

Differences in Oral Health Behavior and Attitudes Between Dental and Nursing Students

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ÖZET

Diş hekimliği ve hemşirelik öğrencilerinin ağız sağlığı hakkındaki davranış ve düşüncelerindeki farklılıklar

Amaç: Bu çalışmanın amacı diş hekimliği ve hemşirelik öğrencilerin ağız sağlığı davranış ve düşüncelerindeki farklılıkları saptamaktır.

Yöntem: Araştırmada, Hiroshima University-Dental Behavior Inventory (HU-DBI) soruları ve ilave 7 soru olmak üzere 27 soruluk anket, toplam 253 Marmara Üniversitesi diş hekimliği (N=94) ve hemşirelik öğrencilerine (N=159) dağıtıldı ve istek doğrultusunda kişisel olarak doldurulması istendi.

Bulgular: Çalışmaya 71 diş hekimliği ve 157 hemşirelik öğrencisi dahil oldu. Hemşirelik öğrencileri dişlerinin (P<0.001) ve dişetlerinin (P<0.001) görünümünden diş hekimliği öğrencilerine göre daha kaygılıydılar. Diş hekimine gitme konusunda daha az endişelenme (P<0.001) ve dişlerinde ağrı olana kadar diş hekimine gitmeyi erteleme (P<0.001) ile ilgili sorulara katılıyorum cevabı veren hemşirelik öğrencilerinin oranı diş hekimliği öğrencilerine göre daha yüksekti. Hemşirelik öğrencilerine göre daha fazla diş hekimliği öğrencisi sert kulları olan (P=0.004) ve boyutu çocuklar için olan diş fırçası kullanmakta (P<0.001), her bir dişini dikkatle fırçalamakta (P=0.006) ve dişlerinin ne kadar temiz olduğunu görmek için plak boyası kullanmaktaydı (P<0.001). Hemşirelik öğrencilerine göre daha yüksek oranda diş hekimliği öğrencisi diş macunu kullanmadan dişlerini iyi temizleyebileceğini düşünmekteydi (P<0.001). Diş hekimliği öğrencilerinin HU-DBI skoru hemşirelik öğrencilerinden anlamlı şekilde daha yüksekti (P<0.001). Diş hekimliği öğrencileri hemşirelik öğrencilerine göre daha iyi ağız sağlığı düşünce ve davranışı gösterdi.

Sonuç: Hemşirelik öğrencilerinin ağız sağlığı farkındalığının düşük olmasından dolayı öğrencilere ağız sağlığı bakımını öğretmeye ve bu bakımı daha iyi seviyeye çıkarmak yönelik daha yoğun ders programının oluşturulması gerekmektedir.

Anahtar sözcükler: Ağız sağlığı davranışı, ağız sağlığı düşünceleri, HU-DBI, diş hekimliği öğrencileri, hemşirelik öğrencileri

ABSTRACT

Differences in oral health behavior and attitudes between dental and nursing students

Objective: The aim of the study was to assess the difference in oral health attitudes and behavior between dental and nursing students. **Methods:** A total of 27 item questions, the Hiroshima University-Dental Behavior Inventory (HU-DBI) and additionally 7 questions, were distributed to a total of 253 students, 94 dental and 159 nursing students, from Marmara University. The participating was voluntary based.

Results: Seventy-one dental and 157 nursing students were willing to participate to the study. The nursing students were significantly more concerned about the appearance of their teeth (P<0.001), and gums compared to dental students (P<0.001). Percent of agree response to worrying less about visiting dentist (P<0.001), and postponing to go to dentist until they had toothache (P<0.001) were higher in nursing students than in dental ones. More dental students compared to nursing students used a toothbrush with hard bristles (P=0.004), child-sized toothbrushes (P<0.001), brushed each of their teeth carefully (P=0.006) and had used a dye to see how clean their teeth were (P<0.001). Compared to the nursing students, a higher proportion of dental students thought that they could clean their teeth well without using toothpaste (P<0.001). The HU-DBI score of dental students was significantly higher than of nursing students (P<0.001). Dental students showed better oral health attitudes and behavior compared to nursing students.

