

Received: 2020.10.22

Accepted: 2020.12.16

Available online: 2020.12.29

Published: 2021.02.17

Oral Health-Related Risk Factors Among Students in Southeast Serbia

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Source of support: Departmental sources

Background: An association between insufficient or irregular oral hygiene with the occurrence of dental caries, gingival/periodontal diseases, and consequently general diseases has been established.

The null hypothesis that there is no difference in the oral health status among students in a preclinical medical program and those who went through a clinical medical program was tested. The main objective of the study was to analyze oral health risk factors (oral hygiene practices, attitudes, and behavior) as well as their impact on oral health by using convenience sampling.





Material/Methods: We investigated risk factors for oral health conditions by examining oral hygiene practices, attitudes, and behaviors among the students in the medical program of the University of Niš, collecting data using questionnaires. The study included 396 students of medicine, dentistry, pharmacy, and vocational studies. Participants filled out the anonymous questionnaire.

Results: In both groups, parents were mostly employed, with the representation of employed fathers significantly higher in student group 1 ($P < 0.05$), which is also the only statistically significant difference between the groups. In terms of oral hygiene practices, students were most often trained by parents (68.69%). A very high percentage of students brushed their teeth every day (97.22%), and 54.55% did this twice a day. Of the total number of students, 78.28% thought that it was necessary to use interdental brushes/floss/toothpick. The duration of teeth cleaning was 3 minutes in 39.39%, whereas 55.30% thought that it should be longer than 3 minutes. The most common brushing movements were combined movements and were used by 60.35% of all students. Of all students, 253 (63.89%) never smoked, 182 (49.96%) regularly went to the dentist, and 141 (35.61%) visited the dentist 6 months ago. The majority of students, 265 (66.92%), obtained the greatest amount of information about oral and tooth care from their dentist, which was the case in both age groups.

Conclusions: This study highlights oral health risk factors among students at the University of Niš. It is essential to determine their oral health knowledge, as it is of great significance both to patients and to students. Also, these students will be the major providers of health services and will be responsible for public oral health promotion. It could help in reformation of the oral health education program. The results of this research indicate that it is necessary to educate preclinical students to solve oral health issues.

Keywords: Oral Health • Oral Hygiene • Students

Full-text PDF: <https://www.medscimonit.com/abstract/index/idArt/929375>

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Background

The World Dental Federation defined oral health as the ability to smile, swallow, smell, speak, chew, touch, taste, and show a lot of emotions through facial expressions with self-confidence and without discomfort, pain, and disease of the head and neck [1,2]. Knowledge about oral health and oral hygiene practices, attitudes, and behavior among medical students can be acquired through the epidemiological literature, which stresses the importance of oral health and shows the association of insufficient or irregular oral hygiene with the occurrence of gingival/periodontal disease, caries, and consequently systemic disease occurrence [3,4].

From a practical and professional point of view, medical and dental students are obliged to maintain a good oral health status, as they will serve as first-line public oral health promoters in the future [2].

Periodontal disease is highly prevalent and can affect up to 90% of the worldwide population, with direct impact of microbial dental biofilm as the primary etiologic factor responsible for initiation and progression of periodontal disease [5,6]. The main periopathogens are *Aggregatibacter actinomycetemcomitans*, *Prevotella intermedia*, *Porphyromonas gingivalis*, *Treponema denticola*, and *Tannerella forsythensis*. Periodontal health is critically dependent upon the behavior of the patient, both in terms of maintenance of good oral hygiene and in seeking treatment when diseases exist [7]. Dental caries affect approximately 36% of the worldwide population and are still one of the major causes of tooth loss and pain in industrialized countries, affecting the daily performance and emotional stability of individuals [8-10]. Throughout the years, knowledge has accumulated that links periodontal disease with many nonoral and systemic diseases, including cardiovascular disease, cancer, diabetes, infection of the respiratory tract, adverse pregnancy outcomes, and neurological disorders [2,11-16].

There is obvious epidemiological need to describe and investigate oral health determinants of risk factors among students of the medical programs because they are future clinicians who will have to promote public oral health as an integral part of overall health service.

The null hypothesis that there is no difference in the oral health status among the students in the preclinical medical program and those who went through the clinical medical program was tested. The main objective of the study was to analyze oral health risk factors (oral hygiene practices, attitudes, and behavior) as well as their impact on oral health by using convenience sampling.

