

# Analysis of the Relationship Between Oral Pathologies and Oral Hygiene of First-Year Students

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**Abstract:** The aim of the analysis was to to find out and compare the oral and dental care habits and etiology of oral and dental pathology among BH students at Kaunas University of Applied Science, Faculty of Medicine. The student's approach to the oral hygiene, the reasons which caused dental and oral diseases where established by questionnaires. The 2014-2019 years study found that big part of the students have different dental pathologies: tooth decay, fluorosis, crooked teeth, malocclusion problems, symptoms of hyposalivation 18-42 percent or hypersalivation 5-18.5 percent, signs of low calcium 12-20.5 percent, vitamin C deficiency signs 24-41 percent. The majority of students brush their teeth regularly, 61.5-100 percent knows what kind of toothpaste they use: from 12 to 35 percent use fluoride toothpaste, from 31 to 54 percent — whitening, from 4 to 9.2 — reducing tooth sensitivity, from 3 to 7 percent — choose the other option. The most common causes of oral pathology are unbalanced diet and poor oral and dental hygiene.

Key words: oral pathology, dental caries, malocclusion, oral hygiene

# **1. Introduction**

Oral hygiene is a part of people's daily lives and people need to pay attention to this. If you spend your time every day, it can prevent many adverse effects on your mouth and body. Preventive dental care and proper oral hygiene prevent oral diseases and dental problems in a timely manner [1]. Systematic professional dental examination and consultation by dentists is an important and reliable prevention of dental pathologies. The result of patients who take good care of oral hygiene is that they do not experience problems caused by tooth decay, gingivitis, tartar, various infections and other pathologies [2]. Periodontal diseases and caries are not bad enough, and bad oral hygiene seems to be related to other health problems and diseases, such as diabetes, heart disease, osteoporosis, respiratory disease, rheumatoid arthritis

[3]. Professional oral hygiene should be performed for the prevention of caries, gingivitis, periodontitis and oral mucosal diseases before starting the planned dental treatment, dental filling, prosthetics, implantation, teeth whitening, oral surgery [4, 5].

## 2. Material and Methods

The 24-question student survey questionnaire was prepared and approved by Lithuanian University of Health Sciences (LSMU). Questionnaires questions were provided on the website www.apklausa.lt.

During 2014-2019 year 125 first-year students of the Oral Hygiene program of Kaunas University of Applied Science were interviewed. The survey involved students — future oral hygienists. It is important to investigate what oral pathologies the students themselves had during their final years of school and how they took care of the condition of their mouth and teeth. The investigation was conducted in accordance with the principles of anonymity and confidentiality. The study was conducted in

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accordance with the 1975 Principles adopted by the Declaration of Helsinki on the ethics of experimentation with humans.

Statistical data analysis was performed using "IBM SPSS Statistics 23" version and "Microsoft Excel 2016" statistical program using data descriptive methodology. Percentage survey data were calculated and data summarized.

# 3. Results and Discussion

The aim of the analysis was to find out and compare the oral and dental care habits and etiology of oral and dental pathology among BH students at Kaunas University of Applied Science, Faculty of Medicine. The students approach to the oral hygiene, the reasons which caused dental and oral diseases where established by questionnaires. The 6 years study found that part of the students have different dental pathologies. Some students (39-54 percent) indicate, that in the last school year they had bite problems such as crooked teeth — from 10 to 29 percent, malocclusion problems — from 30 to 53.8 percent, crooked bite — from 27.7 to 48 percent. The data of study shows many of the respondents stated that they have had tooth decay (from 59,1 to 77,0 percent), fluorosis (8-21 percent) (Fig. 1).

Was investigated that many of the respondents stated that they had symptoms of hyposalivation (18-42 percent), hypersalivation (5-18.5 percent), signs of low calcium (12-20.5 percent), vitamin C deficiency signs (24-41 percent) (Table 1).

So it can be assumed accumulation of dental plaque and decay developed due to malnutrition, poor oral and dental hygiene [6].



Fig. 1 Data of student responses amount of Caries (*blue columns*) and Fluorosis (*red columns*) in percent during 2014-2019 years.

Disorders	2014	2015	2016	2017	2018	2019
Hyposalivation	18.2	42.1	35.3	17.9	37.8	32.3
Hypersalivation	5.0	5.1	15.2	6.4	18.9	18.5
Signs of low calcium	12.0	14.5	18.1	11.8	20.5	17.6
Vitamins C deficiency	24.2	30.9	35.8	29.2	24.3	41.0
Fluorosis	8.0	8.1	21.3	11.8	14.0	20.0

Table 1Data from some oral pathologies (%).

The data shows that from 81.5 to 96.3 percent of respondents students takes care of their teeth, brush regularly, only a few do not it. The majority of students (61.5-100 percent) knows what kind of toothpaste they uses: from 12 to 35 percent use fluoride toothpaste, from 31 to 54 percent — whitening, from 4 to 9.2 — reducing tooth sensitivity, from 3 to 7 percent — choose the other option.

From 21 to 41 percent of students always use dental floss for teeth interludes to maintain personal oral

hygiene,  $48.7\pm5.7$  percent use it sometimes, and  $46.2\pm3.8$  percent uses mouthwash every day (Table 2).

18.3-46.2 percent of respondents care for nutrition in order not to undermine oral health. As the completed questionaires have revealed, the majority of students feed healthy, 8-43% consume vitamins, try to avoid eating carbohydrates — 8-12.3 percent, less sugar — 6.2-20 percent, do not eat very hot food and do not drink cold drinks — 14-29.2 percent (Table 3).

Type of uses toothpaste (%)	2015	2016	2017	2018	2019
Fluorided toothpaste	34.9	30.2	35.1	65.0	39.2
Whitening	54.1	34.4	41.1	31.0	34.0
Reducing tooth sensitivity	5.4	27.0	12.3	5.8	9.2
Other option	7.0	6.2	6.1	4.3	3.0
Use dental floss sometimes	38.0	55.0	35.0	43.0	29.2
Uses mouthwash	44.2	27.1	26.9	24.1	23.2

Table 3Data	from dietary	coordination	(%).
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Table 2Data from dietary coordination (%).

Dietary coordination	2014	2015	2016	2017	2018	2019
Care for nutrition	37.1	23.3	33.2	18.5	23.9	46.2
Consume vitamins	8.1	21.2	35.4	42.9	34.3	26.2
Avoid eating carbohydrates	88.2	44.5	1.6	6.2	6.3	12.3
Less sugar	11.0	8.2	15.1	6.4	18.3	20.0
Do not use hot food and cold drinks	31.1	22.4	20.9	23.8	14.3	29.2

So, many students have had caries. It can be concluded that caries developed due to plaque that accumulated due to malnutrition and poor oral and dental hygiene [7].

A large proportion of students have an irregular bite. Most students responded that they have or have had crooked teeth recently. We found out from the interviewed students that the majority of students take care of their teeth, brush them in the morning and evening, as well as after a meal, only a few of them hardly clean or just forget to brush.

Similar results from student responses and research were obtained from schools and university in other countries [5, 8, 9].

#### 4. Conclusion

The most common oral pathologies in students are tooth decay, irregular occlusion, and crooked teeth. Symptoms of vitamin C, calcium deficiency, or fluorosis are rare among students.

The most common causes of oral pathology are unbalanced diet and poor oral and dental hygiene.

Most students maintain good oral hygiene by brushing their teeth twice a day, most use dental floss, mouthwash, and visit an oral hygienist for professional oral hygiene.

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