

ASSOCIATION BETWEEN ORAL HEALTH PERCEPTIONS AND ORAL HEALTH STATUS OF DENTAL STUDENTS IN IASI, ROMANIA

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ABSTRACT

Dental students have the role to pass on the knowledge of oral hygiene to future patients. The aim of the present study was to assess the attitudes and behaviors towards oral health of dental students in Iasi and their association with oral clinical indicators. Materials and methods The study cross-sectional clinical type included 80 students attending the 3rd year of the Faculty of Dental Medicine within the “Grigore T. Popa” University of Medicine and Pharmacy in Iasi. Oral health attitudes and behaviors were assessed using the HU-DBI questionnaire and the subjects were clinically examined for dental, periodontal and oral hygiene status. Results The mean HU-DBI score was 7.18. The mean values of clinical indicators were 9.56 for the DMFT and 0.78 for the OHI; 56.25% of the subjects had a CPITN score of 2. Strong correlations were found between OHI and items 2, 4, 11, 12, 15, 16 and 20, between DMFT and items 1, 8, 11 and 15 and between CPITN and items 2, 11 and 12. Conclusions The attitude of the dental students in the present study is directly proportional to their clinical oral status. Average carious indices, good oral hygiene and good periodontal health are the results of a good oral health attitude.

Key words: oral health attitude, behavior, dental students, HU-DBI.

INTRODUCTION

Oral health is a key indicator of overall health, well-being and quality of life. It is defined as the lack of chronic oral and facial pain to which the lack of infections in the oro-maxillo-facial territory and tumors is added. They limit an individual's ability to function normally in a society, through functional and psychological impairment.

Attitude is defined as a behavior that reflects a certain conception. The process of attitude validation is represented by behavior. The behavior, but also the attitude of an individual on an idea, in this case, is strongly influenced by the socio-economic level, the social context of which it is part, the educational level of the individual.

Students have a high level of education, which translates into appropriate behavior on health and a responsible attitude. One of

the roles of the Dentistry student is to pass on the knowledge of oral hygiene to future patients. Behavior and attitude towards oral health must be translated into the clinical situation of each patient, as correlation exists between them.

The health systems of the countries also have an important role. They must implement curricula appropriate to the era in which we live. The 21st century is a century in which scientific development is very rapid, and education systems must keep up with this development.

To quantify the behavior and attitude of students, Kawamura et al. designed HU-DBI (Hiroshima University-Dental Behavioral Inventory), a 20-item questionnaire for dental students [1]. Since 1988, it has been translated into numerous languages and used in studies worldwide to assess perceptions

and attitudes toward oral health, as well as oral self-care behavior [2, 3] and has demonstrated good reliability [4, 5].

The dental curricula in Romania includes six years, of which the first two years comprise preclinical disciplines, and the next four years comprise clinical disciplines. The dental students are introduced to preventive aspects of oral health in the third year of study.

The aim of the present study was to assess the attitudes and behaviors towards oral health of dental students in Iasi, as well as to establish correlations between the attitudes and behaviors observed and the clinical indicators that objectify the oral health in the study group.

MATERIALS AND METHODS

Study design and sample

The study cross-sectional clinical type was conducted between October 2018-June 2019. The initial study sample included 100 students attending the 3rd year of the Faculty of Dental Medicine in the “Grigore T. Popa” University of Medicine and Pharmacy in Iasi. Ethical approval was obtained from the Ethical Committee for Research of the University. The aim of the study was explained to all students and informed consent was obtained from all respondents before participation. Only students agreeing to participate in the study were considered. The impossibility of identifying the subjects provided the results are published was ensured.

Questionnaire

Self-administered questionnaire consists of 20 questions relating to: the perception on one's own oral and periodontal health, the attitude towards the visit to the dental office, the ways to achieve the oral hygiene. Each question has dichotomous response options (agree/disagree). One point is given for questions 4, 9, 11, 12, 16 and 19 receiving

the answer “yes” and for questions 2, 6, 8, 10, 14 and 15 receiving the answer “no”, respectively. The minimum score is 0 and the maximum score is 12. The closer the score is to the maximum, the better the attitude and behavior.