Conclusion: Nursing students have low oral health awareness. More comprehensive courses on oral health care that teach and encourage the students to change their own dental health behavior and attitudes are needed.

Key words: Oral health behavior, oral health attitudes, HU-DBI, dental students, nursing students

INTRODUCTION

Although oral health represents an important attribute of overall health and well being, oral diseases remain the

most prevalent problems in the society. Attitudes towards oral health determine the condition of the oral cavity. The behavior of oral health providers and their attitudes towards their oral health could affect their capacity to

deliver oral health care and thus might affect the oral health of their patients. Dental health providers need to set an example for their patients by maintaining good oral health in their own mouths. Through their undergraduate study, it is logical that students in the field of dentistry develop and modify their behavior/attitudes towards their own health. This, in turn, could affect the oral health of their patients (1).

The Hiroshima University-Dental Behavior Inventory (HU-DBI), which consists of twenty dichotomous responses (agree-disagree), was developed by Kawamura to examine oral health attitudes and behavior of patients in tooth brushing (2). The HU-DBI has good test-retest reliability, and thus it is not only useful for understanding patients, but also predicting clinical outcomes (2,3). On the other hand, by using this test, the oral health behaviors were found to be very different between countries due to the difference in the health education systems (1,4,5) and differences between the cultures (6,7). Moreover, the studies showed that oral health behavior and attitudes improve by the level of education (8-11).

In Turkish dental health system, there is no dental nurse education. However, nurses have a mission to educate the hospitalized patients or public for oral health prevention in the rural area where the access to dentist is rather limited. Nursing school is a four year programme and includes in the first year four hours lecture on prevention of oral health to promote their patients. However, dental school is a five year programme and the oral health lectures starts in the third grade. In both schools, last two years are the clinically experienced years.

To our knowledge, the literature lacks the comparative studies concerning about the oral health information of the dental and nursing students in Turkey.

The aim of the present study was to assess and compare

the oral health behavior and attitudes of dental and nursing students in their clinical years using the HU-DBI.

The null hypothesis was that there was no difference in dental health behavior and attitudes of dental and nursing students at their clinical years of study.

MATERIAL AND METHODS

The original HU-DBI questionnaire was written in Japanese (2). A preliminary Turkish version was obtained by translation from the English version as previously described (12-14). Briefly, the translation was discussed with two Turkish bilinguals. Back-translation was used during the translation process. After minor changes were made, data for testing the validity of self-rating scales were collected from a convenience sample of 26 bilinguals. Bilinguals were asked to answer each version of the questionnaire separately at different times. The reliability of the translated version was measured using Cohen's Kappa. Kappa coefficient of each of 20 items was 1.0 (13).

Turkish version of the HU-DBI was administered to dental students and nursing students of Marmara University, Istanbul at the beginning of the semifinal (fourth year of dental education and third year of nursing education) and final academic years (fifth year of dental education and fourth year of nursing education) in 2007. Students were asked to remain in the class at the end of a lecture to participate in this survey on voluntary basis. No attempt was made to follow up with students who were absent in the day of the survey. Except gender, year of birth and university study level, no other personal information was requested. The research was approved by Deanship of Research of Marmara University of School of Nursing and Faculty of Dentistry. Out of 177 officially registered semifinal

Table 1: Distribution of the responders according to course and level of education

	No. of students		
	Officially registered N*	Present in the day of survey N	Willing to respond N (%) [†]
Dental students			
Semifinal year	84	60	45 (75%)*
Final year	93	34	26 (76%)
Total	177	94	71 (74%)
Nursing students			
Semifinal year	93	85	85 (100%)
Final year	88	74	72 (97%)
Total	181	159	157 (99%)

*Number of subjects. [†](%) Calculated from the number of students present in the day of survey.

and final year dental students, 94 were present in their classes; 71 of the 94 students (58% were female and 42% were male) were willing to respond. From 181 officially registered semifinal and final year nursing students, 159 were present in their classes; 157 of them (100% were female) were willing to respond (Table 1).

