Oral Health Attitudes and Behavior among a Group of Turkish Dental Students

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ABSTRACT
Objectives: The purpose of this study was to evaluate self-reported oral health attitude and behavior among a group of Turkish dental students and to compare differences in oral health attitudes between years of study and gender.

Methods: This study included 267 (153 female, 114 male) dental students. A modified English version of Hiroshima University Dental-Behavioral Inventory (HU-DBI) which consists of twenty-eight dichotomous responses (yes-no) was used.

Results: Totally 141 preclinical (1, 2 and 3rd years of study) and 126 clinical students (4 and 5th years of study) who were mean age of 21.16 participated in the study. Statistically significant differences were found between years of study for brushing each of teeth carefully, cleaning the teeth well without using toothpaste, using a toothbrush which has hard bristles and for having had their dentist tell that they brush very well. There were statistically significant differences between females and males for using a toothbrush which has hard bristles and using tooth floss regularly. Statistically significant differences were found for brushing each of the teeth carefully and using mouth wash on regular basis between smokers and non-smokers.

Conclusions: This study confirmed that oral and dental health behavior and attitudes and also their knowledge about oral and dental health care of dental students improved with increasing level of education while oral and dental health care of female students were better than males and oral and dental health care of non-smokers were better than smokers. [Eur J Dent 2009;3:24-31]

Key words: Oral health behavior; Dental attitudes; Dental students; Turkey.

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.1,2

The basis for health care in countries with
similar social systems is usually the same. Comparison of countries having different bases for health care and different languages is much more complicated and time-consuming.3 Hiroshima University-Dental Behavioral Inventory (HU-DBI) was developed by Kawamura to investigate dental health behavior, attitudes and perceptions.4 Oral health attitudes and behavior of dental and/or dental hygiene students were evaluated frequently by using this scale in several countries.5-8 But there is insufficient data for oral health attitudes and behavior among Turkish dental students. The purpose of this study was to evaluate self-reported oral health attitudes and behavior among a group of Turkish dental students by using modified HU-DBI and to compare differences in oral health attitudes between years of study and gender.

MATERIALS AND METHODS

This study included 267 dental students (153 female, 114 male) in Gazi University. Participation was voluntary and all participants remained anonymous. Demographic information was obtained including age, gender and years of study. The data collection was conducted during the autumn semester of academic year 2007-2008.

A modified English version of HU-DBI survey (Table 1) which consists of twenty-eight dichotomous responses (yes-no) was used in this study. While first 25 items of the inventory were related with oral health attitudes and behavior, last 3 items were related with smoking habit of dental students. This inventory has good test-retest reliability as well as good translated validity.9 The translation was discussed with one expert who had experience with questionnaires and survey research. Only minor corrections were made and resulting version was used in the present study. No separate validity testing was performed from the English to Turkish translation. The aim of this study was explained and the students completed the questionnaires in their classrooms during one lecture.

Data analysis

Data analysis was performed by using SPSS-version 11.5 for Windows (SPSS Inc., IL). Each item of the inventory was analyzed with Kruskal Wallis test for years of study and analyzed with Mann Whitney U test for gender. Chi-square test was performed for analysis between each of first 25 items and last 3 items.

Table 1. A modified English version of HU-DBI survey.

