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NAJČEŠĆA BOLEST ZUBA U OČIMA STUDENTSKE POPULACIJE

THE MOST COMMON DENTAL DISEASE IN THE EYES OF THE STUDENT POPULATION

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Sažetak

Uvod: *Karijes predstavlja jednu od najčešćih bolesti usne duplje i značajan javnozdravstveni problem, naročito zbog visokog procenta obolelih i posledica koje izaziva. Premda je prevencija karijesa moguća, učestalost ove bolesti i dalje je visoka, delimično zbog nedovoljne informisanosti o njenim uzrocima i merama prevencije.*
Cilj: *Cilj ovog istraživanja bio je da se ispita nivo informisanosti studenata Univerziteta u Nišu o nastanku karijesa, budući da je to od velikog značaja za razvoj efikasnih edukativnih strategija.*
Materijal i metode: *Istraživanje je sprovedeno korišćenjem onlajn ankete koja je obuhvatila dvesta dvadeset šest studenata na različitim fakultetima Univerziteta u Nišu; pritom, studenti stomatologije nisu bili uključeni u istraživanje. Upitnik se sastojao od dvanaest pitanja zatvorenog tipa koja su se odnosila na znanje o zubnom karijesu.*
Rezultati: *Veliki broj ispitanika posećuje stomatologa tek kada oseti bol (48,7%), dok 32,7% njih redovno odlazi na preventivne preglede. Većina ispitanika prepoznaje ugljene hidrate kao glavni uzrok nastanka karijesa, a 65,5% njih smatra da je četkica za zube važnija od paste za zube. Takođe, većina ispitanika ne primenjuje specifične tehnike pranja zuba.*
Zaključak: *Pokazalo se da nivo informisanosti studentske populacije o karijesu ostavlja prostora za unapređenje, posebno kada je reč o oblasti tehnikama održavanja oralne higijene i razumevanja mehanizama nastanka ove bolesti.*

Ključne reči: *zubni karijes, studenti, oralno zdravlje, stavovi*

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Abstract

Introduction: *Caries is one of the most common diseases of the oral cavity and represents a significant public health problem, especially due to the high percentage of affected patients and its consequences. Although the prevention of caries is possible, the incidence of this disease remains high, partly due to the lack of adequate information about its causes and preventive measures.*
Aim: *This study aimed to examine the level of information among students at the University of Niš regarding the development of dental caries, which is crucial for developing effective educational strategies.*
Material and Methods: *The research was conducted via an online survey that included 226 students from various faculties, excluding dental students, using 12 closed-ended questions related to knowledge of dental caries.*
Results: *A large number of respondents visit the dentist only when they experience pain (48.7%), while 32.7% of them regularly undergo preventive examinations. The majority of respondents recognize carbohydrates as the main cause of dental caries, while 65.5% believe that the toothbrush is more important than toothpaste. The majority of respondents do not employ specific tooth-brushing techniques.*
Conclusion: *The awareness of the student population about caries leaves room for improvement, especially in the areas of oral hygiene techniques and the understanding of how this condition develops.*

Key words: *dental caries, students, oral health, attitudes*

Introduction

Caries is one of the most common diseases that begins in early childhood[1,2,3,4]. Caries is the primary cause of pain in the orofacial region and tooth loss[3,4,5]. It can be stopped in its early stages, but it is often not self-limiting, and without proper treatment, caries can progress until the destruction of the tooth[4]. Dental caries is defined as localized demineralization of hard dental tissues and represents one of the most common oral health problems. Based on information provided by the World Health Organization, 2.4 billion people worldwide (more than 90% of the total population) have caries[6]. Modern lifestyle also influences diet, and therefore, the appearance of caries.

Despite significant advances in dental science and preventive measures, the incidence of caries remains high[7]. Being informed about the causes, symptoms of caries, and preventive measures is key to reducing its frequency and improving oral health. Some studies have shown that oral hygiene education and regular dental examinations significantly reduce the risk of caries development[8,9]. According to research, a low level of information about oral health is often associated with higher caries rates, especially in populations with lower socioeconomic status[10,11,12]. Also, the source of information that people use, such as the media, the Internet and health professionals, has a significant impact on their knowledge and behavior related to oral health[13]. The importance of people being informed about oral health indicates the necessity of examining that information, which would indicate the measures and actions that should be taken in order to raise that level. This research aimed to examine the level of information among students of the University of Niš about the occurrence of caries.

