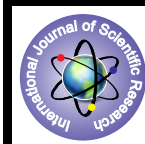


Oral Health Condition and Dental Anxiety Among Students



Medical Science

KEYWORDS : attitudes, dental anxiety, oral health behavior, students

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ABSTRACT

Objective was to compare oral health related behavior, attitudes and dental anxiety levels among dental, medical and management students. Methods: The study included 107 dental, 91 medical and 95 management final-year students from Serbia. Students filled-in the 17-item questionnaire about their oral health related attitudes and behavior. Index of Dental Anxiety and Fear - IDAF-4C was used to assess dental anxiety and fear among the students. Results: Significantly more dental than non-dental students reported regular use of dental floss, proximal brushes and fluoride rinses and lower sugar intake between the meals. Management students significantly more often stated pain as the main reason for dental visit, while medical and dental students visited dentist mostly due to non-symptomatic reasons. Considerably more non-dental students held a belief that the deterioration and loss of teeth are inevitable during one's lifetime. Dental anxiety scores were significantly higher among non-dental students. Conclusions: Oral health promotion should involve more actively students of other educational profiles, especially medical, to increase their awareness of importance of oral health.

INTRODUCTION

Oral health related behavior and attitudes habits correlate with oral health status and can be considered to be its predictors^{1,2}. Dental students, as the future providers of dental care, are expected to be role models for their patients. Their attitudes toward oral health affect their own oral health habits and might have an influence on the improvement of the oral health of their patients³. Medical doctors are expected to educate their patients about the prevention of common risk factors for developing chronic diseases, both systemic and oral. Unfortunately, oral health has traditionally been considered separately from general health. Consequently, good oral health and healthy teeth are often considered less valuable than a general health^{4,5}. This, together with the insufficient information on interactions between oral and overall health, could influence the ability of medical students to provide dental-related counseling to their patients^{6,7}.

The objective of this study was to compare oral health related behavior, attitudes and dental anxiety levels among dental, medical and management students, with the intention to determine if formal dental education affected the abovementioned parameters.

MATERIALS AND METHODS

The final year undergraduate students of School of Dentistry Pancevo, School of Medicine and School of Management participated in this study conducted in May 2013. Ethical board of Faculty of Stomatology Pancevo granted the permission for this research.

Students filled in the anonymous 17-item questionnaire about their current oral health related behavior (oral hygiene, fluoride supplement, diet, dental visits) and attitudes, in the class after the lecture.

Index of Dental Anxiety and Fear (IDAF-4C) was used to assess dental anxiety and fear among the students. The IDAF-4C con-

tains eight statements with possible responses measured on a 5-point scale from 'disagree' (1) to 'strongly agree' (5). The scale has two items pertaining to each of the emotional, behavioral, cognitive and physiological components of the fear and anxiety response set. Full scale scores can be obtained by either summing the item scores (range: 8-40), as we did in this research, or by obtaining the average of the items scores (range: 1-5). The IDAF-4C has high internal consistency, good test-retest reliability and validity⁸.

Statistical analysis

The statistical analyses were performed using the SPSS statistical software (SPSS for Windows, release 17.0, SPSS, Chicago, IL). All variables were analyzed according to the type of education and the gender. We used Chi-square tests to assess the differences between the groups and Pearson's correlation analysis to determine the relation between dental anxiety levels and type of the faculty, gender and dental behavior items. Statistical significance was based on probability values of less than 0.05.

RESULTS

The total of 293 students (123 males and 170 females) participated in this study. The majority of students (91.1%) live in urban areas of Serbia. The characteristics of the sample are illustrated in Table 1.

Table 1. Sample characteristics according to the gender and the faculty type.

		Gender		Total		
		Male	Female			
		Nr.	%	Nr.	%	
Faculty	Medical	30	(33.0)	61	(67.0)	91 (100.0)
	Management	42	(44.2)	53	(55.8)	95 (100.0)
	Dental	51	(47.7)	56	(52.3)	107 (100.0)

Total		123 (42.0)	170 (58.0)	293 (100.0)
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$\chi^2=4.65$; $p>0.05$.

