

# Gender-specific oral health attitudes and behaviour among dental students in Palestine

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## المواقف والسلوك لدى طلاب طب الأسنان في فلسطين نحو صحة الفم الخاصة بجنس معين إلهام طالب الخطيب

الخلاصة: تقيّم هذه الدراسة الفروق بين الجنسين في المعارف والمواقف والممارسات بين طلاب طب الأسنان في فلسطين حول صحة الفم. وقد استوفى 260 طالباً تتراوح أعمارهم بين 18 و22 عاماً في جامعة القدس الإخراجة الإنكليزية لمشرد السلوك لطب الأسنان في جامعة هير وشيما. واتضح أن لدى الإناث مواقف وسلوكيات أكثر إيجابية حول صحة الفم (فهن يقمن بزيارات منتظمة لأطباء الأسنان، وأكثر ثقافةً حول استخدام فرشاة الأسنان بطريقة مهنية، واعتنائهن أكثر باستخدامها). وقد كان نصف الطلاب من الجنسين يظنون أنهم لا يستطيعون تفادي وضع أسنان صناعية عند بلوغهم سنًا متقدمة. وقد كانت بعض جوانب السلوكيات والمواقف في صحة الأسنان مختلفة بين الذكور والإناث، فيما كان التدريب المهني في جوانب أخرى للسلوكيات والمواقف يعوّض هذه الاختلافات.

ABSTRACT This study assessed gender differences in oral health knowledge, attitude and behaviour among undergraduate dental students in Palestine. Students aged 18–22 years at Al Quds University ( $n = 260$ ) completed the English version of the Hiroshima University–Dental Behavioral Inventory. Females had more positive dental health attitudes and behaviours (making regular visits the dentist, being more educated about professional toothbrushing and taking more care with brushing their teeth). Half the students of both sexes thought they could not avoid having false teeth when they were old. Some aspects of oral health behaviour and attitudes were different between males and females, but in other aspects professional training may have compensated for these differences.

## Attitudes et comportements spécifiques à chaque sexe en matière d'hygiène bucco-dentaire parmi les étudiants en médecine dentaire en Palestine

RÉSUMÉ Cette étude évalue les différences selon les sexes en matière de connaissances de l'hygiène bucco-dentaire ainsi que les attitudes et les comportements des étudiants de premier cycle de médecine dentaire en Palestine. Âgés de 18 à 22 ans, les étudiants de l'université Al Quds ( $n = 260$ ) ont rempli la version anglaise du questionnaire de l'Université d'Hiroshima sur l'hygiène dentaire (*Hiroshima University–Dental Behavioral Inventory*). Les attitudes et les comportements des femmes étaient meilleurs (visites régulières chez le dentiste, plus de connaissances en termes de brossage et plus de soin dans le brossage). La moitié des étudiants des deux sexes pensaient qu'ils ne pourraient pas éviter d'avoir de fausses dents lorsqu'ils seraient âgés. Certains aspects liés aux attitudes et comportements en matière d'hygiène bucco-dentaire étaient différents entre les hommes et les femmes, mais pour d'autres, la formation professionnelle peut avoir atténué ces différences.

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## Introduction

There is an increased interest in looking at gender differences in health and disease, including dental health [1]. In Lebanon, a survey of oral health practices in 1998 found poor flossing habits and unfavourable dietary habits among students, and that variables such as sex, father's education, exercise and dietary habits were significantly correlated with how frequently the students brushed their teeth [2]. According to the Report on the Survey of Dental Diseases in Tokyo, data have consistently shown that the mean number of filled teeth in women is higher than in men and that women tend to become edentulous at a younger age [3]. These gender differences are not easy to explain; some researchers think the differences reflect dentist–patient relationships more than disease occurrence [4].

One study of self-reported dental health attitudes and behaviour among dental students showed that gender was not a major feature, but that favourable attitudes/behaviour toward oral health appeared to reflect students' clinical training experience [5]. In another study, the gender difference was significant among dental students. In Jordan, female students reported brushing their teeth more frequently than male students and believed in the necessity of using toothpaste during brushing more often than did male students [6]. So too in the Islamic Republic of Iran, where female senior dental students reported significantly higher frequencies of toothbrushing, fluoridated toothpaste use and flossing compared with male students [7].

There is very little information from Palestine about gender differences in any aspect of general health or lifestyle practices that influence health. This study therefore aimed to add to the scarce literature documenting the oral hygiene practices and attitudes among Palestinian dental students at Al Quds University and to compare oral health

attitudes between male and female dental students.

## Methods

All undergraduate dental students at Al Quds University were invited to participate in the survey at the end of the academic year 2006.