Materials and Methods

The study involved 226 students from the University of Niš, with dental students being excluded due to the assumption that they had already acquired knowledge on this topic as part of their academic programs. The study sample consisted of 175 female participants with an average age of 22.56 ± 2.46 years and 51 male participants with an average age of 23.24 ± 2.37 years. The average age of all participants was 22.71 ± 2.45 years.

The study was conducted through an online survey created in Google Forms, to which participants voluntarily accessed via social media. The questions were designed in accordance with the objectives of the study, following the steps for designing and applying online surveys defined by Regmi et al.[14]. The questionnaire consisted of 12 closed-ended questions related to students' awareness of dental caries. These questions are shown in Table 1.

The responses were collected and statistically processed using the methods of non-parametric descriptive statistics, using the IBM SPSS version 26.0 program. To determine the statistical significance of the difference in the answers to the questions in relation to the sex of the respondents, the age of the respondents and the faculty where the respondents study, the chi-square test was used with a significance of $p < 0.05$.

Table 1. Questions used in the survey

	Questions about students' familiarity with caries
1.	Do you go to the dentist only when you have a toothache or for regular preventive examinations?
2.	Which foods do you think contribute to the appearance of caries?
3.	When brushing your teeth, is the brush or the toothpaste more important?
4.	What brushing technique do you use?
5.	Do you think that, in adulthood, caries is more common in men or women?
6.	Do you think pregnancy causes tooth decay?
7.	Do you think that the tendency to caries is inherited?
8.	Do you think that caries is only a disease of the teeth or a disease that can also cause disease of other organs?
9.	Do you think that caries can be an infectious disease (can it be transmitted through kissing)?
10.	Do you think that drugs can cure caries?
11.	Where did you gain the most knowledge about caries?
12.	How do you rate your knowledge about caries?

Results

The obtained results are shown in Tables 2–13.

Table 2. Question No. 1. When do you go to the dentist?

	Number of respondents	**%**
As soon as my tooth hurts, or when I notice something on the tooth	110	48.7
When the pain becomes unbearable	11	4.9
When I have had a toothache for a long time	31	13.7
Preventive (twice a year)	74	32.7
Total	226	100

****There is no statistically significant difference in relation to gender***
χ^2 = 2.391; DF = 3; p = 0.495

Table 3. Question No. 2. Which foods do you think are responsible for caries?

	Number of respondents	**%**
Fats	4	1.8
Proteins (eggs, milk, meat, yoghurt)	3	1.3
Carbohydrates (bread, sweets, sodas)	219	96.9
Total	226	100

****There is no statistically significant difference in relation to gender***
χ^2 = 0.199; DF = 2; p = 0.905

Table 4. Question No. 3. What is more important when brushing your teeth?

	Number of respondents	**%**
Brush	76	33.7
Don't know	3	1.3
Paste	7	3.1
Equal	140	61.9
Total	226	100

****There is a statistically significant difference in relation to gender***
$\chi2$ = 13.712; DF = 3; p = 0.003

Table 5. Question No. 4. What brushing technique do you use?

	Number of respondents	**%**
Other	15	6.6
I don't have a special technique	84	37.2
On the advice of the Internet	4	1.8
On the advice of the dentist	123	54.4
Total	226	100

****There is no statistically significant difference in relation to gender***
χ2 = 6.129; DF = 3; p = 0.101

Table 6. Question No. 5. Do you think that caries are more common in adulthood?

	Number of respondents	**%**
The same	107	47.3
For males	19	8.4
For females	37	16.4
I don't know	63	27.9
Total	226	100

****There is no statistically significant difference in relation to gender***
χ2 = 1.779; DF = 3; p = 0.619

Table 7. Question No. 6. Do you think pregnancy causes caries?

	Number of respondents	**%**
Yes	70	31
No	91	40.2
I don't know	65	28.8
Total	226	100

****There is a statistically significant difference in relation to gender***
χ2 = 10.261; DF = 2; p = 0.006

Table 8. Question No. 7. Do you think that the tendency to caries is inherited?

