INTRODUCTION

Oral and general health status depend on dynamic interplay of many factors including individual’s personal characteristics, behaviors, and perceptions. Oral health behavior is closely related to oral health outcome, and can be considered important determinant of health. Oral self-care practices based on personal choice are considered an important aspect of oral health behavior [1]. Children and adolescents represent the group of special interest for developing adequate oral health related knowledge, attitudes and behavior. Due to dynamic physical and psycho-emotional development during adolescence, previously established oral health habits tend to change whereas new attitudes and behavioral patterns which might increase the risk of oral diseases and are influenced by adolescents’ environment, peers and informal group are developing. Smoking, unhealthy diet, lack of time or “forgetting” to perform oral hygiene and underestimating risk of inadequate health related behavior negatively affect adolescents’ oral health [2].

To investigate dental health attitudes, perceptions, and behaviors, Kawabuta et al. [3] developed the Hiroshima University – Dental Behavioral Inventory (HU-DBI) questionnaire. HU-DBI questionnaire consists of twenty questions primarily associated with tooth-brushing behavior. All questions have a dichotomous response format: Agree/Disagree. Quantitative estimate of oral health attitude and behavior is provided by the total number of appropriate agree/disagree responses with the maximum score of 12. Higher scores indicate better oral health related attitudes and behavior [4]. The score for each question which relates to oral health attitude and behavior was based on analytical research in which a statistical model was developed [5]. Recently, this questionnaire was used to compare oral health attitudes and behaviors among dental and dental hygiene students [6, 7, 8]. Considerable differences were found in dental health attitudes and behavior among students from different countries and cultural groups, as well as among dental students during the course of their dental education.

For the purpose of our study, English version of HU-DBI questionnaire was translated into Serbian language. Three additional questions regarding oral hygiene and smoking habits were included in the final version of our HU-DBI questionnaire.
The aim of our study was to investigate epidemiologic relationship between oral health attitudes and behavior measured by the HU-DBI questionnaire and dental caries status using the DMFT index in the sample of 15 years old adolescents from Belgrade.

MATERIAL AND METHODS

This cross sectional study included 404 randomly selected high school students (15-16 years old) of grade one from 10 randomly selected high schools in different municipalities of Belgrade. Data on oral health related behavior was collected using modified Serbian version of English HU-DBI questionnaire. HU-DBI questionnaires were administered by school teachers and students filled in the questionnaires during the classes. For the calculation of the HU-DBI questionnaire score, one point was given for each agreed response for items 4, 9, 11, 12, 16 and 19, and one point for each disagree response for items 2, 6, 8, 10, 14 and 15.

The number of healthy, decayed, filled and missing teeth (DMFT index) and the presence of visual signs of gingival inflammation were recorded after clinical examination performed in classrooms by two previously trained and calibrated dentists.

The SPSS 17.0 (SPSS, Inc., Chicago, IL, USA) was used to analyze data. Simple frequency tables and descriptive statistics (means and standard deviations) were processed and analyzed by chi-square ($\chi^2$) and Fisher's exact tests. Differences in the DMFT index and its components in relation to agree/disagree responses of HU-DBI questionnaire were assessed using independent samples t-test.

RESULTS

HU-DBI score ranged from 2 to 11, with the mean of 6.27±0.27. Girls had higher mean HU-DBI score (6.28±1.45) compared to boys (6.22±1.45; p<0.05). The DMFT score ranged from 0 to 23 (average 5.84±0.20). There were 35 participants (8.66%) with all healthy teeth (DMFT=0). Less than one third of subjects (119 patients, 29.46%) had none untreated tooth decay at the time of examination (DT=0). Untreated dental caries score was 2.65±0.14 (DT). The F factor, which represented filled teeth, was 2.71±0.14 denoting low dental treatment rate. Dental treatment, calculated by the F/DMF (filled/diseased teeth) index, was 46.40%, whereas the decay component calculated by the D/DMF (decayed/diseased teeth) index was 45.37% (Table 1). Gingival inflammation (redness, swelling and/or bleeding from marginal gingiva) was