Data Analysis

SPSS for windows (version 11.5) was used in performing all statistical analyses. Group comparisons were performed

using Mann-Whitney U test for ordinal level data and Chi-square for categorical data. Statistical difference probability values were less than or equal to 0.05.

RESULTS

Table 2 shows the percentage distribution of the students with agree response to the 20 items by course and level of educations. Nursing and dental students responded differently to the questionnaire items. Although more nursing students agreed on that they did not worry

Table 2: Questionnaire items of the HU-DBI and percentage of agree response by course and level of educations

No.	Item descriptions	Education Course	Level					
			Semifinal	P*	Final	P	Total	P
1.	I don't worry much about visiting dentist.	Dental	47	0.010	39	<0.001	44	<0.001
		Nursing	69		78		73	
2.	My gums tend to bleed when I brush my teeth. (D)†	Dental	18	0.010	23	NS‡	20	0.009
		Nursing	39		34		37	
3.	I worry about the colour of my teeth.	Dental	16	<0.001	15	0.002	16	<0.001
		Nursing	62		49		56	
4.	I have noticed some white sticky deposits on my teeth. (A)§	Dental	11	NS	0	0.018	7	0.007
		Nursing	22		19		21	
5.	I used a child-sized toothbrush.	Dental	33	<0.001	19	0.005	28	<0.001
		Nursing	2		6		2	
6.	I think that I cannot help having false teeth when I am old. (D)	Dental	9	<0.001	0	0.001	6	<0.001
		Nursing	37		28		33	
7.	I am bothered by the colour of my gums.	Dental	13	0.003	4	0.006	10	<0.001
		Nursing	38		29		34	
8.	I think my teeth are getting worse despite my daily brush.	Dental	16	0.013	12	NS	14	0.013
		Nursing	35		24		30	
9.	I brush each of my teeth carefully. (A)	Dental	80	NS	92	0.009	85	0.006
		Nursing	68		65		67	
10.	I have never been taught professionally how to brush. (D)	Dental	22	NS	12	NS	18	NS
		Nursing	20		29		24	
11.	I think I can clean my teeth well without using toothpaste. (A)	Dental	62	<0.001	81	<0.001	69	<0.001
		Nursing	22		15		19	
12.	I often check my teeth in a mirror after brushing alone. (A)	Dental	73	0.003	81	NS	76	0.002
		Nursing	93		90		92	
13.	I worry about having bad breath	Dental	93	NS	92	NS	93	NS
		Nursing	84		85		84	
14.	It is impossible to prevent gum disease with tooth brushing alone. (D)	Dental	22	<0.001	78	<0.001	17	<0.001
		Nursing	77		76		76	
15.	I put off going to the dentist until I have a toothache. (D)	Dental	22	<0.001	23	<0.001	23	<0.001
		Nursing	67		64		66	
16.	I have used a dye to see how clean my teeth are. (A)	Dental	84	<0.001	96	<0.001	89	<0.001
		Nursing	5		6		5	
17.	I used a toothbrush which has a hard bristles.	Dental	29	NS	39	0.012	32	0.004
		Nursing	15		15		15	
18.	I do not feel I've brushed well unless I brush strong strokes.	Dental	9	0.022	15	NS	11	NS
		Nursing	26		15		21	
19.	I feel I sometimes take too much time to brush my teeth. (A)	Dental	29	NS	39	0.012	32	NS
		Nursing	28**		15		22	
20.	I have had my dentist tell me that I brush very well.	Dental	64	<0.001	46	NS	58	<0.001
		Nursing	20		31		25	

*Chi-square test, † (D): one point is given to each of these disagree responses. ‡NS: not significant, §(A): one point is given to each of these agree responses, **Significant differences between semifinal and final years of nursing students.

Table 3: Comparison of the HU-DBI value between dental and nursing students.

Level of education	Dental Students Median (min-max) (Mean ±SD [†])	P*	Nursing Students Median (min-max) (Mean±SD)	P*	P [‡]
Semifinal	9 (4-11) (8.30±1.86)	NS [§]	6 (3-9) (5.79±1.49)	NS	<0.001
Final	9.5 (5-11) (9.11±1.51)		6 (2-8) (5.63±1.53)		<0.001
Total	9 (4-11) (7.13±2.20)		6 (2-9) (5.47±1.53)		<0.001

*Mann-Whitney U test, between semifinal and final years. †Mann-Whitney U test, between dental and nursing students. ‡SD: Standard deviation. §NS: Non-significant.