| Items                                                                 |
|----------------------------------------------------------------------|
| 1 I live with family now                                             |
| 2 I had been to a dentist office before                              |
| 3 I don’t worry much about visiting the dentist                      |
| 4 My gums bleed when I brush my teeth                                |
| 5 I have noticed some white sticky deposits on my teeth              |
| 6 I use a child sized toothbrush                                      |
| 7 I think that I cannot help having false teeth when I am old        |
| 8 I am bothered by the color of my gums                              |
| 9 I worry about the color of my teeth                                |
| 10 I think my teeth are getting worse despite my daily brushing      |
| 11 I brush my teeth twice daily or more                              |
| 12 I brush each of my teeth carefully                                |
| 13 I have never been taught professionally how to brush              |
| 14 I think I can clean my teeth well without using toothpaste         |
| 15 I often check my teeth in mirror after brushing                   |
| 16 I worry about having bad breath                                   |
| 17 It is impossible to prevent gum disease with tooth brushing alone |
| 18 I put off going to the dentist until I have toothache              |
| 19 I use a toothbrush which has hard bristles.                        |
| 20 I don’t feel I’ve brushed well unless I brush with strong strokes |
| 21 I feel I sometimes take too much time to brush my teeth            |
| 22 I have had my dentist tell me that I brush very well               |
| 23 I do use tooth floss on regular basis                             |
| 24 I do use mouth wash on regular basis                              |
| 25 I am satisfied with the appearance of my teeth                    |
| 26 I am a smoker                                                     |
| 27 I smoke more than 10 cigarettes per day                           |
| 28 I have been smoking for more than one year                        |
RESULTS

Totally 267 dental students (153 female, 114 male) who were mean age of 21.16 and consisting 141 preclinical (1st, 2nd and 3rd years of study) and 126 clinical students (4th and 5th years of study) participated in the study (Table 2).

Percentages and analysis of "yes" responses according to years of study is shown in Table 3. Statistically significant differences (P<0.05) were found for item 1, 12, 14, 19, 22, 26 and 28 between years of study. For living with family (item 1), there were statistically significant differences (P<0.05) between 1st-5th, 2nd-5th and 3rd-5th years of study. For brushing each of teeth carefully (item 12), statistically significant differences (P<0.05) were found between 1st-2nd, 1st-3rd, 1st-4th and 1st-5th years of study. For cleaning the teeth well without using toothpaste (item 14), there were statistically significant differences (P<0.05) between 1st-5th, 2nd-5th, 3rd-5th and 4th-5th years of study. For using a toothbrush which has hard bristles (item 19), statistically significant differences (P<0.05) were found between 1st-5th, 2nd-5th and 3rd-5th years of study. For having had their dentist tell that they brush very well (item 22), there were statistically significant differences (P<0.05) between 1st-5th, 1st-4th, 2nd-5th and 3rd-5th years of study. For smoking habit (item 26), statistically significant differences (P<0.05) were found between 1st-5th, 2nd-5th and 3rd-5th years of study. For having had their dentist tell that they smoke more than one year (item 28), there were statistically significant differences (P<0.05) between 1st-4th and 2nd-4th years of study.

Percentages and analysis of "yes" responses according to gender are shown in Table 4. Statistically significant differences were found (P<0.05) between females and males for item 19 (I use a toothbrush which has hard bristles) and item 23 (I do use tooth floss on regular basis). Statistically significant differences (P<0.05) were found between females and males for item 26 (I am a smoker), item 27 (I smoke more than 10 cigarettes per day) and item 28 (I have been smoking for more than one year).

Analysis between each of first 25 items which respond "yes" and last 3 items which respond "yes and no" is shown in Table 5. There were statistically significant differences (P<0.05) between item 1 (living family)-item 26 (smoking), item 27 (smoking more than 10 cigarettes per day) and item 28 (smoking more than one year). The rates of yes responses to items 26, 27 and 28 were higher in the students not living with family than living with family. Statistically significant differences (P<0.05) were found for item 12 (brushing each of the teeth carefully), item 17 (it is impossible to prevent gum disease with tooth brushing alone) and item 24 (I do use mouth wash on regular basis) between smokers and non-smokers.

DISCUSSION

Oral health behavior and attitudes among oral health workers and students were evaluated by using HU-DBI survey worldwide in several studies,1-6 which were performed in different countries. Even, cultural differences in countries with similar or different social systems were investigated in previous studies.3,7,10-12 Due to lack of studies about oral health attitudes and behavior among Turkish dental students, this study is of prime importance in this field. Self-reported oral health attitudes and behavior among a group of Turkish dental students by using modified HU-DBI and differences between years of study, gender and effect of smoking habits on oral health attitudes were evaluated.