Oral hygiene

There were no significant differences in terms of self-reported length of brushing and use of fluoride toothpaste according to the faculty type. The majority of students reported brushing at least twice a day (97.4%) and use of fluoride toothpaste (93.4%). In the total sample, 65.6% of students used dental floss, 21.3% used proximal brushes and 55.7% used fluoride mouth rinses. Significantly more dental students reported use of dental floss, proximal brushes, electric powered toothbrush and fluoride-containing mouthwashes compared to the medical and management students (Table 2). Table 2 about here Management students (57.6%) used toothpicks more than medical (51.0%) and dental students (38 %); $\chi^2= 8.20$; $p<0.05$.

Significantly more female than male students used dental floss (74.1% vs. 53.7%) and fluoride mouth rinses (68.3% vs. 39.8%); $\chi^2=26.44$; $p<0.001$.

Diet behavior

Sugar intake between the meals was less frequent among dental (58.2%) and medical (64.6%) compared to the management (83.7%) students ($\chi^2=16.54$; $p<0.001$). The majority of students (67.4%) eat fast food, but significantly more management and medical (74.7% and 70.8%, respectively) than dental (57.8%) students reported consumption of fast food and fizzy drinks several times per week or more often ($\chi^2= 12.22$; $p<0.05$). There were no significant differences in diet behavior between females and males.

Dental visits

A need for dental treatment was self-reported by 43.8% of students (34.9% of dental, 43.4% of management and 55.2% of medical students; $\chi^2=13.67$, $p<0.05$). Within past 6 months, 75.3% of students had visited a dentist. The type of the faculty significantly influenced the reasons for dental visits (Figure 1). Figure 1 about here The most common reason was self-perceived change on tooth (in 54.1% of dental, 52.1% of medical and 41.4% of management students). Regular check-ups were the main reason to visit the dentist in 39.4% of dental, 31.3% of medical and 30.3% of management students, while 22.2% of management, 14.6% of medical and 3.7% of dental students stated dental pain as the most common reason ($\chi^2= 19.75$; $p<0.01$). More female than male students (39.1% vs. 23.6%, respectively) reported regular check-ups, while more males (20.3%) than females (8.9%) visited dentist due to pain ($\chi^2=12.28$; $p<0.01$).

Attitudes towards oral health

The students' oral health related attitudes are illustrated in Table 3. Table 3 about here The majority of students (97.2% of dental, 94.9% of management and 92.7% of medical students; $p>0.05$) believe their behavior can significantly contribute to the preservation and improvement of their oral health, and 87.1% of students believe that preventive measures are important for the maintenance of good oral health. The attitude that having nice and healthy teeth is important for good personal appearance and the impression we leave to the others, was stated by 93.5% of dental, 88.5% of medical and 83.8% of management students ($\chi^2=7.88$; $p>0.05$). Significantly more female (92.9%) than male (82.1%) students consider beautiful teeth important for good personal appearance and social interaction ($\chi^2=8.12$; $p<0.05$).

Aching, deterioration and the loss of teeth are considered inevitable during life time in 61.6% of management, 51.0% of medical and 37.4% of dental students ($\chi^2=19.20$; $p<0.01$), while 22.2% of management, 18.7% of dental and 17.7% of medical students stated that teeth were less important than the other parts of the body because they could be replaced with artificial teeth ($p>0.05$).

Dental anxiety

According to the anxiety scores, we divided the students in 3

groups. We assigned the students with IDAF-4C scores from 8- 16 to the low anxiety group, those with scores 17- 31 to the moderate and 32-40 to the high anxiety group. Figure 2 illustrates the distribution of the subjects according to the dental anxiety levels. Figure 2 about here. In the group of highly anxious students, the most numerous were management students (44.4% compared to 33.3% of medical and 22.2% of dental students, whereas more dental (41.5%) than the medical (30.9%) and management students (27.5%) belonged to the group with low dental anxiety scores ($\chi^2=14.96$; $p<0.01$). In our sample, no differences in dental anxiety levels between female and male students were perceived.

Dental anxiety influenced the pattern of dental visits among the students. Only 44.4% of highly anxious students paid a visit to the dentist within last 6 months, compared to 72.4% of moderately and 77.4% of low anxious students ($\chi^2=9.98$; $p<0.05$). Figure 3 illustrates the reasons for dental visits according to the dental anxiety levels. Figure 3 about here Dental pain was the most common reason for dental visit in 55.6% of highly anxious students, compared to 22.4% of moderately and 8.9% of low anxious students, while regular dental check-up was the main reason for dental visit in 37.4% of low, 22.4% of moderately and 22.2% of highly anxious students ($\chi^2= 27.86$; $p<0.001$).