After the translation into Romanian, the HU-DBI was pre-tested in a pilot study on 20 subjects who were not subsequently included in the study group. In the event of confusion, inherent in cultural differences, those questions were changed before the questionnaire was used in the main study.

The students were invited to complete the questionnaire in their classrooms after lectures.

Clinical examination

The subjects were clinically examined for dental and periodontal status and for oral hygiene, in the dental offices of the Discipline of Preventive Dentistry, using the light of the dental unit and following the recommendations of the World Health Organization [6]. Three examiners were involved, after calibration, resulting in a Kappa index of 0.81. DMFT (including DT, MT and FT) index, CPITN and OHI were calculated for dental status, periodontal status and oral hygiene, respectively.

Statistical analysis

Statistical analysis was performed using IBM SPSS Statistics for Windows version 24.0 (IBM Corp., Armonk, NY). The chi-square statistical test was used to compare the data, and the Pearson test was used to analyze the correlations. The statistical significance threshold was set at 0.05.

RESULTS AND DISCUSSIONS

Only fully completed questionnaires were considered. The response rate was 80%, providing a final study sample of 80 subjects, of which 55 (68.75%) were female and 25 (31.25%) were male. The mean age of the subjects was 21.8±2.4 years.

Table 1 presents the numbers and responses to all HU-DBI items. percentages of students' agree/disagree

Table 1. Distribution of HU-DBI responses in the study group

Item	Response n (%)	
	Agree	Disagree
1. I don't worry much about visiting the dentist.	49 (61.25%)	31 (38.75%)
2. My gums tend to bleed when I brush my teeth.	23 (28.75%)	57 (71.25%)
3. I worry about the colour of my teeth.	31 (38.75%)	49 (61.25%)
4. I have noticed some white sticky deposits on my teeth.	12 (15.00%)	68 (85.00%)
5. I use a child sized toothbrush.	3 (3.75%)	77 (96.25%)
6. I think that I cannot help having false teeth when I am old.	8 (10.00%)	72 (90.00%)
7. I am bothered by the colour of my gums.	5 (6.25%)	75 (93.75%)
8. I think my teeth are getting worse despite my daily brushing.	15 (18.75%)	65 (81.25%)
9. I brush each of my teeth carefully.	60 (75.00%)	20 (25.00%)
10. I have never been taught professionally how to brush.	46 (57.50%)	34 (42.50%)
11. I think I can clean my teeth well without using toothpaste.	7 (8.75%)	73 (91.25%)
12. I often check my teeth in a mirror after brushing.	50 (62.50%)	30 (37.50%)
13. I worry about having bad breath.	45 (56.25%)	35 (43.75%)
14. It is impossible to prevent gum disease with toothbrushing alone.	45 (56.25%)	35 (43.75%)
15. I put off going to the dentist until I have a toothache.	10 (12.50%)	90 (87.50%)
16. I have used a dye to see how clean my teeth are.	60 (75.00%)	20 (25.00%)
17. I use a toothbrush which has hard bristles.	15 (18.75%)	65 (81.25%)
18. I don't feel I've brushed well unless I brush with strong strokes.	15 (18.75%)	65 (81.25%)
19. I feel I sometimes take too much time to brush my teeth.	30 (37.50%)	50 (62.50%)
20. I have had my dentist tell me that I brush very well.	72 (90.00%)	8 (10.00%)

The mean HU-DBI score in the study group was 7.18, with a minimum of 3 and a maximum of 10.

The mean, minimum and maximum values of oral health clinical indicators are presented in Table 2.

The mean value of the DMFT index was 9.56, of which the decayed teeth represented an important part (DT=4.44). The OHI had a mean value of 0.78, and 56.25% of the subjects had a CPITN of score 2 (calculus).