	Number of respondents	**%**
Yes	104	46
No	70	31
I don't know	52	23
Total	226	100

****There is a statistically significant difference in relation to gender***
χ2 = 9.558; DF = 2; p = 0.008

Table 9. Question No. 8. Do you think that caries is ...?

	Number of respondents	**%**
Exclusively dental disease	75	33.2
A disease that can cause disease of other organs and possibly become life-threatening	144	63.7
Only an aesthetic problem	7	3.1
Total	226	100

****There is no statistically significant difference in relation to gender***
$\chi 2 = 1.329$; DF = 2; p = 0.515

Table 10. Question No. 9. Do you think that caries can be an infectious disease (can it be transmitted through kissing)?

	Number of respondents	**%**
Yes	25	11.1
No	176	77.8
I don't know	25	11.1
Total	226	100

****There is no statistically significant difference in relation to gender***
$\chi 2 = 7.834$; DF = 2; p = 0.20

Table 11. Question No. 10. Do you think that some medicines can cure caries?

	Number of respondents	**%**
Antibiotics	12	5.3
Fluorides	22	9.7
Medicines cannot cure caries	192	85
Total	226	100

****There is a statistically significant difference in relation to gender***
$\chi 2 = 11.462$; DF = 2; p = 0.003

Table 12. Question No. 11. Where did you get the most knowledge about caries?

	Number of respondents	**%**
At the dentist	93	41.2
On the Internet	32	14.2
I was not interested in caries	55	24.3
In the family	19	8.4
At school	27	11.9
Total	226	100

****There is no statistically significant difference in relation to gender***
$\chi 2 = 0.229$; DF = 4; p = 0.994

Table 13. Question No. 12. How do you rate your knowledge about caries?

	Number of respondents	**%**
Sufficient	126	55.7
Insufficient	84	37.2
Excellent	16	7.1
Total	226	100

****There is no statistically significant difference in relation to gender***
$\chi 2 = 2.435$; DF=2; $p = 0.296$

There is no statistical significance in relation to the years and faculties that the respondents attended.

Discussion

The use of surveys as a methodological technique enables a detailed study of patterns and changes in health perceptions within different groups of people[15]. Although surveying in psychometrics has certain weaknesses, such as responses aligned with social norms and the representation of behavior rather than actual observations, it remains a key tool for measuring and analyzing differences among people[16].

The research results indicate a similar pattern of behavior, where a significant percentage of respondents (48.7%) visit the dentist only in case of pain or visible changes in the tooth. Nevertheless, the fact that some respondents recognize the importance of preventive examinations is encouraging, since 32.7% of students undergo examinations twice a year. Croatian researchers[17] reached similar results, where a third of the respondents (32.9%) visit the dentist only after the onset of symptoms such as pain or swelling, while 59.8% of the respondents regularly undergo preventive dental examinations.

When it comes to the cause of caries, the respondents are aware that carbohydrates (bread, sweets, carbonated juices, etc.) cause caries to the greatest extent. Almost 97% of respondents believe that this food is the biggest cause of caries. In a similar study by Luis F. Duany et al.[18], where a study was conducted among the population with caries and without caries, it showed that there were significant differences in the way of eating. The group with caries consumed more carbohydrates than the group without caries.

The majority of respondents (65.5%) concluded that avoiding chocolate contributes to the preservation of dental health. However, a smaller percentage of respondents (23.4%) believe that the method of chocolate consumption, and not the consumption itself, plays a key role in the occurrence of caries. The cariogenicity of carbohydrates significantly depends on their concentration, physical properties and speed of elimination from the oral cavity. Greater cariogenicity is associated with the consumption of carbohydrates in sticky form, such as, for example, chocolates[19].