Correlations existed between the dental anxiety scores and:

- the type of the faculty ($r= - 0.112$; $p<0.05$);
- self-perceived oral health ($r=0.112$; $p<0.05$);
- regular dental visits ($r= 0.140$; $p<0.05$);
- duration of tooth brushing ($r= 0.185$, $p<0.01$);
- reasons for visiting dentist ($r=0.198$, $p<0.001$);
- daily frequencies of acidic food and drinks consumption ($r=0.151$; $p<0.01$);
- positive attitudes towards preventive measures in maintaining of good oral health ($r=0.606$; $p<0.01$).

DISCUSSION

Our study proved that the educational profile influenced oral health attitudes and behavior of students. Dental students, in general, had better oral health related behavior, more positive attitudes and lower dental anxiety levels compared to management and medical students - they used dental floss, proximal brushes and fluoride mouthwashes more often and reported significantly less frequent sugar intake between the meals.

The attitudes toward prevention of oral health problems were positive among most subjects. However, considerably more non-dental students held a belief that the deterioration of teeth and teeth loss are to be expected in lifetime.

Although 68% of students reported regular dental visits, only 39% of dental, 31% of medical and 30% of management students stated regular check-ups as the main reason. A low rate of dental check-ups could be explained by the fact that in Serbian governmental dental health policy a restorative dentistry is more commonly provided than preventive dentistry. The analysis of preventive dental examinations conducted in the Republic of Serbia for the period 2003-2006 showed that rates of the examinations were significantly lower than those projected⁹. In our study, the most common reason for dental visits reported in all groups, was the self-notified change on a tooth. However, significantly more management students visited dentist due to symptomatic reasons, whereas dental students and females more often reported regular dental visits. The research into health care utilization in Serbia showed that subjects with university degree and women were more likely to visit a dentist than the less educated or males¹⁰. This is consistent with the findings of a number of studies conducted in other countries^{11,12}. Since all the subjects in this study were highly-educated, the specific oral health related knowledge might affect dental visits behavior of dental students, making it more favorable compared to medical and management students.

This study confirmed previous findings concerning dental students having lower dental anxiety than non-dental students¹³. In our study, management students expressed the highest

anxiety scores. Dental anxiety played an important role in the pattern of dental visits^{14, 15}. Our study showed that the most common reason for dental visit in the group of highly anxious students was dental pain. Also, significantly fewer highly anxious students reported regular check-ups and dental visit within past 6 months, because high dental anxiety is a common reason for postponing or avoiding a dental treatment^{16, 17}. On the other hand, irregular dental attendance may play a major role in increasing the levels of dental anxiety¹³. If this is added to the lack of oral health education and promotion activities in Serbia, it is no surprise that there are high levels of dental anxiety among non-dental students.

Dental students reported significantly lower treatment needs compared to medical and management students, which could be the result of more regular dental visits and lower anxiety levels among them. We can assume that oral health is at higher level among dental students, which is consistent with other studies which reported a difference between the health professional and other students with regard to caries experience, oral health attitudes and behavior^{18, 19}.

Given the fact that dental health education is generally poor in the pre-university stage, non-dental students have no opportunities to improve their knowledge, attitudes and behavior related to oral health. On the other hand, dental students can develop and adopt positive oral health attitudes and behavior during the years of formal dental education. This is very important due to the fact that future dentists are expected to have a leading role in creating health policy, influencing public opinions and guiding the necessary changes in the health care system to become more preventive-oriented.

CONCLUSION

In Serbia, only dental students gain an adequate oral health education as part of their regular curriculum. Program of medical studies does not involve oral health related topics in great extent, which is consistent with the findings of the other countries^{20, 21}. Because of the traditional separation of medical and dental education and delivery of care, physicians had little involvement in dental health²²⁻²⁴. In order to increase the awareness of medical students regarding oral health and to underline the interaction between oral and systemic conditions, dental and medical universities should cooperate in training and learning^{25, 26}. The results of colleagues²⁷ suggest that there is a gap between global oral health policy interventions set out by WHO and FDI and awareness of global oral health issues among dental students in their country. Therefore, continuous and systematic oral health promotion activities are necessary in order to increase the public awareness of importance of oral health in achieving global health goals.

Table 2. Distribution of the frequencies of positive answers regarding oral health behavior items according to the faculty type.

