

## Gender-Specific Oral Health Attitudes and Behavior among Dental Students in Jordan

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### Abstract

The aim of this study was to determine the difference in oral health attitudes and behavior between male and female dental students at Jordan University of Science and Technology (JUST). A self-administered questionnaire based on a modified version of the Hiroshima University Dental Behavior Inventory (HU-DBI) was distributed among 375 dental students. The response rate was 83.7% with 48% males and 52% females responding. Female students reported brushing their teeth more frequently than male students ( $P < 0.001$ ). Approximately 47% of the male students brushed their teeth less than twice daily compared to 21% of the female students. Also, female students believed in the necessity of using toothpaste during brushing more often than male students ( $P < 0.01$ ). On the other hand, smoking was much more frequent among males than among females (31% vs. 4%) ( $P < 0.001$ ). Male students indicated they had been smoking for longer periods of time than female students. This survey shows male students visit the dentist only when they have dental pain. While this was more than their female peers, it was not statistically significant ( $P = 0.056$ ). In general the present study showed dental students in Jordan had poor oral health. Further research is needed to examine the students clinically for periodontal and caries conditions. Students should be encouraged to be a model for oral health for their families, friends, and patients.

**Keywords:** Gender, oral health behavior, dental students, Jordan

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## Introduction

Ideally, dental students should be a good example of positive oral health attitudes and behavior to their families, patients, and friends. Dental students in general have been found to be motivated about maintaining a good oral health attitude.<sup>1</sup> Researchers found oral attitudes and behavior among dental students to be different among pre-clinical and clinical years.<sup>2</sup> Furthermore, oral health attitudes and behavior among dental students were found to vary in different countries and different cultures.<sup>3,4</sup>

Since males and females have different physiological and psychological behaviors, it is possible their oral health behavior might be different as well. Researchers have found females to engage in better oral hygiene behavioral measures, possess a greater interest in oral health, and perceive their own oral health to be good to a higher degree than do males.<sup>5</sup> Nanakorn<sup>6</sup> and Kassak<sup>7</sup> found female



university students to have better habits in terms of tooth brushing than male students. Others found females visited their dentists and brushed their teeth more often than males.<sup>8,9</sup> Klemenz<sup>10</sup> found women used fluoride as a prophylactic tool approximately four times more often than men.

Examining the literature, no studies were found that examined the differences in oral attitudes and behavior between male and female dental students. Therefore, the purpose of the present study was to assess oral health attitudes and behavior among dental students at Jordan University of Science and Technology (JUST) and to compare differences in oral health attitudes between male and female dental students.

## Material and Methods

A modified English version of the Hiroshima University-Dental Behavior Inventory (HU-DBI)<sup>3</sup> survey was used in this study. The survey is based on a collection of responses of a twenty item questionnaire (Table 1). The survey was written in English and distributed to dental

**Table 1. The modified HU-DBI survey in this study.**

<b>Q1</b>	<b>I live with my family now</b>	<b>No</b>	<b>Yes</b>
<b>Q2</b>	<b>I had been to a dentist office before</b>	<b>No</b>	<b>Yes</b>
<b>Q3</b>	<b>I do not go to the dentist unless I have a toothache</b>	<b>No</b>	<b>Yes</b>
<b>Q4</b>	<b>I brush my teeth twice daily or more</b>	<b>No</b>	<b>Yes</b>
<b>Q5</b>	<b>My gums bleed when I brush my teeth</b>	<b>No</b>	<b>Yes</b>
<b>Q6</b>	<b>I have never been professionally taught how to brush</b>	<b>No</b>	<b>Yes</b>
<b>Q7</b>	<b>I think my teeth are getting worse despite my daily brushing</b>	<b>No</b>	<b>Yes</b>
<b>Q8</b>	<b>I don't feel I have brushed my teeth properly unless I brush with strong strokes</b>	<b>No</b>	<b>Yes</b>
<b>Q9</b>	<b>I feel that I spend too much time brushing my teeth</b>	<b>No</b>	<b>Yes</b>
<b>Q10</b>	<b>I think I can clean my teeth without using tooth paste</b>	<b>No</b>	<b>Yes</b>
<b>Q11</b>	<b>It is impossible to prevent gum disease with tooth brushing alone</b>	<b>No</b>	<b>Yes</b>
<b>Q12</b>	<b>I do use tooth floss on regular basis</b>	<b>No</b>	<b>Yes</b>
<b>Q13</b>	<b>I do use mouth wash on regular basis</b>	<b>No</b>	<b>Yes</b>
<b>Q14</b>	<b>I worry about having bad breath</b>	<b>No</b>	<b>Yes</b>
<b>Q15</b>	<b>I am bothered by the color of my gums</b>	<b>No</b>	<b>Yes</b>
<b>Q16</b>	<b>I worry about the color of my teeth</b>	<b>No</b>	<b>Yes</b>
<b>Q17</b>	<b>I am satisfied with the appearance of my teeth</b>	<b>No</b>	<b>Yes</b>
<b>Q18</b>	<b>I am a smoker</b>	<b>No</b>	<b>Yes</b>
<b>Q19</b>	<b>I smoke more than half pack a day</b>	<b>No</b>	<b>Yes</b>
<b>Q20</b>	<b>I have been smoking more than a year</b>	<b>No</b>	<b>Yes</b>