Material and Methods

The study included 396 students of medicine, dentistry, pharmacy, and vocational studies of the medical faculty, University of Niš. All participants signed informed consent documents and thereafter filled out the questionnaire (Figure 1).

A self-administrated, anonymous questionnaire was designed on the basis of the literature data [2,17-19], and modified to fit local requirements. The consultant team, which consisted of a periodontist, a dental public health professional, a statistics professional, and an endodontic specialist, designed the questionnaire. After it was explained to the students, they completed it in approximately 20 minutes.

The questionnaire used in this study consisted of 4 main aspects: (1) sociodemographic variables of participants; (2) oral hygiene practices and behaviors; (3) health risk behaviors, disorders, use of medications, parafunctional habits; (4) maintenance of oral health with a dentist.

The Ethics Committee Medical Faculty, University of Niš, approved the study protocol (number 12-3380/2), which was carried out in agreement with the Declaration of Helsinki principles.

Statistical Analysis

Statistical analyses were performed using SPSS 16.0. Continuous variables are given as means±standard deviation (SD). Categorical variables are given as absolute numbers (N) and in percentages (%). Chi-square tests were used to assess categorical variables for group differences. Statistical significance was defined as $P < 0.05$.

The sample size calculation based on the size of the entire student population of the University of Niš, (27 570), with the accepted values of the α error probability 0.05 and power of study 0.8, showed that 379 subjects was sufficient.

Results

Of 396 students, 93 were medical, 106 were pharmacy, 175 were dental, and 22 were vocational students. There were 142 male and 254 female students (significantly higher, $P < 0.001$); with mean age±SD 21.70±1.70. The youngest students were 18 years old and the oldest 28.

Further investigation included the formation of 2 groups based on the year of study: group 1, in the third year of study, had 186 (46.97%) participants; group 2, in the fourth year of study, had 210 (53.03%) participants. The students of the first group went through the preclinical medical program and

Questionary form

Gender: 1. Male 2. Female Age: Study Division of the Medical faculty:.....

| No | Attitude / assertion | 1 | 2 | 3 | 4 | 5 |
|-----|---|----------------|----------------------------|--------------------|------------------------------------|------------------------------|
| 1. | Family economical state | | Lower than average | Average | Below average | |
| 2. | Mother's education | Primary school | Secondary school | Vocational | Faculty | PhD |
| 3. | Father's education | Primary school | Secondary school | Vocational | Faculty | PhD |
| 4. | Mother's working status: | | Yes | No | | |
| 5. | Father's working status: | | Yes | No | | |
| 6. | Number of family members: | 2 | 3 | 4 | 5 | 6 and more |
| 7. | Who gave you instructions about oral hygiene? | Parents | Older brother/sister | Teacher | My dentist | Different educations |
| 8. | How many times per day do you brush your teeth? | Never | One time a day | Two times a day | Three times a day | After every meal |
| 9. | When do you brush teeth? | Dont brush | In the morning | Before dinner | After dinner | Before going out |
| 10. | Do you use: toothpicks, floss, interdental brushes? | Never | Rarely | Depends | Sometimes | Every day |
| 11. | How long does your teeth cleaning take? | 1 minute | 2 minutes | 3 minutes | 4 minutes | 5 minutes |
| 12. | What movements are you using for tooth brushing? | Up-down | Left-right | Circular movements | With strong pressure | Combined |
| 13. | How often do you change your toothbrush? | Once a year | Every 4 months | Every 3 months | Every 2 months | Every 1 month |
| 14. | How often do you consume sweets? | Every day | periodically | Sometimes | rarely | never |
| 15. | Do you have a tooth sensitivity to: cold, sweet, etc.? | Every day | periodically | Sometimes | rarely | never |
| 16. | Do you smoke actively? | Every day | periodically | Sometimes | rarely | never |
| 17. | How many cigarettes do you smoke daily? | Two packages | One and a half package | One package | Sometimes | Don't smoke |
| 18. | Do you use medication? | Every day | periodically | Sometimes | rarely | never |
| 19. | If the answer to the previous question is positive, what do you use | | | | | |
| 20. | When did you visit the dentist last time? | never | 2 years ago | 12 months ago | 6 months ago | Regularly |
| 21. | What was the reason for your visit to a dentist? | Pain | Tooth extraction | Tooth filling | Control | Supragingival plaque removal |
| 22. | Why don't you visit a dentist regularly? | Pain | Problems | Money | Occupied | No need |
| 23. | Have you ever had orthodontic fix appliance? | Yes | Optionally | Depends | rarely | never |
| 24. | Do you suffer from gingival inflammation? | Yes | periodically | Depends | rarely | never |
| 25. | The greatest amount of information about oral health care can be obtained from: | Newspapers | On the radio and the media | From your dentist | From friends in a personal contact | In the pharmacy |