Item	Dental students Nr. (%)	Medical students Nr. (%)	Management students Nr. (%)	Total Nr. (%)	Pearson's Chi square	p
Going to regular Dental check-ups	78 (70.9)	65 (67.7)	65 (66.3)	208 (68.4)	0.537	ns
Brushing at least twice a day	105 (95.5)	95 (99.0)	97 (98.0)	297 (97.4)	15.890	p<0.05
Use of fluoride toothpaste	103 (93.6)	90 (93.8)	92 (92.9)	285 (93.4)	0.064	ns
Use of dental floss	88 (80.0)	58 (60.4)	54 (54.5)	200 (65.6)	16.606	p<0.001
Use of electric toothbrush	15 (13.6)	7 (7.3)	2 (2.0)	24 (7.9)	9.763	p<0.01
Use of proximal brushes	34 (30.9)	18 (18.8)	13 (13.1)	65 (21.3)	10.368	P<0.01
Use of mouthwashes	77 (70.0)	51 (53.1)	42 (42.4)	170 (55.7)	18.550	P<0.001
Use of Toothpicks	42 (38.2)	49 (51.0)	57 (57.6)	148 (48.5)	8.201	P<0.05

Having sweets/ snacks / fizzy drinks between the meals	64 (58.2)	62 (64.6)	82 (83.7)	208 (68.4)	16.543	P<0.001
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Table 3. The attitudes towards oral health according to the faculty type (the "agree" answers).

Item	Medical students Nr. (%)	Management students Nr. (%)	Dental students Nr. (%)	χ ²	p
My behavior can significantly contribute to the preservation and improvement of my oral health.	89 (92.7)	94 (94.9)	105 (97.2)	2.377	ns
Preventive measures are important to me because they help maintenance of good oral health.	84 (87.5)	87 (87.9)	93 (86.1)	0.325	ns
Having nice teeth affects our personal appearance and the impression we make to the other people.	85 (88.5)	83 (83.8)	101 (93.5)	7.878	ns
Aching, deterioration and loss of teeth are to be expected in life.	49 (51.0)	61 (61.6)	40 (37.4)	19.204	p<0.01
Teeth are less important than other parts of the body because they can be replaced with the artificial teeth.	17 (17.7)	22 (22.2)	20 (18.7)	8.375	ns

ns - non significant

Figure 1. The most common reasons for dental visits according to the type of the faculty

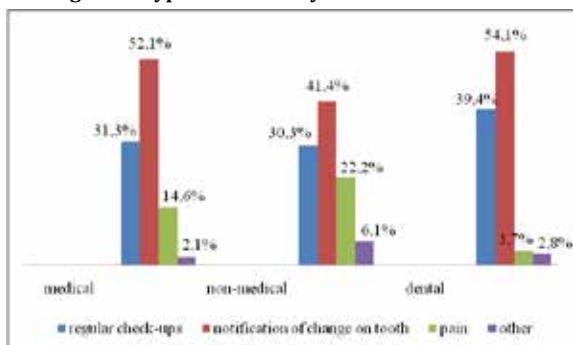


Figure 2. Distribution of students according to the dental anxiety levels

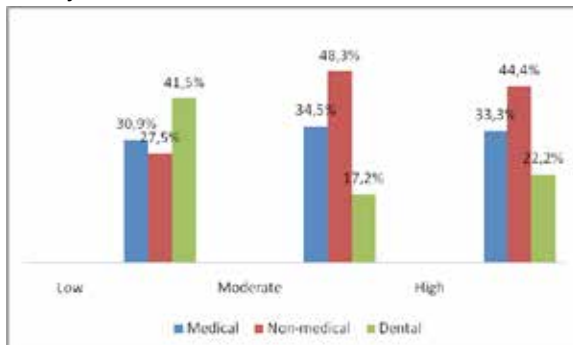
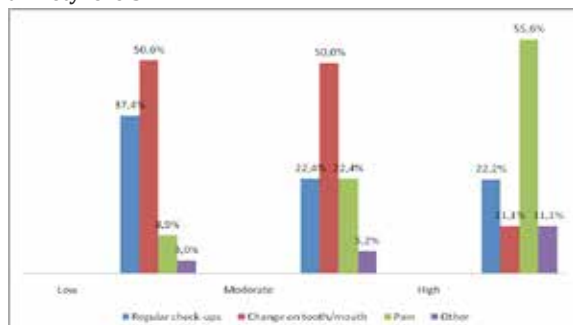


Figure 3. Reasons for dental visits according to the dental anxiety levels

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