| Parameter | Gender | M/M | F/F | M/F | p   |
|-----------|--------|-----|-----|-----|-----|
| HU-DBI score | M/M | 62.2  | 62.8 | 1.449 | 0.674 |
| Number of healthy teeth | M/M | 23.24 | 21.88 | 3.396 | 4.325 | 0.003 |
| Number of decayed teeth | M/M | 2.77 | 0.58 | 3.005 | 1.033 | 0.594 |
| Number of missing teeth | M/M | 0.28 | 0.58 | 0.679 | 1.033 | 0.005 |
| Number of filled teeth | M/M | 1.93 | 2.99 | 2.067 | 3.077 | 0.001 |
| DMFT KEP | M/M | 4.95 | 4.16 | 3.357 | 4.214 | 0.003 |

Table 1. Oral health status of adolescents (composition of DMFT index) and HU-DBI score according to gender

Table 2. Percentage of agree and disagree HU-DBI items according to gender

| No Br. | HU-DBI Item | Gender Odgovor | Value Vrednost | Gender Pol | Total Ukupno | P |
|--------|-------------|----------------|----------------|------------|--------------|---|
| 1      | I go to see the dentist at least ones a year | Agree | N | 84 | 185 | 269 | 0.032 |
|        |             | Slažem se | % | 23.0 | 46.3 | 67.3 | 0.032 |
|        |             | Ne slažem se | % | 6.8 | 26.0 | 32.8 | 0.032 |
| 2      | My gums bleed when I brush my teeth | Agree | N | 24 | 50 | 74 | 0.316 |
|        |             | Slažem se | % | 6.0 | 12.4 | 18.4 | 0.316 |
|        |             | Ne slažem se | % | 23.6 | 60.0 | 81.6 | 0.316 |
| 3      | I am worried about the color of my teeth | Agree | N | 50 | 106 | 156 | 0.135 |
|        |             | Slažem se | % | 12.5 | 26.6 | 39.1 | 0.135 |
|        |             | Ne slažem se | % | 15.0 | 45.9 | 60.9 | 0.135 |
| 4      | I’ve noticed some white sticky deposits on my teeth | Agree | N | 20 | 42 | 62 | 0.440 |
|        |             | Slažem se | % | 5.0 | 10.5 | 15.5 | 0.440 |
|        |             | Ne slažem se | % | 22.7 | 61.8 | 84.5 | 0.440 |
| 5      | I think that I cannot help having false teeth when I am old | Agree | N | 30 | 81 | 111 | 0.901 |
|        |             | Slažem se | % | 7.5 | 20.3 | 27.8 | 0.901 |
|        |             | Ne slažem se | % | 20.3 | 52.0 | 72.3 | 0.901 |
| 6      | I think my teeth are getting worse despite my daily brushing | Agree | N | 21 | 35 | 56 | 0.106 |
|        |             | Slažem se | % | 5.2 | 8.7 | 14.0 | 0.106 |
|        |             | Ne slažem se | % | 22.4 | 63.6 | 86.0 | 0.106 |
|   | Statement | Agreement | Disagreement |
|---|-----------|----------|-------------|
| 7. | I brush each of my teeth carefully | Agree: 13.9%; Disagree: 13.6% | Agree: 36.2%; Disagree: 36.2% |
| 8. | I have never been professionally taught how to brush | Agree: 10.4%; Disagree: 10.4% | Agree: 18.9%; Disagree: 18.9% |
| 9. | I think I can clean my teeth without using toothpaste | Agree: 23.8%; Disagree: 23.8% | Agree: 68.0%; Disagree: 68.0% |
| 10. | I often check my teeth in a mirror after brushing | Agree: 9.1%; Disagree: 9.1% | Agree: 23.6%; Disagree: 23.6% |
| 11. | I worry about having bad breath | Agree: 22.9%; Disagree: 22.9% | Agree: 59.4%; Disagree: 59.4% |
| 12. | It is impossible to prevent gum disease with tooth brushing alone | Agree: 16.1%; Disagree: 16.1% | Agree: 49.0%; Disagree: 49.0% |
| 13. | I put off going to the dentist until I have a toothache | Agree: 25.3%; Disagree: 25.3% | Agree: 69.2%; Disagree: 69.2% |
| 14. | I have used a dye to see how clean my teeth are | Agree: 2.0%; Disagree: 2.0% | Agree: 5.5%; Disagree: 5.5% |
| 15. | I use a toothbrush with hard bristles | Agree: 13.2%; Disagree: 13.2% | Agree: 33.9%; Disagree: 33.9% |
| 16. | I don't feel I've brushed well unless I brush with strong strokes | Agree: 68.0%; Disagree: 68.0% | Agree: 143.0%; Disagree: 143.0% |
| 17. | I feel I sometimes take too much time to brush my teeth | Agree: 16.1%; Disagree: 16.1% | Agree: 39.0%; Disagree: 39.0% |
| 18. | I have had my dentist tell me that I brush very well | Agree: 66.0%; Disagree: 66.0% | Agree: 195.0%; Disagree: 195.0% |
| 19. | I am satisfied with the appearance of my teeth | Agree: 15.5%; Disagree: 15.5% | Agree: 38.9%; Disagree: 38.9% |
| 20. | I brush my teeth twice daily or more | Agree: 19.4%; Disagree: 19.4% | Agree: 66.7%; Disagree: 66.7% |
| 21. | I use dental floss everyday | Agree: 2.7%; Disagree: 2.7% | Agree: 10.7%; Disagree: 10.7% |
| 22. | I use mouthwash on regular basis | Agree: 7.3%; Disagree: 7.3% | Agree: 23.0%; Disagree: 23.0% |
| 23. | I smoke cigarettes every day | Agree: 6.7%; Disagree: 6.7% | Agree: 16.6%; Disagree: 16.6% |
recorded in 74.9% of adolescents, slightly more frequently in girls (p>0.05).