A third of respondents consider a toothbrush more important, while only 3.1% prefer toothpaste. The majority of respondents (61.9%) rate both elements as equally important for oral hygiene. These findings are in line with the research conducted by Luka Pool[20] where it was found that the majority of students (66.3%) use both a brush and a paste as caries prevention. There is a statistically significant difference ($p = 0.030$) between male and female respondents regarding the opinion of what is more important when brushing teeth, with men more often perceiving the paste as more important than the brush. When it comes to tooth brushing techniques, the research results reveal worrying data that more than a third of respondents (37.2%) do not use a specific tooth brushing technique. These data indicate insufficient education on proper tooth brushing technique, which can lead to worse results in maintaining oral health. Interestingly, only 1.8% of respondents brush their teeth based on internet advice, while the majority, 54.4%, follow recommendations from their dentists. Although the internet is becoming an increasingly common source of information, the results indicate that students still recognize dentists as the main authorities regarding proper oral hygiene maintenance. This information may indicate the need for greater

involvement of dentists in the education and promotion of oral health, both in the advisory and digital environment, through verified and accurate information.

In scientific circles, the question is often raised whether gender has an influence on the occurrence of caries. Based on the conducted research, it was determined that 47.3% of respondents believe that gender does not play a significant role in the occurrence of caries and that its frequency is equal in men and women in adulthood. On the other hand, 8.4% of respondents believe that caries is more common in men, while 16.4% believe that it is more common in women. However, the research by Ferraro M et al.[21] indicates that almost half of the respondents have the wrong assumption that gender does not affect the prevalence of caries. Women have a higher caries prevalence rate compared to men, which is explained by earlier tooth eruption and longer exposure to a potentially cariogenic environment.

According to the research results, 31% of respondents believe that pregnancy causes caries, 40.3% believe that it does not. However, it cannot be said that pregnancy is the cause of caries, because the mechanisms connecting pregnancy and oral health are not completely clear[22]. Hormonal changes, inadequate education of pregnant women about oral hygiene and increased sugar consumption during pregnancy are key risk factors for caries[23]. A statistically significant difference ($p = 0.006$) exists between male and female respondents regarding the opinion of whether pregnancy causes tooth decay, with female respondents showing greater awareness of the connection between pregnancy and tooth decay compared to male respondents.

About half of the respondents believe that the tendency to caries is inherited. There is data in the literature that indicates the influence of the hereditary factor. Researchers from India found that children whose mothers had high levels of S. mutans bacteria were more likely to develop caries[24]. Studies[25,26] based on whole genome analysis have provided evidence for a genetic role in caries etiology. There is a statistically significant difference ($p = 0.008$) between male and female respondents, with women more likely to believe that caries is inherited compared to men.

Over 60% of respondents believe that caries can contribute to the development of diseases of other organs and even endanger life. The rest believe that caries is exclusively a disease of the teeth (33.6%). Such findings can be explained by the growing number of scientific evidences that indicate complex and significant relationships between oral microorganisms and various systemic diseases, as well as the potential role of oral microorganisms in the pathogenesis of systemic human diseases[27].

When it comes to the transmission of caries as an infectious disease, the research results show that 77.9% of respondents believe that caries is not an infectious disease and that it is not transmitted by kissing, while 11.1% believe that caries is an infectious disease. A similar study conducted in Italy showed a different distribution of attitudes, where 54% of respondents recognized caries as an infectious disease, while 33% did not consider caries to be contagious[28]. The differences in results between the two studies can be attributed to the fact that the samples consisted of respondents of different ages, which probably influenced the responses and perceptions of the research topic. Differences in the perception of caries transmission can be partly explained by the fact that microorganisms, such as Streptococcus mutans, which are responsible for the formation of caries, can be transmitted through saliva, thus increasing the risk of disease transmission through kissing.

Regarding the treatment of caries, the majority (85%) of the surveyed students are well informed, because they believe that drugs cannot cure caries. Interestingly, 15% of respondents have the opinion that caries can be cured with drugs (5.3% think that caries can be cured with fluorides, while 9.7% think that it can be cured with antibiotics). Caries is a process of decomposition of hard dental tissues, caused by the action of acids produced by bacteria in dental plaque. Once destruction occurs, it cannot be regenerated with drugs[29]. There is a statistically significant difference between male and female respondents, whereby women believe to a greater extent that drugs cannot cause caries compared to men.