Data on oral health behaviour were collected using the English version of the Hiroshima University-Dental Behavioral Inventory (HU-DBI) questionnaire, which was originally developed by Kawamura [8]. It consists of 20 items primarily associated with toothbrushing behaviour, all with a dichotomous response format (agree/disagree). A quantitative estimate of oral health attitude and behaviour is provided by the total of the appropriate responses. Higher scores indicate better oral health attitude and behaviour [9,10]. In a sample of 517 Japanese university students, the HU-DBI had good test–retest reliability (0.73) over a 4-week period [11]. The English version has also shown good test–retest reliability and translation validity in a sample of 26 bilingual individuals [10]. The questionnaire has been used to compare oral health attitudes and behaviours among dental and dental hygiene students in different countries [11–14].

Students were asked by their faculties to remain in class at the end of the final examination of the academic year and participate in the survey on a voluntary basis. The HU-DBI questionnaire was distributed to all students. The English version of the questionnaire was used in this survey as English is the language of instruction at the dental school at Al Quds University. 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, demographic, academic or performance data for the students were collected. No attempt

was made to follow up students who were absent on the day of the survey.

## Statistical analysis

A total score was calculated based on the response to each statement. All variables of the questionnaires were analysed by sex. Differences were assessed by the chi-squared test. SPSS, version 10, was used to process and analyse the data. The significance level (*P*-value) was set at 0.05.

## Results

Of 271 registered Palestinian students at Al Quds University Dental School, 260 students completed the questionnaire (175 females and 85 males), a response rate of 94.1%. The age of the students ranged from 18 years in the 1st year to 22 years in the 5th year. The distribution of the study sample over the 5 academic years and the response rate by year and by sex are shown in Table 1.

Table 2 shows the dental students' attitudes and behaviour regarding dental health and hygiene by sex. Significantly more male students than females were not worried about visiting the dentist (52.9% versus 32.6% respectively) ( $P < 0.01$ ). More males than females agreed that they put off going to the dentist until they had a toothache (57.6% versus 46.9%) but the difference was not significant.

The same proportion of males and females (31.8% and 32.0% respectively) agreed that their gums bled when they brushed their teeth. The majority of the students worried about the colour of their teeth and again there was no significant difference between the sexes (84.7% of males and 86.9% of females).

Half of the dental students believed that they could not avoid having false teeth when they were old (54.1% of males and 54.9% of females). Females tended to care more about having bad teeth despite more of them brushing

**Table 1 Demographic features of the sample of dental students in Palestine**

University year	Response rate %	Total (n = 260) No.	Males (n = 85)	Females (n = 175)	Age (years)
			No.	No.	Mean (SD)
1	100	71	32	39	18.63 (0.52)
2	94	61	13	48	19.65 (0.69)
3	95	59	20	39	20.62 (0.92)
4	79	27	6	21	21.50 (0.53)
5	93	42	14	28	22.16 (0.55)

SD = standard deviation.

daily than males; 77.7% of females said they brushed each of their teeth carefully compared with 61.2% of the males ( $P < 0.01$ ). More males (36.5%) than females (22.3%) agreed that they had not been taught how to brush their teeth professionally ( $P < 0.05$ ). More of the male students (12.9%) used a child-sized toothbrush compared with female students (8.6%).

## Discussion

Dental students at Al Quds University are a good representative sample of dental students in Palestine. There are only 2 dental schools in the Palestinian Authority and Al Quds University is the only one with some financial support from the state, accepting students from all over Palestine and from different

socioeconomic classes, based on their high-school performance. The overall response rate in this study was high (94%).

This study compared female and male dental students' attitudes and dental behaviour. Since males and females have different physiological and psychological behaviours, it is possible that their oral health behaviour might be different as well. Researchers have found that females engage in better oral hygiene behaviour, possess a greater interest in oral health and perceive their own oral health to be better than do males [15].

The present study showed differences in dental health attitudes between the sexes, with significantly fewer males who agreed that they worried about visiting the dentist and more who put off dental visits until they had a toothache. These results agree in general with the

**Table 2 Dental students' agreement with statements about dental health and hygiene in the Hiroshima University-Dental Behavioral Inventory: distribution by sex**