Table 4: Comparison of the HU-DBI scores of Turkish dental students in their semifinal and final years with the other countries (data derived from literature)

Level of education	HU-DBI Score (Mean±SD*)						
	Turkey	Britain [†]	China [†]	Jordan [†]	Greek [§]	Japan ^{‡,§}	Finnish**
(max. score12)							
Semifinal	8.30±1.86	7.88	6.00		7.55±1.74	7.13±1.96	
Final	9.11±1.51	8.00	6.24		8.17±1.48	8.84±2.23	
(max. score11)							
Semifinal	8.20±1.84			6.00±1.54		7.95±2.14	7.69±1.01
Final	9.11±1.51			6.24±1.48		6.33±1.86	7.18±1.86

*SD: Standard deviation. †(4).

much about visiting the dentist than dental students, 73 to 44%, respectively, ($P<0.001$), 66% of the nursing students reported that they put off going to dentist until they had toothache, as opposed to only 23% of the dental students (item 15, $P<0.001$). Moreover, only 25% of the nursing students, in contrast to 58% of the dental students had had their dentist tell them they brushed their teeth well (item 20, $P<0.001$); a significantly higher percentage of dental students compared with nursing students used a toothbrush with hard bristles, (item 17, $P=0.004$), used child-sized toothbrushes (item 5, $P<0.001$), brushed each of their teeth carefully (item 9, $P=0.006$), had used a dye to see how clean their teeth were (item 16, $P<0.001$). A higher proportion of dental students thought that they could clean their teeth well without using toothpaste (item 11, $P<0.001$), and a lower percentage agreed that it was impossible to prevent the gum disease with tooth brushing alone (item 14, $P<0.001$) than did the nursing students. A higher percentage of nursing students checked their teeth in the mirror after brushing (item 12, $P<0.001$), worried about the colour of their teeth (item 3, $P<0.001$) and was bothered by the colour of their gums (item 7, $P<0.001$) than did their dental peers. Thirty three percent of the

nursing students vs., 6% of the dental students thought that they could not help having false teeth when getting old (item 6, $P<0.001$), and 30% vs. 14%, respectively, thought that their teeth were getting worse despite daily brushing (item 8, $P=0.013$). Thirty seven percent of the nursing students agreed that they had noticed some white sticky deposits on their teeth (item 4, $P=0.007$) and 21% agreed with the statement that their gums tended to bleed when they brushed their teeth (item 2, $P=0.009$), whilst dental students' percentage were lower, 7% and 20%, respectively.

When compared semifinal and final years of dental students, no significant difference was found in their agree response to 20 items questionnaire. Similarly, except to item 19 ($P=0.034$), nursing students in their semifinal and final years revealed no statistically significant differences in the percentage of agree response.

In both semifinal and final years, no significant difference was observed between dental and nursing students in agree response to items 10 and 13 (Table 2) (statements "I have never been taught professionally how to brush" and "I worry about having bad breath"). In addition to items 10 and 13, in semifinal year comparison

of the dental and nursing students showed no significant differences in items 4, 9, 17, 19 and in final year items 2, 8, 12, 18 and 20 (Table 2).

Table 3 shows the questionnaire summary score derived from the 12 scored items compared by level of the education and the course. Comparison of the level of the education (semifinal vs. final years) revealed no significant differences within dental or nursing students. However, in both semifinal and final years, the HU-DBI score of dental students were significantly higher than nursing students ($P<0.001$ and $P<0.001$, respectively). Moreover, overall mean HU-DBI score of dental students (7.13 ± 2.20) was significantly higher than that of nursing students (5.47 ± 1.53) ($P<0.001$).