Table 2. Sample description by year of study and gender.

| Years of study | N  | %  | Mean age±SD | Female | N  | %  | Male | N  | %  |
|----------------|----|----|-------------|--------|----|----|------|----|----|
| 1st year       | 37 | 13.9| 18.7±0.73   | 24     | 64.9| 13 | 35.1 |
| 2nd year       | 54 | 20.2| 20.4±0.96   | 28     | 51.9| 26 | 48.1 |
| 3rd year       | 50 | 18.7| 21.1±0.65   | 28     | 56.0| 22 | 44.0 |
| 4th year       | 64 | 24.0| 22.3±1.08   | 40     | 62.5| 24 | 37.5 |
| 5th year       | 62 | 23.2| 23.1±0.84   | 33     | 53.2| 29 | 46.8 |
| Total          | 267| 100.0| 21.4±1.69   | 153    | 57.3| 114| 42.7 |
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. Kirkiloglu and Yavuz indicated that self-protective oral behavior of the Turkish non-dental university students is at a lower level than in industrialized countries. They reported that 68% of the students brushed their teeth two or more times per day and few subjects (3%) used dental floss daily. Thirty percent of the students visited a dentist for preventive treatment at least once a year.

### Table 3. Percentages and analysis of “yes” responses according to years of study.

| Items | 1st year N (%) | 2nd year N (%) | 3rd year N (%) | 4th year N (%) | 5th year N (%) | Total N (%) | P value |
|-------|----------------|----------------|----------------|----------------|----------------|-------------|---------|
| Item 1 | 13 (34.2)† | 22 (40.7)† | 15 (30.0)† | 29 (45.3) | 39 (60.9) | 118 (43.7) | 0.010 |
| Item 2 | 30 (78.9) | 50 (92.6) | 38 (76.0) | 54 (84.4) | 58 (90.6) | 230 (90.6) | 0.078 |
| Item 3 | 27 (71.1) | 43 (79.6) | 34 (68.0) | 49 (76.6) | 55 (85.9) | 208 (77.0) | 0.188 |
| Item 4 | 8 (21.1) | 13 (24.1) | 9 (18.0) | 4 (6.3) | 7 (10.9) | 41 (15.2) | 0.050 |
| Item 5 | 14 (36.8) | 33 (61.1) | 32 (64.0) | 38 (59.4) | 39 (61.9) | 156 (58.0) | 0.079 |
| Item 6 | 6 (15.8) | 10 (18.5) | 7 (14.0) | 5 (7.8) | 4 (6.3) | 32 (11.9) | 0.199 |