Figure 1. Questionnaire.

students of the second group went through the clinical program. Sociodemographic variables are presented in **Table 1**.

In both groups, parents were mostly employed, with the representation of employed fathers significantly higher in group 1 ($P<0.05$), which is also the only statistically significant difference between the student groups.

Oral hygiene practices and behaviors are presented in **Table 2**. In terms of oral hygiene practices, students were most often trained by parents (68.69%). As expected, a very high percentage of subjects brushed their teeth every day (97.22%) and 54.55% of subjects did this twice a day. The highest percentage of all examinees (45.45%) sometimes used interdental brushes/floss/toothpicks. There is a significant difference in frequencies of using interdental brushes/floss/toothpicks ($P=0.021$). Everyday use is significantly more frequent in group 2 ($P=0.023$); rare use is more frequent in group 1 ($P=0.033$).

The duration of the teeth brushing was 3 minutes for 39.39% of the examinees, whereas 55.30% think that the duration should be longer than 3 minutes. The most common brushing movements were combined movements, used by 60.35%

of all subjects. Of 396 students, 35.61% changed the toothbrush every 3 months.

Although all the examinees most frequently brushed their teeth twice a day, a statistically significant difference was found in the distribution of the answer to this question ($P=0.022$) based on the data from the contingency tables 4×2 . This was because students in group 2 more frequently brushed their teeth (3 times a day) than those in group 1 ($P=0.008$).

Of all students, 253 (63.89%) never smoked, 85 smoked every day, and 11 only periodically (**Table 3**).

The last part of the questionnaire concerned behaviors among students related to dental check-ups (**Table 4**). Of all the subjects, 182 (49.96%) regularly went to the dentist, and 141 (35.61%) visited the dentist 6 months ago. The distribution of the answer to this question significantly varies between the groups ($P<0.001$), which is a consequence of the significantly higher regularity of visits to the dentist in group 2 ($P<0.001$). Although a routine examination was the most common reason for visiting a dentist, it was more common in group 1 (51.05%) compared with group 2 (41.90%), and based on the

Table 1. Sociodemographic variables of surveyed subjects.

| Age | Total | | Group 1 | | Group 2 | | P* |
|--------------------------|------------|--------------|------------|--------------|------------|--------------|--------------|
| Sex | | | | | | | |
| Men | 142 | 32.26 | 60 | 32.26 | 82 | 39.05 | 0.159 |
| Women | 254 | 67.74 | 126 | 67.74 | 128 | 60.95 | |
| Family economic level | | | | | | | |
| Lower than average | 15 | 3.79 | 8 | 4.30 | 7 | 3.33 | 0.879 |
| Average | 340 | 85.86 | 159 | 85.48 | 181 | 86.19 | |
| Below average | 41 | 10.35 | 19 | 10.22 | 22 | 10.48 | |
| Mother's education | | | | | | | |
| Primary school | 11 | 2.78 | 6 | 3.23 | 5 | 2.38 | 0.378 |
| Secondary school | 206 | 52.02 | 93 | 50.00 | 113 | 53.81 | |
| Vocational | 49 | 12.37 | 28 | 15.05 | 21 | 10.00 | |
| University | 117 | 29.55 | 51 | 27.42 | 66 | 31.43 | |
| PhD | 13 | 3.28 | 8 | 4.30 | 5 | 2.38 | |
| Father's education | | | | | | | |
| Primary school | 5 | 1.26 | 2 | 1.08 | 3 | 1.43 | 0.504 |
| Secondary school | 186 | 46.97 | 87 | 46.77 | 99 | 47.14 | |
| Vocational | 60 | 15.15 | 24 | 12.90 | 36 | 17.14 | |
| University | 133 | 33.59 | 65 | 34.95 | 68 | 32.38 | |
| PhD | 12 | 3.03 | 8 | 4.30 | 4 | 1.90 | |
| Mother's working status | | | | | | | |
| Yes | 287 | 73.97 | 135 | 73.77 | 152 | 74.15 | 0.933 |
| No | 101 | 26.03 | 48 | 26.23 | 53 | 25.85 | |
| Father's working status | | | | | | | |
| Yes | 303 | 78.09 | 152 | 83.06 | 151 | 73.66 | 0.013 |
| No | 76 | 19.59 | 26 | 14.21 | 50 | 24.39 | |
| Number of family members | | | | | | | |
| 2 | 12 | 3.03 | 6 | 3.23 | 6 | 2.86 | 0.874 |
| 3 | 59 | 14.90 | 24 | 12.90 | 35 | 16.67 | |
| 4 | 204 | 51.52 | 99 | 53.23 | 105 | 50.00 | |
| 5 | 86 | 21.72 | 41 | 22.04 | 45 | 21.43 | |
| 6 or more | 35 | 8.84 | 16 | 8.60 | 19 | 9.05 | |

