressed among dental students (Item 2, PD < 0.001), whereas this change is not seen among medical students. 30.6% of dental and 29.9% of medical students reported that "I have never been taught professionally how to brush" (Item 3, OR = 0.71, P = 0.04), which has decreased as the level of dental education progressed (PD < 0.001). 25.3% of dental and 32.4% of medical students "use a toothbrush with hard bristles" (Item 9, OR = 0.18, P = 0.03). In both fields, there is significant difference between different academic years (PD = 0.011, PM = 0.001), this rate is much lower in final year students than the others. There was no significant difference between dental and medical students regarding "bleeding gums while brushing", and it was reported in pre-clinical and clinical dental students 0.0%. (Item 14, PD = 0.041). In "smoking", there was no significant difference between two groups. (Item 18, P = 0.45). But in each level of education, smoking percentage was higher in medicine than dental, and the highest percentage was seen among sixth-year dental and medical students (27.8% and 26.1% of the dental and medical sixth year students).

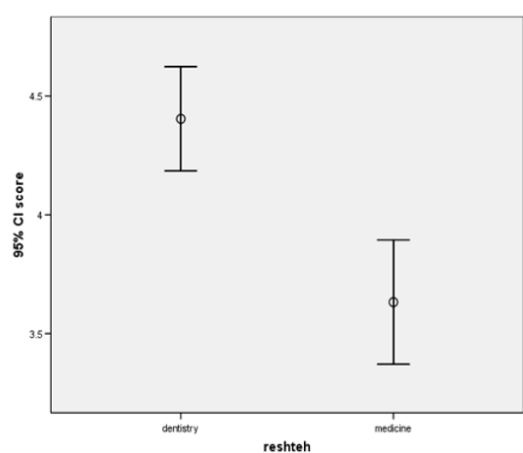
### Self-reported oral health and dental visits

49.0% of dental and 74.6% of medical students reported that “I put off going to a dentist until I have a toothache”. (Item 4, OR = 1.47, P = 0.02), this rate has decreased as the level of dental education progressed. (PD = 0.02) while this change is not seen among medical students. High percentage of dental and medical students (75.3% and 66.2%, respectively) were “worry about having halitosis (bad breath)” but there was no significant difference between them. (Item 8, P = 0.25).

In general, there are significant differences in 7 of 21 items asked in the questionnaire between medical and dental students.

Academic field	year	Mean	N	Std. Deviation
Dentistry	6	5.06	36	.984
	5	5.22	32	1.699
	4	4.53	30	1.408
	3	4.37	30	1.377
	2	3.92	38	1.459
	1	3.34	32	1.677
	Total	4.40	198	1.567
Medicine	6	3.67	46	1.777
	5	3.17	24	1.204
	4	3.90	20	1.071
	3	3.80	10	1.033
	2	3.40	20	1.957
	1	4.06	16	1.436
	Total	3.63	136	1.543

**Table 4:** Hiroshima University- Dental Behavioral Inventory(HU-DBI) scores of dental and medical students in various academic years.