In order to analyze the correlations between the questionnaire and the clinical indicators of oral health, the HU-DBI items were grouped into 4 categories: the attitude

regarding the addressability to oral health services (1, 10, 15, 20); items focused on periodontal status (2, 7, 14); items focused on

Table 2. Mean, minimum and maximum values of oral clinical indicators / % subjects

<i>Clinical indicator</i>	<i>Mean value</i>	<i>Minimum value</i>	<i>Maximum value</i>
OHI	0.78	0.00	3.00
DMFT	9.56	0	23
DT	4.44	0	13
MT	0.53	0	4
FT	4.59	0	12
CPITN	<i>% subjects</i>		
0	21.88		
1	21.88		
2	56.25		

oral hygiene (3, 4, 11, 16, 17, 13, 12, 18, 19); items focused on dental status (6, 8).

Table 3 presents the results of the correlation analysis between the first group of items and the oral health indices. Significant strong correlations were found

between OHI and items 15 and 20, DMFT and items 1, 15 and 20, and CPITN and items 15 and 20. DT and MT indicators presented strong or moderate correlations with items 1, 10, 15 and 20. FT indicator was moderately correlated with item 15.

Table 3. The results of Pearson correlation analysis between the items focused on addressability to oral health services and oral health clinical indicators (correlation coefficient)

<i>Item</i>	<i>OHI</i>	<i>DMFT</i>	<i>DT</i>	<i>MT</i>	<i>FT</i>	<i>CPITN</i>
1.	-0.418*	-0.623*	-0.721*	-0.311*	NS	-0.381*
10.	0.203*	0.308*	0.412*	0.228*	NS	0.182*
15.	0.701*	0.725**	0.813**	0.872**	-0.301*	0.503*
20.	-0.611*	-0.586*	-0.603*	-0.725**	NS	-0.511*

NS = non-significant

*. Correlation is significant at the 0.05 level

** . Correlation is significant at the 0.01 level

The correlation analysis between the items focused on periodontal status and oral health indices showed significant strong correlations between OHI and item 2 and between CPITN and item 2, and moderate correlation between CPITN and item 14 (table 4).

Table 5 presents the results of the correlation analysis between the items focused on oral hygiene and oral health indices. Strong correlations were found between OHI and items 4, 11, 12, 16 and 19, between DMFT and items 11 and 16, and between CPITN and items 11, 12, 16 and 19.

Table 4. The results of Pearson correlation analysis between the items focused on periodontal status and oral health clinical indicators (correlation coefficient)

<i>Item</i>	<i>OHI</i>	<i>DMFT</i>	<i>DT</i>	<i>MT</i>	<i>FT</i>	<i>CPITN</i>
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2.	0.711**	NS	NS	NS	NS	0.761**
7.	NS	NS	NS	NS	NS	NS
14.	-0.218*	NS	NS	NS	NS	-0.453*

NS = non-significant

*. Correlation is significant at the 0.05 level

**. Correlation is significant at the 0.01 level

Table 5. The results of Pearson correlation analysis between the items focused on oral hygiene and oral health clinical indicators (correlation coefficient)

Item	OHI	DMFT	DT	MT	FT	CPITN
3.	NS	NS	NS	NS	-0.206*	NS
4.	0.716**	0.412*	NS	0.673**	0.463*	0.360*
11.	0.823**	0.785**	0.761**	0.811**	0.755**	0.806**
12.	-0.730**	-0.303*	-0.420*	-0.720**	-0.305*	-0.612**
13.	-0.219*	NS	NS	NS	NS	NS
16.	-0.728**	-0.503*	-0.512*	NS	NS	-0.586*
17.	-0.316*	NS	NS	NS	NS	NS
18.	-0.408*	NS	NS	NS	NS	-0.136*
19.	-0.517*	-0.207	-0.323*	NS	NS	-0.508*

