



ORIGINAL RESEARCH ARTICLE

Oral health attitudes and behaviour among medical and dental students in Tehran, Iran

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Abstract

Objective: Health professionals are role models for the community; thus, the oral health condition of the public is shaped potentially by oral self-care attitudes of health professionals. The aim of the present study was to compare dental and medical students' dental health attitudes and behaviour in their pre-clinic stage in Iran.

Methods: In 2012, a cross-sectional study was conducted in three dental schools and one medical school in Tehran. A Persian version of HU-DBI (Hiroshima University-Dental Behavioural Inventory) questionnaire was prepared, validated, and distributed among the all pre-clinical students of dental and medical schools at the end of the second year of education through a census method ($n = 156$). Chi-square test and logistic regression model served for statistical analysis.

Results: In total, 144 questionnaires were returned (response rate = 92.3%). Generally, the dental students reported more favourable attitudes and behaviours. The most important differences between medical and dental students were found in four items: not worrying much about visiting the dentist (37.5% vs. 19.3% agreement, respectively, $P = 0.01$), be bothered by the colour of gums (8.9% vs. 1.1% agreement, respectively, $P = 0.02$), brushing each of teeth carefully (48.2% vs. 65.9% agreement, respectively, $P = 0.03$), and using a toothbrush with hard bristles (32.1% vs. 17% agreement, respectively, $P = 0.03$).

Conclusions: Some aspects of oral health attitudes and behaviours among dental and medical students need to be improved. Dental students seem to show better behaviour probably due to their dental education experience.

Keywords: attitude of health personnel, dental education, health behaviour, dental students, medical students

Introduction

Health professionals are role models for the community; thus, the oral health condition of the public is shaped potentially by oral self-care attitudes of health professional¹. Health professional students are supposed to acquire an appropriate pattern of oral health attitudes and behaviour and change their wrong beliefs during their undergraduate training. How dental students improve their oral health attitude during their education life would mirror the effect of dental education².

Not all children have access to professional dental care. Contact of a child with a physician or paediatrician

usually occurs earlier than a child's first visit to a dentist. On average, children under 3 years of age are visited 11 times more by a physician than by a dentist³. This highlights the important role that physicians can play in controlling dental diseases especially dental caries.

Dental providers in practices are commonly oriented toward curative care, due to their treatment-oriented education⁴. However, the major part of a dentists' role in health care is the provision of preventive care, oral health education and oral health promotion⁵⁻⁸.

For assessment and evaluation of the dental and medical students' oral health beliefs, attitudes and behaviours, many questionnaires have been developed one of which is the HU-DBI (Hiroshima University-Dental Behavioural Inventory) questionnaires. This questionnaire was developed in 1987 by Kawamura⁹. The HU-DBI showed good test-retest reliability by coefficient of 0.73 in 517 students over a four-week period¹⁰. The English version of the HU-DBI also had good test-retest reliability and translated validity in a sample of 26 bilinguals¹⁰.

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HU-DBI questionnaire has been administered in many countries such as UK,⁹ USA,¹⁰ South Korea,¹¹ China,¹² Yemen,¹³ Greece,¹⁴ Romania,¹⁵ Turkey,¹⁶ India^{17,18} and Jordan.¹⁹ Thus, it can provide the possibility of comparison among various countries, and to assess cross-cultural differences. One study comparing dental and medical students by HU-DBI questionnaire showed that during undergraduate education, medical students' attitudes did not change while that of dental students was changed¹².

In Iran, some research on oral self-care beliefs, attitudes and behaviours of students, dentists and dental educators have been done^{20–22}. None of these studies, however, have used HU-DBI questionnaire. Moreover, to the best of our knowledge, medical and dental students in Iran have not been compared regarding their dental health attitudes and behaviours.

The aim of the present study was to compare dental and medical students' dental health attitudes and behaviour in their pre-clinic stage in Iran.

Materials and Methods

Data collection

In this cross-sectional study in 2012, second year students of three dental schools located in Tehran city were included (Tehran University of Medical Sciences, Shahid Beheshti University of Medical Sciences and Islamic Azad University). Moreover, second year medical students of Tehran University of Medical Sciences took part in our study. All students in these four schools were asked to answer a questionnaire through a census method ($n = 156$). The questionnaires were given to students in their ordinary classroom settings to be collected immediately. The students were informed that the participation in the study is voluntary.