* Chi-square test; bold numbers mean the highest frequency.

5x2 contingency chart, there is a statistically significant difference in the number of reasons for visiting the dentist ($P=0.037$).

The majority of students, 265 (66.92%), obtained the greatest amount of information about oral and tooth care from their

dentist, which was the case in both age groups. However, there was a statistically significant difference in the distribution of answers to this question. This means that students from group 2 were more likely to receive the most information from their dentist than those in group 1 (71.90% vs 61.29%, $P=0.049$),

Table 2. Oral hygiene practices among students.

| Characteristics | Total | | Group 1 | | Group 2 | | P* |
|---|-------|-------|---------|-------|---------|-------|-------|
| | N | % | N | % | N | % | |
| Who gave you instructions about oral hygiene? | | | | | | | |
| Parents | 272 | 68.69 | 128 | 68.82 | 144 | 68.57 | 0.887 |
| Older brother/sister | 7 | 1.77 | 3 | 1.61 | 4 | 1.90 | 0.834 |
| Teacher | 15 | 3.79 | 9 | 4.84 | 6 | 2.86 | 0.296 |
| My dentist | 80 | 20.20 | 37 | 19.89 | 43 | 20.48 | 0.917 |
| Other | 103 | 26.01 | 52 | 27.96 | 51 | 24.29 | 0.387 |
| How many times per day do you brush your teeth? | | | | | | | |
| Once | 26 | 6.57 | 14 | 7.53 | 12 | 5.71 | 0.022 |
| Twice | 216 | 54.55 | 102 | 54.84 | 114 | 54.29 | |
| Three times | 124 | 31.31 | 49 | 26.34 | 75 | 35.71 | |
| After every meal | 30 | 7.58 | 21 | 11.29 | 9 | 4.29 | |
| When do you brush teeth? | | | | | | | |
| In the morning | 357 | 90.15 | 170 | 91.40 | 187 | 89.05 | 0.447 |
| Before dinner | 26 | 6.57 | 13 | 6.99 | 13 | 6.19 | 0.733 |
| After dinner | 357 | 90.15 | 164 | 88.17 | 188 | 89.52 | 0.874 |
| Before going out | 200 | 50.51 | 93 | 50.00 | 107 | 50.95 | 0.916 |
| Do you use: toothpicks, floss, interdental brushes? | | | | | | | |
| Never | 38 | 9.60 | 23 | 12.37 | 15 | 7.14 | 0.021 |
| Rarely | 80 | 20.20 | 46 | 24.73 | 34 | 16.19 | |
| Depends | 33 | 8.33 | 16 | 8.60 | 17 | 8.10 | |
| Sometimes | 180 | 45.45 | 79 | 42.47 | 101 | 48.10 | |
| Every day | 65 | 16.41 | 22 | 11.83 | 43 | 20.48 | |
| How long does your teeth cleaning take? | | | | | | | |
| 1 min | 26 | 6.57 | 12 | 6.45 | 14 | 6.67 | 0.372 |
| 2 min | 118 | 29.80 | 64 | 34.41 | 54 | 25.71 | |
| 3 min | 156 | 39.39 | 67 | 36.02 | 89 | 42.38 | |
| 4 min | 54 | 13.64 | 26 | 13.98 | 28 | 13.33 | |
| 5 min | 42 | 10.61 | 17 | 9.14 | 25 | 11.90 | |
| What movements are you using for tooth brushing? | | | | | | | |
| Up-down | 133 | 33.59 | 58 | 31.18 | 75 | 35.71 | 0.379 |
| Left-right | 41 | 10.35 | 23 | 12.37 | 18 | 8.57 | 0.209 |
| Circular movements | 76 | 19.19 | 37 | 19.89 | 39 | 18.57 | 0.713 |
| With strong pressure | 15 | 3.79 | 9 | 4.84 | 6 | 2.86 | 0.296 |
| Combined | 239 | 60.35 | 117 | 62.90 | 122 | 58.10 | 0.314 |