Although caries is one of the most widespread diseases in the human population[30], it is interesting that almost a quarter of respondents (24.3%) did not show interest in acquiring information about this disease. On the other hand, 14.2% of respondents use the Internet as a source of information about caries, and their veracity is questionable[31]. The smallest number of respondents acquire knowledge about dental caries in the school environment (11.9%), or in the family environment (8.4%), whereby information obtained from parents positively

correlates with their level of education[32]. Researchers from Korea also recorded a low level of information about caries that is acquired at school (only 1.3%), but also a slightly higher percentage of information that is acquired in the family environment[33]. Differences in results can be attributed to cultural specificities. An encouraging result is that the largest share of respondents (41.2%) receives information about caries primarily from a dentist who is a medical authority regarding the prevention and treatment of this disease[34].

Analysis of answers to questions about preventive measures and caries treatments shows that students are often not fully aware of all aspects of oral hygiene, which can be attributed to a lack of adequate education and information. Accordingly, a large number of respondents (37.2%) rate their knowledge about caries as insufficient, 55.8% as sufficient, and only 7.1% as excellent. Insufficient knowledge about caries can affect students' ability to recognize and apply effective strategies for caries prevention and treatment.

Conclusion

Based on the research results, there is a significant mismatch between students' actual knowledge about dental caries and the required level of awareness regarding preventive measures. Although students are generally aware of the basic risk factors for developing caries, such as a diet rich in carbohydrates, the study shows a lack of education on preventive measures and caries treatment, as well as a low interest in acquiring information about this disease. It is positive that the majority of respondents are aware that caries can have systemic consequences, and that despite the abundance of available information, the dentist is still regarded as the primary authority.

Due to all of the above, it can be concluded that there is room for better education and further emphasis on the importance of oral health.

LITERATURA/REFERENCES

1. Pitts NB. Are we ready to move from operative to non-operative/preventive treatment of dental caries in clinical practice? Caries Res 2004;38:294–304.
2. Featherstone JD. The science and practice of caries prevention. J Am Dent Assoc 2000;131:887–99.
3. US Department of Health and Human Services. Oral Health in America: A Report of the Surgeon General. Rockville: National Institute of Dental and Craniofacial Research, National Institutes of Health, 2000:308.
4. Fejerskov O, Kidd EAM, eds. Dental caries: the disease and its clinical management. Copenhagen, Denmark: Blackwell Monksgaard, 2003.
5. Kidd EA, Giedrys-Leeper E, Simons D. Take two dentists: a tale of root caries. Dent Update 2000;27:222–30.
6. Kassebaum NJ, et al. Global burden of untreated caries: a systematic review and metaregression. J Dent Res 2015;94:650–658.
7. Petersen PE. The World Oral Health Report 2003: Continuous improvement of oral health in the 21st century–the approach of the WHO Global Oral Health Programme. Community Dent Oral Epidemiol 2003;31:3-24.
8. Petersen PE, Ogawa H. Prevention of dental caries through the use of fluoride–the WHO approach. Community Dent Health 2016;33(2):66-68.
9. Jabbarova Z. Main role of hygienic education in the system primary prevention of dental diseases of patient. EIJMRMS. 2023 Nov 25;3(11):157-63. doi: 10.55640/eijmrms-03-11-29. Available from: https://doi.org/10.55640/eijmrms-03-11-29
10. Schwendicke F, Dörfer CE, Schlattmann P. Socioeconomic inequality and caries: a systematic review and meta-analysis. J Dent Res 2015;94(1):10-18.
11. Costa SM, Martins CC, Bonfim Mde LC, Zina LG, Paiva SM, Pordeus IA, Abreu MHNG. A systematic review of socioeconomic indicators and dental caries in adults. Int J Environ Res Public