Questionnaire

The original HU-DBI questionnaire was written in Japanese. The questionnaire includes 20 items that were mainly about teeth brushing behaviours. We used English version of HU-DBI questionnaire. At the beginning of the research, a master translator translated the questionnaire into Persian and then another translator, converted Persian version into English. The two versions were compared and minor corrections were done. The questionnaire was checked by three experts in oral health fields. For assessment of test-retest reliability the questionnaire was given to 20 dental students two times in a period of two-week interval. These students were from one of the dental schools (Shahed Dental School), which was then excluded from the main study. Good test-retest reliability was obtained (Kappa coefficient ranged from 0.68 to 0.93). In the main stage of the research, some demographic questions (gender, age and parents' education) were added.

Statistical analyses

The data were entered into SPSS 16. Statistical analysis was done in two steps: 1) Univariate: The Chi-square

test was used to examine differences based on discipline (medical/dental) and other demographic items; 2) Multivariate: Multiple logistic regression with forward-LR model was performed. In order to calculate adjusted odds ratios, we selected those variables with minimum P -value of 0.20 and significant association with more than one factor in univariate analysis. Significant level was set at 0.05.

Results

In total, 156 questionnaires were distributed of which, 144 questionnaires from 88 dental students and 56 medical students were returned (response rate: 92.3%). About one-third of the participants were male (36.1% of dental students and 35.7% of medical students). Approximately, all of the contributors (98%) were 20–21 years old.

Univariate Analysis

Interdisciplinary differences

Table 1 presents the distribution of the dental and medical students' responses to 20 items. While 37.5% of medical students reported that they were not worried much about visiting the dentist (item 1), 19.3% of dental students had the same idea ($P = 0.02$). Minority of the students in both groups were concerned about the colour of their gums (1.1% of dental students vs. 8.9% of medical students, $P = 0.02$). Regarding item 9, 65.9% of dental students vs. 48.2% of medical students reported brushing each of their teeth carefully ($P = 0.04$). Usage of brush with hard bristles was two times more common among medical students compared to dental students according to their report (32.1% vs. 17%, respectively, $P = 0.04$).

Gender differences

Table 2 shows the distribution of the students' responses to the questions according to their gender. Male students were more likely to report not worrying about visiting a dentist compared to female students (36.5% vs. 20.7%, respectively, $P = 0.04$). While 17.3% of the male students were agreed with the statement "I think I can clean my teeth well without using toothpaste", the corresponding figure among females was 6.2% ($P = 0.04$). Majority of female students (77.2%) expressed their agreement with checking teeth in a mirror after brushing (item 12) while 61.5% male reported same idea.

Parent's education

We could not find any items being associated with this factor.

Multivariate analysis

In the logistic regression model, medical students (OR = 2.77, $P = 0.01$), and male respondents (OR = 2.48, $P = 0.02$) were more likely to report not worrying much about visiting a dentist compared to dental and female students, respectively (Table 3).

Table 1 The distribution of medical and dental students' responses to the 20 items of HU-DBI questionnaire