Table 2 continued. Oral hygiene practices among students.

| Characteristics | Total | | Group 1 | | Group 2 | | P* |
|--|------------|--------------|-----------|--------------|-----------|--------------|-------|
| | N | % | N | % | N | % | |
| How often do you change your toothbrush? | | | | | | | |
| Once a year | 21 | 5.30 | 11 | 5.91 | 10 | 4.76 | 0.960 |
| Every 4 months | 97 | 24.49 | 47 | 25.27 | 50 | 23.81 | |
| Every 3 months | 141 | 35.61 | 66 | 35.48 | 75 | 35.71 | |
| Every 2 months | 84 | 21.21 | 37 | 19.89 | 47 | 22.38 | |
| Every month | 53 | 13.38 | 25 | 13.44 | 28 | 13.33 | |

* Chi-square test; bold numbers mean the highest frequency.

and they were less reliant on other sources except in personal contact with friends.

Discussion

The students of medical programs are expected to have good oral health knowledge, behavior, and attitudes, especially those who went through the clinical medical program. The students in the preclinical medical program did not receive any oral health education and training. However, students from group 2 learned to improve their oral hygiene skills throughout the study curriculum.

It is very important for all students to have good oral health knowledge because they will be public oral health promoters in the future. They are expected to possess accurate oral health knowledge and behavior in their school years [2].

Tooth brushing frequency, interdental cleaning, and regular check-ups are important determinants of periodontal health. Education level is by far the most significant determinant of good oral behavior [20].

Epidemiologic studies of oral hygiene issues among students in different countries are numerous and similar results were found in previous investigations [21-33]. Numerous studies have been conducted in different populations around the world to evaluate oral hygiene habits. Interviews about oral hygiene habits were conducted and analyzed in Europe [34,35], North America [36,37], Africa [38], and Asia [39-41]. Our results were similar to those found in these studies [26-29].

In 2015, Muthu et al [33] investigated 282 dental students. Of the total, 38% never visited a dentist and brushed their teeth once a day; 56% visited a dentist because of pain; 49% did not look at the color of their teeth; 20% had gingival bleeding

when brushing their teeth. In our study, the distribution of answers regarding gingival inflammation was significantly different between groups ($P < 0.001$). Rare gingival inflammation was significantly more frequent in group 2 ($P = 0.008$). The answer "depends" was significantly more frequent in group 1 ($P = 0.004$). The fact that 244 (61.62%) of all students never had gingival inflammation and 78 (19.70%) rarely had gingival inflammation could indicate solid oral hygiene.

Brushing teeth twice a day is recommended in industrial countries [24], but in some other countries it is far from being achieved [42]. Rimondini et al [24] demonstrated that 81.6% of Italian students used 1 toothbrush for less than 3 months, but Kirtioglu and Yavuz [25] found that only 49% of Turkish students used 1 toothbrush for less than 3 months. The results of the current study are in the accordance with above-mentioned study [25].