Health 2012;9(10):3540-3574. doi: 10.3390/ijerph9103540.
12. Ellakany P, Madi M, Fouda SM, Ibrahim M, AlHumaid J. The effect of parental education and socioeconomic status on dental caries among Saudi children. Int J Environ Res Public Health 2021;18(22):11862. doi: 10.3390/ijerph182211862.
13. Mariño RJ, Khan AR, Morgan MV. Systematic review of publications on economic evaluations of caries prevention programs. Community Dent Health 2014;31(2):71-78.
14. Regmi PR, Waithaka E, Paudyal A, Simkhada P, Van Teijlingen E. Guide to the design and application of online questionnaire surveys. Nepal J Epidemiol 2017;6(4):640–644. doi: 10.3126/nje.v6i4.17258.
15. Creswell JW, Creswell JD. Research design: Qualitative, quantitative, and mixed methods approaches. Sage Publications, 2018.
16. Singleton R, Straits BC. Approaches to social research, 6th ed. Cary, NC: Oxford University Press, 2017.
17. Tadin A, Poljak Guberina R, Domazet J, Gavic L. Oral hygiene practices and oral health knowledge among students in Split, Croatia. Healthcare 2022;10:406. doi: 10.3390/healthcare10020406.
18. Duany LF, Zinner DD, Jablon JM. Epidemiologic studies of caries-free and caries-active students: II. Diet, dental plaque, and oral hygiene. J Dent Res 1972;51(3):900-907.
19. Valentak Lj, Najžar-Fleger D, Rajić Z. Utjecaj prehrane i prehrambenih navika na karijes. Acta stomatol Croat 1995;29(1):41-46.
20. Pul L. Razlike u oralnohigijenskim navikama kod srednjoškolaca i studenata grada Osijeka. [magistarski rad]. Osijek: Josip Juraj Strossmayer University of Osijek, Faculty of Dental Medicine and Health Osijek; 2022. Available from: urn:nbn:hr:243:190953.
21. Ferraro M, Vieira AR. Explaining gender differences in caries: A multifactorial approach to a multifactorial disease. Int J Dent 2010;2010:649643. doi:10.1155/2010/649643.
22. Ibrahim HM, Mudawi AM, Ghandour IA. Oral health status, knowledge and practice among pregnant women attending Omdurman maternity hospital, Sudan. East Mediterr Health J 2016;22(11):802-807.
23. Steinberg BJ, Hilton IV, Iida H, Samelson R. Oral health and dental care during pregnancy. Dent Clin North Am 2013;57:195-210.
24. Singh S, Singh N, S S. The association between maternal oral bacteria with early childhood caries development in their children: Maternal oral flora and ECC. J Adv Sci 2023;2(2). doi:10.58935/joas.v2i2.37.
25. Morrison J, Laurie CC, Marazita ML, Sanders AE, Offenbacher S, Salazar CR, et al. Genome-wide association study of dental caries in the Hispanic Communities Health Study/Study of Latinos (HCHS/SOL). Hum Mol Genet 2016;25:807–816.
26. Izakovicova Holla L, Borilova Linhartova P, Lucanova S, Kastovsky J, Musilova K, Bartosova M, et al. GLUT2 and TAS1R2 polymorphisms and susceptibility to dental caries. Caries Res 2015;49:417–424.
27. Peng X, Cheng L, You Y, et al. Oral microbiota in human systematic diseases. Int J Oral Sci 2022;14:14. doi:10.1038/s41368-022-00163-7.
28. Calcagnile F, Pietrunti D, Pranno N, Di Giorgio G, Ottolenghi L, Vozza I. Oral health knowledge in pre-school children: A survey among parents in central Italy. J Clin Exp Dent 2019;11(4):e327-e333.
29. Miller CA, Ashworth E, Deery C, El Sharkasi L, Moorehead RD, Martin N. Effect of demineralising agents on organic and inorganic components of dentine. Caries Res 2021;doi:10.1159/000518463.
30. Peres MA, Macpherson LM, Weyant RJ, Daly B, Venturelli R, Mathur MR, et al. Oral diseases: A global public health challenge. Lancet 2019;394(10194):249-260.
31. Wang Y, McKee M, Torbica A, Stuckler D. Systematic literature review on the spread of health-related misinformation on social media. Soc Sci Med 2019;112552.
32. Chen L, Hong J, Xiong D, Zhang L, Li Y, Huang S, Hua F. Are parents' education levels associated with either their oral health knowledge or their children's oral health behaviors? A survey of 8446 families in Wuhan. BMC Oral Health 2020;20(1):203.
33. Paik DI, Moon HS, Horowitz AM, Gift HC, Jeong KL, Suh SS. Knowledge of and practices related to caries prevention among Koreans. J Public Health Dent 1994;54(4):205–210.
34. Maslak E, Sokolovich N, Fomenko I, Ogrina N, Naumova V, Ocokina A. The patient and the dentist. Trust and consent to treatment. J Int Pharm Res 2019;46(1):613-621.