HU-DBI questionnaire questions and percentage of agree/disagree responses are presented in Table 2. Dental visits at least once a year reported 67.3% of adolescents, more often girls than boys (p<0.05). Bleeding gums were reported in 18.4% of the participants; 65.1% answered that it was not possible to prevent gum disease with toothbrushing only. Majority of subjects (70.7%) reported that they have been thought by a professional how to brush teeth, girls more frequently than boys (p<0.05). Toothpaste was considered necessary for brushing in 91.8% of subjects, more often among girls but with no significant difference. Almost half of the subjects used toothbrush with hard bristles and brushed with hard strokes, girls more often than boys (p<0.05). Emergency dental visits only were reported by 47.1% of adolescents. Majority of subjects reported brushing twice a day or more (86.2%), girls more often than boys (p<0.001), but only 13.4% reported regular flossing and 30.3% daily use of mouth rinses. Nearly one quarter of adolescents (23.3%) reported smoking cigarettes every day.

Significant differences between DMFT, DT, MT or FT values in relation to agree/disagree HU-DBI responses were found for questions 1, 2, 5, 6, 13, 14, 16, 18, 19 and 22 (Table 3).

Table 3. Mean DMFT scores and their DT, MT and FT components in relation to the agreement/disagreement to the HU-DBI items