Table 2. Distribution of students by academic year and gender.

Academic year	Gender		Total participation among class (%)
	Male (%)	Female (%)	
1st	42 (43)	56 (57)	98 (81)
2nd	40 (57)	30 (43)	70 (87.5)
3rd	27 (53)	24 (47)	51 (81)
4th	14 (36)	25 (64)	39 (85)
5th	28 (50)	28 (50)	56 (87.5)
<b>Total</b>	151 (48)	163 (52)	314 (83.7)

Table 3. Percentage of students answering yes for each item by gender on the HU-DBL.

Q. #	Males (%)	Females (%)	Total (%)	P-value
1	45.0	51.5	48.4	0.249
2	84.1	88.3	86.3	0.275
3	55.0	44.2	49.4	0.056
4	53.6	79.1	66.9	0.000*
5	25.2	28.8	27.1	0.465
6	26.5	20.2	23.2	0.191
7	33.8	37.4	35.7	0.500
8	36.4	31.9	34.1	0.398
9	36.4	40.5	38.5	0.459
10	27.2	12.9	19.7	0.002*
11	55.0	57.7	56.4	0.630
12	25.2	31.3	28.3	0.229
13	36.4	30.1	33.1	0.231
14	57.6	62.6	60.2	0.370
15	33.8	35.0	34.4	0.824
16	67.5	66.1	66.9	0.808
17	65.6	72.4	69.1	0.191
18	31.1	4.3	17.2	0.000*
19	20.5	3.1	11.4	0.000*
20	25.2	2.5	14.9	0.000*

\* significant

students at JUST. Students from all five academic years were invited to complete the questionnaire in their classrooms after certain lectures rather than outside of class. Participation in the study was voluntary. Questions regarding the meaning of words in Arabic were allowed and answers to such questions were announced to all other students. The survey was completed anonymously and no personal data, demographics, academic records, or performance of the students was collected. The SPSS® statistical program (SPSS Inc., Chicago, USA) was used to process and analyze the data. The Chi-square test was

used to evaluate differences in the distribution of all of the variables in the modified HU-DBL survey by gender. The significance level (P-value) was set at 0.05.

### Results

From a total of 375 dental students at JUST, 314 students (83.7%) filled out the questionnaire. Forty students were absent on the day of the survey and 21 students chose not to participate. There were 151 (48%) male students and 163 (52%) female students who participated in this study. The distribution of participating dental

students according to their gender and academic year is shown in Table 2. Approximately 30% of the participants were from the first academic year, 22% were from the second, and 12-18% of them were from the third, fourth, and fifth years. Participation rate ranged from 81% to 88%.

Table 3 presents the percentage distribution of both male and female students with "yes" responses to each of the 20 questions of the questionnaire. About 86% of the students had visited a dentist previously (Q#2), 67% brushed regularly (Q#4), 67% were concerned about the color of their teeth (Q#16), 60% were concerned about bad breath (Q#14), and 69% were satisfied with their teeth health (Q#17). However, 17% were smokers (Q#18) and 27% had bleeding gums (Q#5).