The results of the logistic regression analysis are shown in Table 4. The logistic regression analysis showed that 6 variables (items 6, 1, 7, 8, 14 and 16) of the HU-DBI significantly predicted the course of the origin. Students with a positive answer to the items 6, 1, 7, 8 and 14 are more likely to be nursing students. Students with an agree response to items 16 (statement, "I have used a dye to see how clean my teeth") are more likely to be dental students.

DISCUSSION

The null hypothesis is rejected and no significant differences regarding oral health behavior and attitudes were found between dental and nursing students at their clinical years.

As dental students, nursing students are also expected to be a good example for oral health behavior and to guide their friends, family members, patients and their society to maintain good oral health. Students in the dental health providers should be introduced early to the oral health care education before they come in contact with patients. This is a key factor in developing their dental health attitudes and behaviors in order to allow them to have a positive impact on the dental behavior and attitudes of their patients.

The results of the present study show that there is no significant difference between the semifinal and final years within the dental or the nursing students (except item 19) in response to the 20 item questionnaire. However, there are significant differences in response of 16 of 20 item questions between dental students and nursing students

(Table 2). Majority of dental students had no bleeding when brushing teeth (80%), happy about the color of their teeth and gums (84% and 90%, respectively), did not notice any deposits on their teeth (93%), believed that they could prevent having false teeth and could clean their teeth well without using toothpaste (94% and 69%, respectively). For the same items, the percentages for the nursing students were significantly lower than the dental students ($P<0.05$, for each item), 63%, 44%, 66%, 79%, 67%, and 19%, respectively (Table 2).

Present suggestions for periodontal maintenance emphasize tooth-brushing, flossing and periodic dental check-ups (15). Both nursing and dental students were highly (more than 5/6 of the students) worried about having bad breath. About 1/5 of the dental students and 1/4 of the nursing students had never been taught professionally how to brush. Although 73% of the nursing students do not worry about visiting dentist, 66% of them respond that they put off going to dentist until they have a toothache. Moreover, about more than half of the dental students and 1/4 of the nursing students were being told that they brushed very well. These results may be explained by the fact that provided dental services have been mainly restorative, and preventive dental service takes place only in dental faculty with a minority activity in Turkey.

The maximum score in HU-DBI is 12, and higher scores signify better oral health (2). The mean HU-DBI scores reveal no significant difference between semifinal and final years within dental or nursing students (Table 3). However, dental students had significantly higher HU-DBI scores compared to nursing students in both semifinal and final years ($P<0.001$, $P<0.001$, respectively). The mean HU-DBI score of the dental students in semifinal year was 8.3 ± 1.7 , nursing students 5.8 ± 1.5 , and in the final year 9.1 ± 1.5 for dental students, 5.6 ± 1.5 for nursing students. The results in the present study were consistent with those reported by Shinagawa et al. (16) in that the mean HU-DBI final year nursing students was 5.39. Dental students had more positive dental attitudes and behavior than that of the nursing students. It seems that the oral health prevention lectures had low impact on oral-self care of the nursing students.

Previous studies using the HU-DBI in cross-cultural dental health behavior studies in university settings gave us objective data and implications for dental education and strategies of the preventive dentistry (4,9,20). The HU-DBI

score in previous studies was calculated either from 11 or from 12 (including item 4) questionnaire items. In order to compare our results with other studies in the literature, the HU-DBI score was also calculated from 11 questionnaire items (Table 4). The HU-DBI score of the Turkish dental students in the semifinal and final year seemed to be the highest compared to British, Chinese, Jordan, Greek, Japanese and Finnish semifinal and final dental students (4,9,20,21). Although caution should be exercised in making conclusions, the different school curriculum and training programme may explain variation in HU-DBI observed between the countries. However, the present study was conducted in one of the 16 government dental schools and one of the 9 nursing schools in Turkey. This would limit the results and conclusions drawn from it.

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In conclusion, dental students have more prolonged and direct contact with patients during their undergraduate studies and this clinical component of the dental course could be the underlying cause of the variation between different specialities. Thus, the variation in dental attitudes and behavior in the study population reflects the students' clinical training and the curriculum. The oral health lectures should be more comprehensive in nursing education in order to promote nursing students' oral health attitudes and behaviour.

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