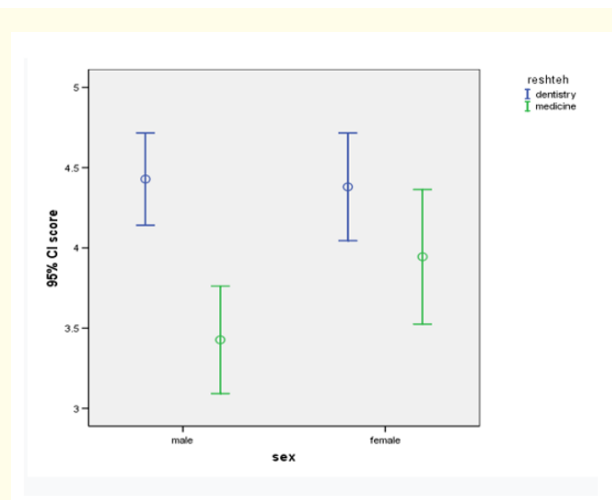


**Figure 1:** Comparison of HU-DBI scores classified by academic field in medical and dental students.

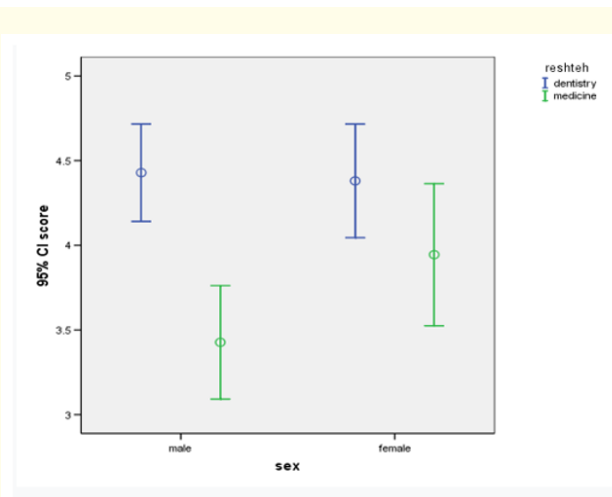
In these items, dental students were significantly better than medical students, and this improvement in oral health attitudes and behavior has seen as the level of dental education progressed.

### Mean HU-DBI scores

Figure 1 to 4 show the mean scores classified by academic field, level of education (years 1, 2, 3, 4, 5, and 6), and gender (male/female) in participating students. The scoring system is clearly reported. The maximum score is 10, and higher scores signify better oral health attitudes and behavior.



**Figure 2:** Comparison of HU-DBI scores classified by academic years (1 to 6) in medical and dental students.



**Figure 3:** Comparison of HU-DBI scores classified by gender (male/female) in medical and dental students.

The overall mean HU-DBI score of dental students was 4.40, which is significantly higher than medical students (3.63) ( $P < 0.001$ ). The mean score increased as the level of dental education progressed (3.34 in first-year, which reached 5.06 in sixth-year), while in medicine this effect was not observed. In all academic years, the mean score of dentistry was higher than medicine ( $p < 0.001$ ) except for the first-year, which was higher than dentistry in medicine. There was no significant difference between male and female dental students. While in medicine, the mean score of females (3.9) was significantly higher than males (3.43).

## Discussion

This study assess oral health attitudes and behavior of dental and medical students, and the impact of various factors such as academic level, academic field, gender on their oral health attitudes and behavior.

The course of dental education in Iran is 6 years, which includes 2 years of basic science education and 4 years of clinical education. During the clinic, students are trained in oral hygiene practices.

As future models of community health, medical and dental students should have good, evidence-based knowledge to teach appropriate health habits and behaviors to their patients. Achieving this goal requires evaluating the knowledge, attitudes and behavior of these students during the course. This is the first study to assess the impact of university education on the oral health attitude and behavior of medical and dental students in Tabriz, Iran.

Unfortunately, the mean HU-DBI score of Tabriz dental students was low (4.40), that indicates their poor oral health attitudes and behavior. Although this value is close to the reported scores in Yemen (5.06) (Halboub, *et al.*, 2016) [11], China (5.07) (komabayashi, *et al.*, 2005) [9], Sudan (5.08) (Al-sheikh, *et al.*, 2015) [23], it was much lower than that reported in other countries, like Egypt (6.77) (Al-Wesabi, *et al.*, 2019) [12], British (7.33) (komabayashi, *et al.*, 2005) [9], Saudi Arabia (6.4) (Alam Moheet, *et al.*, 2013) [13], United Arab Emirate (UAE) (9.45) (AL Kawas., *et al.*, 2010) [14], Romania (6.96) (Dumitrescu, *et al.*, 2007) [4], India (6.0), Jordan (6.02), Turkey (6.7), Greece (6.8) [13]. It seems that the preventive dentistry courses and the knowledge dental students gained during dental education had low impact on their oral self-care. In addition, cultural differences and diversity of educational systems should be considered. Similarly, the mean HU-DBI score of Tabriz

medical students (3.63) was very lower than that reported among medical students in Yemen (4.91) (Halboub, *et al.*, 2016) [11], United Arab Emirate (UAE) (6.85) (AL Kawas., *et al.*, 2010) [14] and Greece (5.64) (Chrysanthakopoulos, *et al.*, 2012) [15]. In our research, the mean HU-DBI score of dental students was significantly higher than medical students ( $P < 0.001$ ), while in Yemen (Halboub, *et al.*, 2016) [11] and Colombia (Jaramillo, *et al.*, 2012) [3] study were not statistically different. This indicates the necessitates critical revision of the curricula for medical students.