| Item 7 | 26 (70.3) | 42 (77.8) | 34 (68.0) | 46 (71.9) | 54 (84.4) | 202 (75.1) | 0.256 |
| Item 8 | 4 (10.8) | 6 (11.1) | 10 (20.0) | 10 (15.6) | 7 (10.9) | 37 (13.8) | 0.583 |
| Item 9 | 14 (37.8) | 21 (38.9) | 20 (40.0) | 16 (25.0) | 12 (18.8) | 89 (33.2) | 0.095 |
| Item 10 | 6 (15.8) | 12 (22.2) | 7 (14.0) | 9 (14.1) | 9 (14.1) | 43 (16.0) | 0.724 |
| Item 11 | 22 (57.9) | 41 (75.9) | 35 (70.0) | 51 (79.7) | 51 (79.7) | 200 (74.1) | 0.099 |
| Item 12 | 11 (28.9) | 31 (62.0)† | 12 (24.0) | 16 (25.0) | 12 (18.8) | 72 (26.8) | 0.188 |
| Item 13 | 26 (70.3) | 44 (81.5) | 37 (74.0) | 56 (87.5) | 49 (76.6) | 212 (78.8) | 0.229 |
| Item 14 | 21 (56.8) | 30 (55.6) | 29 (58.0) | 34 (53.1) | 48 (75.0) | 162 (60.2) | 0.093 |
| Item 15 | 7 (18.9) | 20 (37.0) | 20 (40.0) | 15 (23.4) | 14 (21.9) | 76 (28.3) | 0.059 |
| Item 16 | 25 (67.6) | 24 (44.4) | 21 (42.0) | 29 (45.3) | 26 (40.6) | 125 (46.5) | 0.091 |
| Item 17 | 25 (67.6) | 30 (55.6) | 29 (58.0) | 34 (53.1) | 48 (75.0) | 162 (60.2) | 0.093 |
| Item 18 | 25 (67.6) | 24 (44.4) | 21 (42.0) | 29 (45.3) | 26 (40.6) | 125 (46.5) | 0.091 |
| Item 19 | 13 (35.1)§ | 12 (22.2)§ | 11 (22.0)§ | 11 (17.2) | 5 (7.8) | 52 (19.3) | 0.017 |
| Item 20 | 8 (21.6) | 18 (33.3)‡ | 12 (24.0) | 9 (14.1) | 9 (14.1) | 56 (20.8) | 0.061 |
| Item 21 | 7 (18.9) | 20 (37.0) | 20 (40.0) | 15 (23.4) | 14 (21.9) | 76 (28.3) | 0.059 |
| Item 22 | 7 (18.9)‡ | 18 (33.3)‡ | 16 (32.0)‡ | 30 (46.9) | 33 (51.6) | 104 (38.7) | 0.007 |
| Item 23 | 8 (21.6)‡ | 8 (14.8)‡ | 26 (52.0) | 27 (42.2) | 18 (28.1)‡ | 87 (32.3) | <0.001 |
| Item 24 | 6 (15.8) | 7 (13.0) | 11 (22.0) | 7 (10.9) | 6 (9.4) | 37 (13.7) | 0.342 |
| Item 25 | 20 (54.1) | 30 (55.6) | 29 (58.0) | 45 (70.3) | 48 (75.0) | 172 (63.9) | 0.075 |
| Item 26 | 6 (15.8) | 5 (9.3) | 16 (32.0) | 18 (28.1)‡ | 15 (23.4)‡ | 60 (22.0) | 0.036 |
| Item 27 | 4 (10.8) | 3 (5.6) | 13 (26.0) | 12 (18.8) | 10 (15.6) | 42 (15.6) | 0.053 |
| Item 28 | 3 (8.1)§ | 6 (11.1)§ | 15 (30.0) | 16 (25.0) | 12 (18.8) | 52 (19.3) | 0.036 |