| Item Pitanje | DMFT | DT | MT | FT |
|--------------|------|----|----|----|
| 1 Agree/Slažem se | 5.44** | 2.51 | 0.50 | 2.46* |
| 2 Disagree/Ne slažem se | 6.69** | 2.93 | 0.51 | 3.26* |
| 3 Agree/Slažem se | 6.80* | 3.32 | 0.81** | 2.75 |
| 4 Disagree/Ne slažem se | 5.60* | 2.49 | 0.43** | 2.69 |
| 5 Agree/Slažem se | 6.19 | 2.96 | 0.54 | 2.75 |
| 6 Disagree/Ne slažem se | 5.60 | 2.45 | 0.48 | 2.67 |
| 7 Agree/Slažem se | 6.44 | 3.22 | 0.58 | 2.69 |
| 8 Disagree/Ne slažem se | 5.71 | 2.54 | 0.48 | 2.71 |
| 9 Agree/Slažem se | 6.08 | 2.73 | 0.71* | 2.70 |
| 10 Disagree/Ne slažem se | 5.74 | 2.63 | 0.42* | 2.70 |
| 11 Agree/Slažem se | 7.18** | 3.93** | 0.52 | 2.78 |
| 12 Disagree/Ne slažem se | 5.63** | 2.46** | 0.50 | 2.69 |
| 13 Agree/Slažem se | 5.87 | 2.61 | 0.54 | 2.77 |
| 14 Disagree/Ne slažem se | 5.81 | 2.69 | 0.46 | 2.66 |
| 15 Agree/Slažem se | 5.59 | 2.67 | 0.42 | 2.53 |
| 16 Disagree/Ne slažem se | 5.94 | 2.64 | 0.53 | 2.79 |
| 17 Agree/Slažem se | 5.36 | 2.30 | 0.61 | 2.45 |
| 18 Disagree/Ne slažem se | 5.88 | 2.68 | 0.49 | 2.73 |
| 19 Agree/Slažem se | 5.85 | 2.65 | 0.49 | 2.73 |
| 20 Disagree/Ne slažem se | 5.61 | 2.65 | 0.61 | 2.45 |
| 21 Agree/Slažem se | 5.98 | 2.73 | 0.52 | 2.77 |
| 22 Disagree/Ne slažem se | 5.29 | 2.34 | 0.44 | 2.50 |
| 23 Agree/Slažem se | 5.89 | 2.75 | 0.53 | 2.63 |
| 24 Disagree/Ne slažem se | 5.77 | 2.38 | 0.45 | 2.96 |
| 25 Agree/Slažem se | 5.67 | 2.86 | 0.49 | 2.34* |
| 26 Disagree/Ne slažem se | 5.96 | 2.48 | 0.51 | 2.99* |
| 27 Agree/Slažem se | 7.23* | 3.40 | 0.63 | 3.31 |
| 28 Disagree/Ne slažem se | 5.72* | 2.56 | 0.49 | 2.68 |
| 29 Agree/Slažem se | 6.17 | 2.72 | 0.59 | 2.90 |
| 30 Disagree/Ne slažem se | 5.60 | 2.58 | 0.42 | 2.62 |
| 31 Agree/Slažem se | 6.15 | 2.99* | 0.62** | 2.57 |
| 32 Disagree/Ne slažem se | 5.49 | 2.28* | 0.36** | 2.87 |
| 33 Agree/Slažem se | 5.91 | 2.80 | 0.51 | 2.63 |
| 34 Disagree/Ne slažem se | 5.74 | 2.47 | 0.48 | 2.81 |
| 35 Agree/Slažem se | 5.42** | 2.43** | 0.40** | 2.62 |
| 36 Disagree/Ne slažem se | 6.80** | 3.20** | 0.71** | 2.91 |
| 37 Agree/Slažem se | 4.89*** | 2.07*** | 0.41** | 2.44* |
| 38 Disagree/Ne slažem se | 6.96*** | 3.35*** | 0.61* | 3.01** |
| 39 Agree/Slažem se | 5.92 | 2.68 | 0.50 | 2.75 |
| 40 Disagree/Ne slažem se | 5.39 | 2.54 | 0.50 | 2.44 |
| 41 Agree/Slažem se | 6.09 | 2.83 | 0.46 | 2.80 |
| 42 Disagree/Ne slažem se | 5.76 | 2.61 | 0.49 | 2.68 |
| 43 Agree/Slažem se | 6.61* | 3.02 | 0.57 | 3.03 |
| 44 Disagree/Ne slažem se | 5.51* | 2.49 | 0.47 | 2.59 |
| 45 Agree/Slažem se | 5.84 | 2.73 | 0.37 | 2.80 |
| 46 Disagree/Ne slažem se | 5.84 | 2.63 | 0.54 | 2.68 |