A higher proportion of dental students in Tabriz and Colombia [3] agreed with the statement "I have never been taught professional brushing" (Item 3), "I think it is possible to brush my teeth without using toothpaste" (Item 15) compared to medical and civil engineering students. While there was no significant difference between Yemeni dental and medical students [11]. Dental students in Tabriz and Colombia [3] had a higher agreement to the statement "I feel uncomfortable with the discoloration of my gums" (Item 7), while in Yemen [11] that is higher for medical students. "Use a toothbrush with hard bristles" (Item 9) in all three studies was lower among dental students. Believe that "wearing dentures in old age was inevitable" (Item 17), there was no significant difference between dental and medical students in Tabriz, whereas higher percentage of Yemeni medical students believed so [11].

As the level of dental education progressed, the mean HU-DBI score was increased, that is similar to the results reported in British and China (komabayashi, *et al.*, 2005) [9], Saudi Arabia (Alam Moheet, *et al.*, 2013) [13], Romania (Dumitrescu, *et al.*, 2007) [4], Yazd (vaziry, *et al.*, 2015) [16], Germany (mekhemar, *et al.*, 2020) [2], Egypt (Al-Wesabi, *et al.*, 2019) [12], Turkey, Lithuania, India, Greece, Japan, Jordan, Nigeria [2], and reported results in studies (Yildiz, *et al.*, 2011, Ahamed, *et al.*, 2015, Badovinac, *et al.*, 2013, Peker, *et al.*, 2010, Sato, *et al.*, 2013, Muthu, *et al.*, 2015, Ali, *et al.*, 2016) [11]. Which suggest that preventive knowledge training has a positive effect on their oral health attitudes and behavior and should be in the early stages of dental academic education. Contrary to these studies, Halboub study in Yemen [11], Vangipuram in India [17], Al-Shiekh in Sudan [23], and Dalgi in India [18], indicates lack of improvement in attitudes and behavior of dental students as the level of dental education progressed. In Hassan study in Iraq [19], PLI and GI between pre-clinic students was significantly higher than clinic students and significant difference between pre-clinic students was only in 4 items (Item 7,8,13,17).

Investigating the effect of gender in oral health attitudes and behavior shows no significant differences between male and female dental students, while in medicine females had better oral health attitude and behavior towards male students. This indicates the positive impact of dental education on them. On the contrary, in Halboub study [11], dental female students had higher mean HU-DBI score toward males, especially about visiting the dentist, brushing habits, and oral hygiene. In Hassan study [11], significant difference was only in Items 15,16 and PLI and GI in male students were higher than females. Similar results were reported in Dumitrescu (Romania) [4], vangipuram (India) [17], Oslberg [20], Fukai [21], Pinar Erdem (Turkey) [22]. (Oslberg, Halling, and Lindblad, 1999; Al-Omiri, Barghouat, Shaweesh, and Malkawi., 2012, Vangipuram, Rekha, Radha, and Pallavi, 2015) [11].

In all academic years except first-year, the mean score of dental students was higher than medical students and has increased as the level of dental education progressed (similar to Kim [24] and Rong [25]), which shows the positive effect of education on their attitude and behavior. In our study, similar to Cavailion [26], brushing frequency and duration (Item 19 and 20) were higher in dental students than medical students in all academic years. In all academic years, "delaying a visit to the dentist until the onset of toothache" (item 4) was higher among medical students than dental students, similar to other studies in Yemen [11], UAE [14], and Kuwait (Al-Hussaini, *et al.* 2003) [27]. The reason can be the high cost of dental services, fear of pain, dental memories in the past, insufficient time, lack of sufficient knowledge about dentistry [11]. In first-year, the mean score of medical students was higher than that of dental students, which shows that awareness level of high school students who get entrance scores in different academic fields is different and weakens due to lack of proper education in the university.

## Conclusion

According to the information obtained in this study, it was observed that dental students had better attitudes and behavior than medical students and as the level of dental education progressed, the mean HU-DBI score has increased. The significant difference between male and female medical students was eliminated in dentistry, which shows the positive effect of dental education on their attitudes and oral health behavior.

However, due to the fact that the mean score of dental students was 4.40 and much lower than the ideal score [10], accurate and correct planning to improve their oral health attitudes and behavior is needed. Dental prevention knowledge should be changed into personal care program and taught not only in the clinic, but also in academia and community level.

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