| Questions | Medical students (n = 56) | | Dental students (n = 88) | | P-value* |
|---|---------------------------|----------|--------------------------|----------|----------|
| | agree | disagree | agree | disagree | |
| 1. I don't worry much about visiting the dentist | 37.5% | 62.5% | 19.3% | 80.7% | 0.016 |
| 2. My gums tend to bleed when I brush my teeth | 19.2% | 80.4% | 12.5% | 87.5% | 0.24 |
| 3. I worry about the colour of my teeth | 83.9% | 16.1% | 80.7% | 19.3% | 0.62 |
| 4. I have noticed some white sticky deposits on my teeth | 28.6% | 71.4% | 29.5% | 70.5% | 0.90 |
| 5. I use a child-sized toothbrush | 0% | 100% | 1.1% | 98.9% | 0.42 |
| 6. I think that I cannot help having false teeth when I am old | 80.4% | 19.6% | 78.4% | 21.6% | 0.77 |
| 7. I am bothered by the colour of my gums | 8.9% | 91.1% | 1.1% | 98.9% | 0.023 |
| 8. I think my teeth are getting worse despite my daily brushing | 16.1% | 83.9% | 27.3% | 72.7% | 0.11 |
| 9. I brush each of my teeth carefully | 48.2% | 51.8% | 65.9% | 34.1% | 0.035 |
| 10. I have never been taught professionally how to brush | 39.3% | 60.7% | 36.4% | 63.6% | 0.72 |
| 11. I think I can clean my teeth well without using toothpaste | 8.9% | 91.1% | 11.4% | 88.6% | 0.64 |
| 12. I often check my teeth in a mirror after brushing | 76.8% | 23.2% | 68.2% | 31.8% | 0.26 |
| 13. I worry about having bad breath | 84.9% | 16.1% | 81.8% | 18.2% | 0.74 |
| 14. It is impossible to prevent gum disease with tooth brushing alone | 63.6% | 36.4% | 68.2% | 31.8% | 0.20 |
| 15. I put off going to the dentist until I have toothache | 57.1% | 42.9% | 46.6% | 53.4% | 0.30 |
| 16. I have used a dye to see how clean my teeth are | 5.4% | 94.6% | 5.7% | 94.3% | 0.93 |
| 17. I use a toothbrush which has hard bristles | 32.1% | 67.9% | 17% | 83% | 0.036 |
| 18. I don't feel I've brushed well unless with strong strokes | 44.6% | 55.4% | 31.8% | 68.2% | 0.12 |
| 19. I feel I sometimes take too much time to brush my teeth | 23.2% | 76.8% | 29.9% | 70.1% | 0.38 |
| 20. I have had my dentist tell me that I brush very well | 25% | 75% | 25% | 75% | 1.00 |

*Significant P-value <0.05.

Discussion

The present study compared oral health attitudes of medical and dental students in their non-clinical stage of study using HU-DBI questionnaire. Compared to medical students, dental students reported more positive attitudes in some aspects of oral health behaviour. Female students also reacted more favourably to some statements compared to male students.

The dental and medical curriculum in Iran has two parts; first 2 years are non-clinical. Due to lack of studies about oral and dental health attitudes and behaviour among Iranian medical and dental students in their first years of study the results have some implications in assessing impact of curriculum in non-clinical students of medicine and dentistry on prevention-oriented attitudes.

The HU-DBI questionnaire is a standard questionnaire providing possibility of comparing oral health attitudes and behaviours of health professionals in various countries. The fact that the target groups of our study were all educated diminishes the probability of misconceptions and errors which may be found when performing questionnaire surveys among lay people²³. However, because of the nature of questionnaire surveys and the phenomenon of social desirability,²⁴ the results might be an optimistic evaluation, and should be interpreted cautiously.

Although no significant differences existed between medical and dental students in their answers to the majority of the questionnaire items, in general, dental students seem to report better attitudes and behaviours compared to medical students. These findings resemble those reported in China¹² who used the same questionnaire among first-year dental and medical students. A study in Yemen on 1st to 5th year medical and dental students using the same questionnaire reported similar findings to ours.¹³ A study in Spain also reported more favourable dental health habits among third-year students compared to medical students in the same grade²⁵. It seems that dental education experience of dental students even in non-clinical stage potentially improves their oral health attitudes and behaviours²⁶. Moreover, as future oral health professionals, their motivation to maintain good oral health is superior to that among medical students.

In our study, while female students reacted more favourably to the items related to being concerned about visiting a dentist (item 1), refusing to have false teeth in old ages (item 6), the use of fluoride toothpastes (item 11), and checking on the mirror after brushing (item 12) in uni-variate analysis, just the difference in item 1 remained significant in multi-variate analysis.