In 2010 Kumar et al [30] investigated 403 dental and medical students at a university in India. In the current study, students had good knowledge about smoking (21.46% smoke every day, and periodically only 2.78%). On self-assessment, both medical and dental students showed more or less the same frequency of gingival bleeding, carious teeth, tooth pain, or dental hypersensitivity. Although these problems were noted, 76.4% of dental students visited dentists, compared with 46.8% of medical students [30]. These results are in accordance with the results of Usman et al [31] as well as our results, that the dental students showed better knowledge of attitudes and habits related to oral hygiene in comparison with students of medicine and other programs.

Peltzer and Pengpid [43] examined 3344 students in 5 countries (Indonesia, Malaysia, Thailand, Vietnam, and Myanmar). In their study the authors found a considerable proportion of self-reported poor dental status and poor oral hygiene among university students.

Table 3. Health risk behaviors, disorders, medication use, smoke habits among students.

| Questions | Total | | Group 1 | | Group 2 | | P* |
|---|------------|--------------|------------|--------------|------------|--------------|--------------|
| | N | % | N | % | N | % | |
| How often do you consume sweets? | | | | | | | |
| Every day | 179 | 45.20 | 85 | 45.70 | 94 | 44.76 | 0.347 |
| Periodically | 82 | 20.71 | 33 | 17.74 | 49 | 23.33 | |
| Rarely | 60 | 15.15 | 31 | 16.67 | 29 | 13.81 | |
| Never | 4 | 1.01 | 3 | 1.61 | 1 | 0.48 | |
| Do you have a tooth sensitivity to cold, sweet, etc? | | | | | | | |
| Every day | 10 | 2.53 | 7 | 3.76 | 3 | 1.43 | 0.377 |
| Periodically | 59 | 14.90 | 24 | 12.90 | 35 | 16.67 | |
| Rarely | 173 | 43.69 | 78 | 41.94 | 95 | 45.24 | |
| Never | 91 | 22.98 | 43 | 23.12 | 48 | 22.86 | |
| Do you smoke actively? | | | | | | | |
| Every day | 85 | 21.46 | 38 | 20.43 | 47 | 22.38 | 0.719 |
| Periodically | 11 | 2.78 | 6 | 3.23 | 5 | 2.38 | |
| Rarely | 26 | 6.57 | 10 | 5.38 | 16 | 7.62 | |
| Never | 253 | 63.89 | 122 | 65.59 | 131 | 62.38 | |
| How many cigarettes do you smoke daily? | | | | | | | |
| Two packages | 3 | 0.76 | 1 | 0.54 | 2 | 0.95 | 0.966 |
| One and a half package | 10 | 2.53 | 5 | 2.69 | 5 | 2.38 | |
| One package | 65 | 16.41 | 31 | 16.67 | 34 | 16.19 | |
| Don't smoke | 255 | 64.39 | 121 | 65.05 | 134 | 63.81 | |
| Do you use medication? | | | | | | | |
| Every day | 13 | 3.28 | 5 | 2.69 | 8 | 3.81 | 0.847 |
| Periodically | 36 | 9.09 | 16 | 8.60 | 20 | 9.52 | |
| Rarely | 156 | 39.39 | 76 | 40.86 | 80 | 38.10 | |
| Never | 103 | 26.01 | 46 | 24.73 | 57 | 27.14 | |
| If the answer to the previous question was positive, what do you use? | | | | | | | |
| Analgesics | 75 | 18.94 | 38 | 20.43 | 37 | 17.62 | 0.743 |
| Antibiotics | 21 | 5.30 | 9 | 4.84 | 12 | 5.71 | |
| Antihistamines | 9 | 2.27 | 4 | 2.15 | 5 | 2.38 | |
| Contraceptives | 9 | 2.27 | 3 | 1.61 | 6 | 2.86 | |

* Chi-square test; bold numbers mean the highest frequency.

Borrell and Papapanou [44] and Baelum [45] collected periodontal data to assess the effect of risk factors, and suggested that the most prominent are age, sex, smoking status, educational and socioeconomic status, and diabetes.

Similar results to ours were found in the study by Polychronopoulou et al [32], with the conclusion that students in the final year of medical/dental programs have better skills,

habits, and attitudes about oral hygiene than younger students, although in the group of medical students it was not observed.

Conclusions

This study supplied a new understanding of oral health risk factors among students in the University of Niš medical programs.