† Difference is statistically significant with 1st year of study (P<.05).
‡ Difference is statistically significant with 2nd year of study (P<.05).
§ Difference is statistically significant with 3rd year of study (P<.05).
§§ Difference is statistically significant with 4th year of study (P<.05).
¶ Difference is statistically significant with 5th year of study (P<.05).
of tooth brushing twice daily or more was 74.1% and the rate of usage dental floss regularly was 32.3% and 46.5% of the study sample put off going to the dentist until they have toothache among a group of Turkish dental students. The similar finding in this study may have been compared. This result exhibited that more dental health care education is effective and needed to improve oral health in Turkey.

Several studies reported as dental health attitudes become more positive and improved with increasing level of education. The improvement of personal oral health among dental students has shown to be linked to their dental education experience and oral health attitudes and behavior seem to increase significantly in the fourth and fifth years of dental education. In this study, statistically significant differences (P<.05) were

Table 4. Percentages and analysis of “yes” responses according to gender.

| Items   | Gender          | Total N (%) | P value |
|---------|-----------------|-------------|---------|
|         | Female N (%)    | Male N (%)  |         |
| Item 1  | 75 (48.1)       | 43 (37.7)   | 0.090   |
| Item 2  | 136 (87.2)      | 94 (82.5)   | 0.281   |
| Item 3  | 115 (73.7)      | 93 (81.6)   | 0.129   |
| Item 4  | 25 (16.0)       | 16 (14.0)   | 0.653   |
| Item 5  | 87 (56.1)       | 69 (60.5)   | 0.470   |
| Item 6  | 16 (10.3)       | 16 (14.0)   | 0.343   |
| Item 7  | 115 (74.2)      | 87 (76.3)   | 0.691   |
| Item 8  | 25 (16.1)       | 12 (10.5)   | 0.187   |
| Item 9  | 58 (37.7)       | 31 (27.2)   | 0.072   |
| Item 10 | 23 (14.8)       | 20 (17.5)   | 0.550   |
| Item 11 | 122 (78.2)      | 78 (68.4)   | 0.070   |
| Item 12 | 92 (59.0)       | 63 (55.3)   | 0.542   |
| Item 13 | 44 (28.4)       | 28 (24.6)   | 0.484   |
| Item 14 | 63 (40.6)       | 59 (51.8)   | 0.071   |
| Item 15 | 127 (81.9)      | 85 (74.6)   | 0.144   |
| Item 16 | 96 (61.9)       | 66 (57.9)   | 0.503   |
| Item 17 | 113 (72.9)      | 73 (64.0)   | 0.120   |
| Item 18 | 78 (50.3)       | 47 (41.2)   | 0.139   |
| Item 19 | 22 (14.2)       | 30 (26.3)   | 0.013*  |
| Item 20 | 28 (18.1)       | 28 (24.6)   | 0.195   |
| Item 21 | 46 (29.7)       | 30 (26.3)   | 0.545   |
| Item 22 | 65 (41.9)       | 39 (34.2)   | 0.199   |
| Item 23 | 58 (37.4)       | 29 (25.4)   | 0.038*  |
| Item 24 | 19 (12.2)       | 18 (15.8)   | 0.394   |
| Item 25 | 98 (63.2)       | 74 (64.9)   | 0.776   |
| Item 26 | 22 (14.1)       | 38 (33.3)   | <0.001* |
| Item 27 | 13 (8.4)        | 29 (25.4)   | <0.001* |
| Item 28 | 18 (11.6)       | 34 (29.8)   | <0.001* |

* Difference is statistically significant P<.05
found between first and all senior years of study for brushing each of teeth carefully and cleaning the teeth well without using toothpaste. There were statistically significant differences between preclinical and clinical students for using a toothbrush which has hard bristles and having had their dentist tell that they brush very well. The results of this study confirmed that oral and dental health behavior and attitudes and also their knowledge about oral and dental health care of dental students improved with increasing level of education in accordance with previous studies. Additionally, it was seen that respondents of the students in the fourth and fifth years were mostly very similar as described by Polychronopoulou et al.6

In general, female dental students had better oral health attitudes and take better care of their

Table 5. Analysis between each of first 25 items which respond “yes” and last three items which respond “yes and no”.