Table 3 also shows that only responses to five questions were statistically different between male and female students. Female students reported brushing their teeth more frequently than male students ( $P < 0.001$ ). Approximately 47% of the male students brushed their teeth less than twice daily compared to 21% of the female students. Also, female students believed in the necessity of toothpaste during brushing more often than males ( $P < 0.01$ ). Furthermore, smoking was much more frequent among males than among females (31% vs. 4%) ( $P < 0.001$ ). Male students smoked more frequently and smoked for a longer period of time than female students. This survey showed male students visited the dentist only when they had a toothache, which was more often than their female peers; however, this was not statistically significant ( $P = 0.056$ ).

The results of this survey indicated that about half of the dental students lived away from their families (Q#1). It was interesting to note approximately 14% of the dental students had never been to the dentist (Q#2) and about half of them went to the dentist only when they had a toothache (Q#3). About one-quarter of the students claim they had never been professionally taught how to brush their teeth (Q#6). More than one-third of the students also thought the condition of their teeth was getting worse even with their daily brushing (Q#7), and almost the same percentage believed they have to brush with strong strokes

(Q#8) and they were taking too much time to brush their teeth (Q# 9). Only 25% of the male students and 30% of the female students used dental floss on regular basis (Q#12). The percentages were a little higher for using mouthwash (Q#13).

## Discussion

Dental students at JUST are a good representative sample of dental students in Jordan. There are only two dental schools in the country, and both schools are financially supported by the government and accept students from all over the country and from different socioeconomic classes based on their high school performance. No major differences exist in the dental curriculum between the two schools.

This study used the general approach in attitudes/behavior measurements to compare female and male dental students' attitudes and dental behavior. Translation of HU-DBI survey from English to Arabic was not needed as students started their English early in elementary school and because English is the language of instruction at the dental school. Translation might indirectly influence the results and that would prevent comparing our study to others which used the same form.

In agreement with the results of Ostberg<sup>5</sup> and Fukai<sup>8</sup> we found, in general, female dental students had better oral health attitudes and take better care of their teeth than their male colleagues. A study conducted among new undergraduate students in Lebanon showed females brushed their teeth four times as often as males.<sup>7</sup> In another study from Kuwait females brushed their teeth and visited their dentists more often than males.<sup>11</sup> In the present study about half of the male students brushed their teeth regularly compared to three-quarters of the females, and male students visited their dentists only when they had a toothache. Contrary to our results, Tseveenjav et al.<sup>12</sup> found no differences between male and female Mongolian dental students in tooth-brushing frequency.

Eighty-five percent of Finnish university students brushed their teeth at least once a day<sup>13</sup> compared to two-thirds of Jordanian dental students who brushed their teeth two or more times a

day (Table 3, Q# 4). The brushing frequency in our sample was higher than that reported from Kuwait<sup>11</sup> where only one third of students were brushing twice a day or more.

In Sweden the results from a questionnaire-based study on 20-25 year olds showed that about 59% of the sample were satisfied with the appearance of their teeth.<sup>14</sup> In the present study 69% of the students (who are from a similar age group) were satisfied with the appearance of their teeth.

In a recent study in Jordan periodontal awareness and knowledge among adult patients visiting the Periodontic Clinic at JUST was still poor.<sup>15</sup> The study reported one-quarter of Jordanian adults had gingival bleeding on brushing. Our study showed comparable results (27.1%).

Although it was not the main purpose of this study, the results showed the prevalence of smoking among dental students at JUST is high (17.2%). However, it was lower than the prevalence of smoking among the other students at JUST.<sup>16</sup>

This study was the first formal assessment of dental attitudes and behavior among dental

students in Jordan. However, the results of the current study were in agreement with the previous studies on different groups of people in that the oral health behavior is different between males and females. Also, they are in agreement with some local studies in that the oral health attitude and behavior in Jordan is still poor even among dental students. Further studies are needed to clinically examine the students to evaluate whether there is a difference in the caries experience and in gingival health between male and female students.

### Conclusions

This study showed female dental students had, in general, more positive oral health attitudes and practices than male students.

The results showed both male and female dental students in Jordan still need to improve their oral health behaviors in order to serve as a positive model for their patients, families, and friends. More emphasis should be placed on the courses that teach the students how to improve their oral health. Further research is needed to clinically assess the oral health of the students.



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