Table 4. Results concerning behaviors related to dental check-ups.

| Age | Total | | Group 1 | | Group 2 | | P* |
|--|------------|--------------|------------|--------------|------------|--------------|--------------|
| When did you visit the dentist last? | | | | | | | |
| 2 years ago | 23 | 5.81 | 14 | 7.53 | 9 | 4.29 | <0.001 |
| 12 months ago | 50 | 12.63 | 28 | 15.05 | 22 | 10.48 | |
| 6 months ago | 141 | 35.61 | 85 | 45.70 | 56 | 26.67 | |
| Regularly | 182 | 45.96 | 59 | 31.72 | 123 | 58.57 | |
| What was the reason for your visit to a dentist? | | | | | | | |
| Pain | 41 | 10.35 | 20 | 10.75 | 21 | 10.00 | 0.037 |
| Tooth extraction | 21 | 5.30 | 10 | 5.38 | 11 | 5.24 | |
| Tooth filling | 139 | 35.10 | 58 | 31.18 | 81 | 38.57 | |
| Check-up | 183 | 46.21 | 95 | 51.08 | 88 | 41.90 | |
| Supragingival plaque removal | 50 | 12.63 | 14 | 7.53 | 36 | 17.14 | |
| Why don't you visit a dentist regularly? | | | | | | | |
| Pain | 19 | 6.31 | 8 | 4.91 | 11 | 7.97 | 0.459 |
| Problems | 4 | 1.33 | 1 | 0.61 | 3 | 2.17 | |
| Money | 12 | 3.99 | 5 | 3.07 | 7 | 5.07 | |
| Occupied | 126 | 41.86 | 70 | 42.94 | 56 | 40.58 | |
| No need | 140 | 46.51 | 79 | 48.47 | 61 | 44.20 | |
| Have you ever had orthodontic work? | | | | | | | |
| Yes | 146 | 36.87 | 67 | 36.02 | 79 | 37.62 | 0.581 |
| Optionally | 7 | 1.77 | 3 | 1.61 | 4 | 1.90 | |
| Depends | 3 | 0.76 | 1 | 0.54 | 2 | 0.95 | |
| Rarely | 8 | 2.02 | 6 | 3.23 | 2 | 0.95 | |
| Never | 232 | 58.59 | 109 | 58.60 | 123 | 58.57 | |
| Do you have gingival inflammation? | | | | | | | |
| Yes | 19 | 4.80 | 6 | 3.23 | 13 | 6.19 | <0.001 |
| Periodically | 32 | 8.08 | 12 | 6.45 | 20 | 9.52 | |
| Depends | 23 | 5.81 | 19 | 10.22 | 4 | 1.90 | |
| Rarely | 78 | 19.70 | 26 | 13.98 | 52 | 24.76 | |
| Never | 244 | 61.62 | 123 | 66.13 | 121 | 57.62 | |
| The greatest amount of information about oral health care can be obtained from | | | | | | | |
| Newspapers | 34 | 8.59 | 21 | 11.29 | 13 | 6.19 | 0.068 |
| On the radio and the media | 58 | 14.65 | 33 | 17.74 | 25 | 11.90 | 0.097 |
| From your dentist | 265 | 66.92 | 114 | 61.29 | 151 | 71.90 | 0.049 |
| From friends in personal contact | 66 | 16.67 | 27 | 14.52 | 39 | 18.57 | 0.299 |
| In the pharmacy | 11 | 2.78 | 8 | 4.30 | 3 | 1.43 | 0.149 |

* Chi-square test; bold numbers mean the highest frequency.

Because they are the professionals of the future, it is essential to determine their oral health knowledge and behaviors, which are of great importance both to patients and to students. Oral health education and promotion through dental visits, electronic and print media, and public health outreach programs are required to improve oral hygiene practices among young adults as well as the general population. Regular dental visits for prophylaxis and professional reinforcement in oral hygiene behaviors are the key to prevent oral diseases.

The results of this research indicate that students in the clinical medical program have better knowledge about oral hygiene issues compared with students in the preclinical medical

program. It is necessary to educate preclinical students to raise awareness of the importance of oral health.

Public health dentists should be trained to coordinate oral health needs assessments and to implement and evaluate community-based oral health improvement strategies among some population groups. The knowledge of oral hygiene among dental students in comparison with other study program students should be further investigated.

Conflicts of Interest

None.

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