| Items       | Item 26 |         | Item 27 |         | Item 28 |         |
|-------------|---------|---------|---------|---------|---------|---------|
|             | No      | Yes     | P value | No      | Yes     | P value |
|             | N (%)   | N (%)   |         | N (%)   | N (%)   |         |
| Item 1      | 101 (48.1) | 17 (28.3) | 0.006* | 109 (48.0) | 9 (21.4) | <0.001* |
| Item 2      | 180 (85.7) | 50 (83.3) | 0.647  | 196 (86.3) | 33 (78.6) | 0.193   |
| Item 3      | 161 (76.7) | 47 (78.3) | 0.787  | 175 (77.1) | 32 (76.2) | 0.899   |
| Item 4      | 34 (16.2) | 7 (11.7) | 0.389  | 37 (16.3) | 4 (9.5)   | 0.262   |
| Item 5      | 120 (57.1) | 36 (61.0) | 0.594  | 130 (57.5) | 26 (59.6) | 0.597   |
| Item 6      | 24 (11.4) | 8 (13.3) | 0.687  | 25 (11.0) | 6 (14.3) | 0.598   |
| Item 7      | 154 (73.3) | 48 (81.4) | 0.208  | 167 (73.6) | 35 (83.3) | 0.179   |
| Item 8      | 29 (13.8) | 8 (13.3) | 0.647  | 31 (13.7) | 6 (14.3) | 0.913   |
| Item 9      | 68 (32.4) | 21 (36.2) | 0.584  | 74 (32.6) | 15 (36.6) | 0.618   |
| Item 10     | 127 (60.5) | 28 (46.7) | 0.056  | 138 (60.8) | 17 (40.5) | 0.014*  |
| Item 11     | 159 (75.7) | 41 (68.3) | 0.250  | 170 (74.9) | 29 (69.0) | 0.428   |
| Item 12     | 99 (47.1) | 23 (39.0) | 0.266  | 102 (44.9) | 20 (47.6) | 0.748   |
| Item 13     | 59 (28.1) | 13 (22.0) | 0.353  | 62 (27.3) | 10 (23.8) | 0.638   |
| Item 14     | 99 (47.1) | 23 (39.0) | 0.266  | 102 (44.9) | 20 (47.6) | 0.748   |
| Item 15     | 167 (79.5) | 45 (76.3) | 0.589  | 180 (79.3) | 32 (76.2) | 0.651   |
| Item 16     | 127 (60.5) | 35 (59.3) | 0.873  | 137 (60.4) | 25 (59.5) | 0.920   |
| Item 17     | 152 (72.4) | 34 (57.6) | 0.030* | 165 (72.9) | 21 (50.0) | 0.003*  |
| Item 18     | 113 (53.8) | 31 (52.5) | 0.863  | 122 (53.7) | 22 (52.4) | 0.871   |
| Item 19     | 39 (18.6) | 13 (22.0) | 0.552  | 42 (18.5) | 10 (23.8) | 0.424   |
| Item 20     | 43 (20.5) | 13 (22.0) | 0.795  | 47 (20.7) | 9 (21.4) | 0.915   |
| Item 21     | 60 (28.6) | 16 (27.1) | 0.827  | 66 (29.1) | 10 (23.8) | 0.486   |
| Item 22     | 87 (41.4) | 17 (28.8) | 0.079  | 93 (41.0) | 11 (26.2) | 0.071   |
| Item 23     | 67 (31.9) | 20 (33.9) | 0.772  | 73 (32.2) | 14 (33.3) | 0.881   |
| Item 24     | 26 (12.4) | 11 (18.3) | 0.237  | 26 (11.5) | 11 (26.2) | 0.011*  |
| Item 25     | 135 (64.3) | 37 (62.7) | 0.824  | 148 (65.2) | 24 (57.1) | 0.318   |

* Difference is statistically significant P<0.05.
This condition may be explained on the basis that females usually care more about their body and appearance. They would thus be more concerned about visiting the dentist and would tend to be more educated about their dentition even before entering a course related to dentistry. In this study, there were statistically significant differences between females and males for only item 19 (I use a toothbrush which has hard bristles) and 23 (I do use tooth floss on regular basis). But, dental care behavior of female students such as tooth brushing twice daily or more, brushing each of the teeth carefully and usage the tooth floss regularly were better than males in this study in agreement with previous studies.

Clinical studies and regional health surveys have found an association between smoking and poor oral health. Millar and Locker reported that smokers were less likely to have visited dentist regularly. The rate of smoking among Turkish university students was found to be 49.4%. In this study, it was lower (22.0%) than the prevalence of smoking among the other university students. Health care providers play an important role in educating patients about the health risks of tobacco use and in promoting tobacco cessation. Smoking and its association with periodontitis and many other oral diseases should be clearly taught to students as they could be role models for their future patients. In this study, statistically significant difference was found between brushing each of the teeth carefully and smoking. Non-smokers were more careful about tooth brushing. Statistically significant difference was found between using mouth wash on regular basis and smoking. Usage of mouth wash regularly was more common in smokers than non-smokers. It may be related with worries about having bad breath.

CONCLUSIONS

Oral and dental health behavior and attitudes and also their knowledge about oral and dental care of a group of Turkish dental students improved with increasing level of education. While, oral and dental health care of female students were better than males and oral and dental health care of non-smokers were better than smokers in agreement with previous studies which were performed in different countries. As a health care provider dental students should be a good model to their family members, friends and especially patients for oral health behavior. Further studies are needed to examine cultural differences between Turkish and other dental students in different countries.

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