Table 2 The distribution of medical and dental students' responses to the 20 items of HU-DBI questionnaire by gender

| Questions | Male students (n = 52) | | Female students (n = 92) | | P-value* |
|---|------------------------|----------|--------------------------|----------|----------|
| | agree | disagree | agree | disagree | |
| 1. I don't worry much about visiting the dentist | 36.5% | 63.5% | 20.7% | 79.3% | 0.038 |
| 2. My gums tend to bleed when I brush my teeth | 13.5% | 86.5% | 16.3% | 83.7% | 0.65 |
| 3. I worry about the colour of my teeth | 80.8% | 19.2% | 82.6% | 17.4% | 0.78 |
| 4. I have noticed some white sticky deposits on my teeth | 38.5% | 61.5% | 23.9% | 76.1% | 0.07 |
| 5. I use a child-sized toothbrush | 0% | 100% | 1.1% | 98.9% | 0.45 |
| 6. I think that I cannot help having false teeth when I am old | 67.3% | 32.7% | 85.9% | 14.1% | 0.01 |
| 7. I am bothered by the colour of my gums | 5.8% | 94.2% | 3.3% | 96.7% | 0.47 |
| 8. I think my teeth are getting worse despite my daily brushing | 21.2 | 78.8% | 23.9% | 76.1% | 0.71 |
| 9. I brush each of my teeth carefully | 57.7% | 42.3% | 59.8% | 40.2% | 0.81 |
| 10. I have never been taught professionally how to brush | 38.5% | 61.5% | 37.0% | 63.0% | 0.86 |
| 11. I think I can clean my teeth well without using toothpaste | 17.3% | 82.7% | 6.5% | 93.5% | 0.042 |
| 12. I often check my teeth in a mirror after brushing | 61.5% | 38.55% | 77.2% | 22.8% | 0.046 |
| 13. I worry about having bad breath | 88.5% | 11.5% | 79.3% | 20.7% | 0.17 |
| 14. It is impossible to prevent gum disease with tooth brushing alone | 63.5% | 36.5% | 62.0% | 38.0% | 0.86 |
| 15. I put off going to the dentist until I have toothache | 50.0% | 50.0% | 51.1% | 48.9% | 0.90 |
| 16. I have used a dye to see how clean my teeth are | 9.6% | 90.4% | 3.3% | 96.7% | 0.11 |
| 17. I use a toothbrush which has hard bristles | 25.0% | 75.0% | 21.7% | 78.3% | 0.66 |
| 18. I don't feel I've brushed well unless with strong strokes | 40.4% | 59.6% | 34.8% | 65.2% | 0.50 |
| 19. I feel I sometimes take too much time to brush my teeth | 26.9% | 73.1% | 27.2% | 72.8% | 0.97 |
| 20. I have had my dentist tell me that I brush very well | 25.0% | 75.0% | 25.0% | 75.0% | 1.00 |

*Significant P-value <0.05.

Table 3 Association of study discipline and gender on students' responses (n = 144) to HU-DBI questionnaire items in a logistic regression model (Forward-LR)

| Question | Influence factor | OR* | 95% CI OR | P-value |
|---|-------------------|------|-----------|---------|
| I don't worry much about visiting the dentist | Interdisciplinary | | | |
| | Medical | 2.77 | 1.3–6.1 | 0.011 |
| | Dental | 1 | | |
| | Gender | | | |
| | Male | 2.48 | 1.1–5.5 | 0.024 |
| | Female | 1 | | |

*Odds ratio was calculated based on "agree" response.

Some previous studies on dental students have reported more favourable attitudes and behaviours among female dental students compared to males^{19,21}. Similar findings have been reported among lay people^{27,28}. In contrast, a study on senior dental students in Mongolia²⁹ and study on all grade dental students using HU-DBI in India¹⁸ found no difference between the two genders in this regard. While we expect academic education to overcome background-related differences in oral health behaviour, this may not be the case among our sample since they were second-year students.

Reorientation of oral health service towards prevention as emphasized by Alam Ata declaration (WHO, 1978)

requires prevention oriented dental workforce. Lack of sufficient middle dental staff, which is a problem in Iran and some other developing countries³⁰ is an obstacle in this regard. In such situation, the role of other health care personnel such as physicians and nurses in education and referral of the patients is of great importance³⁰. Thus, as a prevention-oriented strategy, some oral health components can be added to curriculum of such personnel.

Conclusion

Some aspects of oral health attitudes and behaviours among dental and medical students need to be improved. Dental students seem to show better behaviour due to their dental education experience. However, both physicians and dentists serve as a role model for the public and are required to have good oral health attitudes and behaviours.

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Conflict of Interest

None.

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