NS = non-significant

*. Correlation is significant at the 0.05 level

**. Correlation is significant at the 0.01 level

The results of the correlation analysis between the items focused on dental status and oral health indices are presented in table

6. Significant moderate and strong correlations were found between DMFT and items 6 and 8, respectively.

Table 6. The results of Pearson correlation analysis between the items focused on dental status and oral health clinical indicators (correlation coefficient)

Item	OHI	DMFT	DT	MT	FT	CPITN
6.	NS	0.366*	0.403*	0.811**	0.705**	NS
8.	NS	0.551*	0.286*	0.753**	0.791**	NS

NS = non-significant

*. Correlation is significant at the 0.05 level

**. Correlation is significant at the 0.01 level

Adequate attitude and behavior are needed to maintain good health. To achieve this goal an important role is played by socio-economic status, educational level and health policies.

The results of this study showed that the students from the Faculty of Dentistry within the University of Medicine and Pharmacy "Grigore T. Popa" in Iași, presented a sanitary behavior in accordance with the

educational level. The mean score of the questionnaire applied in this study was 7.18.

The HU-DBI score obtained is an average score (minimum 3 and maximum 10), and the indices in the dental records are consistent with it, as the mean value of the DMFT index was 9.56 and 56.25% of the subjects had a CPITN of score 2 (calculus).

The attitude and behavior of students is also projected on the level of oral hygiene

and periodontal health. The curriculum of the Faculty of Dentistry also includes the instruction of students on basic and professional techniques for maintaining oral hygiene, methods of clinical and paraclinical diagnosis of oral diseases.

Most of the investigated subjects reported they did not present gingival bleeding when toothbrushing or sticky white deposits on the teeth (71.25% and 85.00%, respectively). At the same time, 75.00% stated that they brushed each tooth carefully, 91.25% considered that a good oral hygiene cannot be achieved without using a toothpaste and 56.25% considered that it would be impossible to prevent gum diseases with toothbrushing alone. This is in agreement with the knowledge acquired by the students of third year during the Preventive Dentistry lectures and clinical practical works and underlines the importance of fluoride in the toothpaste and that of adjunctive means of oral hygiene. As a result, most of the items focused on oral hygiene strongly correlated with OHI (directly or inversely).

Making a comparison with the study conducted by Truta et al. in 2015 [7], the results show that the average score of the HU-DBI questionnaire is lower in the present study (7.18 compared to 9.8), and the average score for the DMFT index is higher (9.56, compared to 7.3).

A previous study conducted in Romania on the dental students of all the six years of the Faculty of Dental Medicine in Bucharest, using the HU-DBI questionnaire [8], found an average score of 6.96. The authors observed that the average score per year of study increased with the study year.

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The questionnaire has been used by Kawamura et al [2] in 2005, to evaluate oral health attitudes and behavior of first year students in 17 countries and considerable differences were observed.

This questionnaire has recently been used many times to assess the attitudes and behavior towards oral health of dental students in many countries such as Greece [5], Sudan [9], Egypt [10], Croatia [11], Saudia Arabia [12], India [13], Serbia [14], Iraq [15], Germany [16], Malaysia [17], USA [18] and Turkey [19]. The observed trend is that, as the medical education system develops, a transition is made from the curative segment of medicine to the preventive one.

With Romania's accession to the European Union, it has committed itself to improving public health services, and to integrating oral health into the health insurance of the population.

Dental students undertake, by completing their 6 years of college, to provide as positive examples of oral health. That is why the oral status of students is the business card for future professionals.

CONCLUSIONS

The attitude of the students from the Faculty of Dentistry within "Grigore T. Popa" University of Medicine and Pharmacy in Iași is directly proportional to their clinical oral status. The behavior towards good oral health is highlighted by the high percentage of addressability to dental services. Average carious indices, good oral hygiene and good periodontal health are the results of a good oral health attitude.

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