Item	Males (n = 85)		Females (n = 175)		$\chi^2$ -value	P-value
	No.	%	No.	%		
I do not worry much about visiting the dentist	45	52.9	57	32.6	9.96	0.002**
My gums tend to bleed when I brush my teeth	27	31.8	56	32.0	0.001	0.970
I worry about the colour of my teeth	72	84.7	152	86.9	0.22	0.638
I have noticed white sticky deposits on my teeth	38	44.7	60	34.3	2.65	0.104
I use a child-sized toothbrush	11	12.9	15	8.6	1.21	0.271
I think that I can not help having false teeth when I am old	46	54.1	96	54.9	0.01	0.911
I am bothered by the colour of my gums	47	55.3	89	50.9	0.45	0.502
I think my teeth are getting worse despite my daily brushing	27	31.8	75	42.9	2.95	0.086
I brush each of my teeth carefully	52	61.2	136	77.7	7.81	0.005**
I have never been taught professionally how to brush	31	36.5	39	22.3	5.85	0.016*
I think I can clean my teeth well without using tooth paste	19	22.4	25	14.3	2.65	0.104
I often check my teeth in a mirror after brushing	67	78.8	150	85.7	1.97	0.161
I worry about having bad breath	66	77.6	138	78.9	0.05	0.824
It is impossible to prevent gum disease with toothbrushing alone	46	54.1	110	62.9	0.11	0.177
I put off going to the dentist until I have a toothache	49	57.6	82	46.9	2.66	0.103
I have used a dye to see how clean my teeth are	17	20.0	27	15.4	0.85	0.356
I use a toothbrush which has hard bristles	27	31.8	34	19.4	4.85	0.028*
I do not feel I have brushed well unless I brush with strong strokes	32	37.6	63	36.0	0.07	0.796
I feel I sometimes take too much time to brush my teeth	45	52.9	89	50.9	0.10	0.752
I have had my dentist tell me that I brush very well	36	42.4	77	44.0	0.03	0.802

\*Significant at  $P < 0.05$ ; \*\*significant at  $P < 0.01$ .

results of Ostberg et al. and Fukai et al., who found female dental students had better oral health attitudes and took better care of their teeth than their male colleagues [15,16]. In a study in Jordan, male students reported that they visited the dentist only when they had a toothache, which was more often than their female peers; however, this was not statistically significant [6].

Differences between the sexes were also seen in health behaviour. Significantly more females said they brushed their teeth carefully than did males. Similarly, a study conducted among new undergraduate students in Lebanon showed that females brushed their teeth 4 times as often as males [2]. In a study in Kuwait in 2001 and 2002 female students reported twice-a-day toothbrushing much more often than did male students, and use of fluoride toothpaste more often than males. Oral health knowledge in that study was also significantly higher among the female students than among the male students [17]. In another oral health attitude and behaviour survey of senior Iranian dental students in 2006, female students reported significantly higher frequencies of toothbrushing, use of fluoridated toothpaste and flossing compared with their male colleagues [7]. This agrees

with our results. In a sample of 375 dental students at the Jordan University of Science and Technology, female students reported brushing their teeth more frequently than did male students. Approximately 47% of the male students brushed their teeth less than twice daily compared with 21% of the female students. Also, female students believed in the necessity of using toothpaste during brushing more often than did male students [6].

The above-mentioned studies reported significant differences between men's and women's health attitudes and health behaviours. In contrast, other studies of the oral health behaviour of senior dental students [18] and dentists [19] found no gender differences, probably because of the effect of professional training. Contrary to our results, Tseveenjav et al. found no differences between male and female Mongolian dental students in toothbrushing frequency [18].

In Sweden the results from a questionnaire-based study on 20–25-year-old adults showed that about 59% of the samples were satisfied with the appearance of their teeth [20]. In our study, 86% of the sample (who were from a similar age group) worried about the colour of their teeth and there was no

difference between males and females. Also 52% of our sample were bothered about the colour of their gums, again without a significant difference between males and females. However, female students in general tended to be less satisfied with the appearance of their teeth than their male colleagues despite daily brushing.

The finding that females had more positive dental health attitudes and behaviours could 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.

This study was the first formal assessment of dental attitudes and behaviour among dental students in Palestine. The results were in agreement with studies in other countries showing that some aspects of oral health behaviour and attitude are different between males and females, but that in other aspects, professional training of the dental students may compensate for these differences. Further studies are needed to evaluate whether there is a difference in caries experience and in gingival health between male and female dental students.

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### Reducing the burden of oral diseases

The burden of oral diseases and other chronic diseases can be decreased simultaneously by addressing common risk factors such as tobacco use and unhealthy diet:

- Decreased intake of sugars and well-balanced nutrition prevent tooth decay and premature tooth loss.
- Tobacco cessation and decreased alcohol consumption reduce risk for oral cancers, periodontal disease, and tooth loss.
- Fruit and vegetable consumption is protective against oral cancer.
- Effective use of protective sports and motor vehicle equipment reduces facial injuries.

Dental cavities can be prevented by a low level of fluoride constantly maintained in the oral cavity. Fluoride can be obtained from fluoridated drinking water, salt, milk, mouth rinse or toothpaste, as well as from professionally-applied fluorides. Long-term exposure to an optimal level of fluoride results in fewer cavities in both children and adults.

Information about the WHO Global Oral Health Programme can be found at: [http://www.who.int/oral\\_health/en/](http://www.who.int/oral_health/en/)