*p<0.05; **p<0.01; ***p<0.001

Nevertheless, they reported dental visits less than once a year (χ^2=11.752; p=0.001), more often worried about the color of their teeth (χ^2=9.58; p=0.003), noticed the presence of white sticky deposits on their teeth (χ^2=7.54; p=0.012) and less frequently received professional
feedback regarding their level of oral hygiene ($\chi^2=6.74; p=0.018$) compared to adolescents whose mothers had high school education or higher.

Compared to adolescents whose father’s education level was higher than elementary school, adolescents whose fathers had lower education more often worried about the color of their teeth ($\chi^2=9.88; p=0.002$), more often reported white deposits on their teeth ($\chi^2=18.77; p=0.0001$) and less frequently rated their oral health as “good” ($\chi^2=9.37; p=0.009$).

**DISCUSSION**

Health related behavior forms during the process of socialization by adopting and developing attitudes, habits, values and beliefs, and learning communication skills. Knowledge, skills and abilities that a person acquires on cognitive and affective levels, under sociocultural and developmental influences of the environment affect an individual’s ability to make decisions regarding health related behavior.

In the study of brushing behavior in children from 32 European countries and North America, authors reported that percentage of children who brushed their teeth more than once a day ranged from 16% to 80% among boys and from 26% to 89% among girls, with tendency to increase with child age in some countries, and decrease in other countries [9]. The mentioned study reported strong relationship between brushing teeth more than once a day and family income and parents’ occupation, while the relationship between behavior and family structure (single parent family) as well as parental control of child’s oral hygiene, was inconsistent and relatively weak.

Our research also confirmed that socio-demographic factors, namely parental educational level, affected adolescents’ perceptions and oral health related habits, as well as oral health status of adolescents, in sense that low educational level of parents contributed to poor oral health related behavior and higher levels of oral disease. Our results showed that most of 15 years old subjects in our sample had established regular brushing behavior, but relatively small percentage of participants reported use of supplemental oral hygiene means, such as dental floss and mouthwash rinses, and thus they could not provide adequate control of oral biofilms.

High percentage of fluoride toothpaste use, on the other hand, is a significant factor in the prevention of dental caries. High incidence of attitude that the use of toothpaste was necessary for brushing was desirable finding among adolescents.

The Serbian Population Health Survey conducted by the Serbian Ministry of Health in 2006 [10] showed decrease in dental visits once a year from 36.8% to 30.7% for the period 2000-2006, but also increase in the number of regular dental check-ups. However, compared to the year of 2000, the percentage of children and young who visited dentist in the previous year, increased from 58.9% to 63.7%. Our findings are consistent with this data.

Adolescents’ oral health status determined in this study, in terms of realized risk of developing caries and periodontal disease, was characterized by high prevalence of dental disease (91% of adolescents had DMFT>0) with 45% of untreated dental decay (DT/DMFT). In total sample, mean DMFT score was 5.84. Some other studies reported average DMFT score in the group of 15 years old subjects 1.8 in Germany [11], 3.19 in Greece [12], 4.3 in Slovenia [13], and 6.6 in Bosnia [14].

In Central and Eastern European countries, increased prevalence of dental caries in school children and adolescents is associated with inconsistent implementation of preventive measures and lack of organized health promotion activities [15]. Also, high prevalence of caries in developing countries may be partly explained by the fact that the health system of these countries is still in transition [16]. Unfortunately, since health promotion activities in Serbia are not systematically and consistently implemented, and the health care system is oriented toward treatment rather than prevention of oral diseases, high DMFT score in 15 year-old adolescents is not surprising.

No significant correlations were found between total mean HU-DBI score and number of healthy, decayed, missing and extracted teeth. However, significant differences in DMFT score or its DT, MT and FT components were obtained in relation to agree/disagree responses of HU-DBI questions 1, 2, 5, 6, 13, 14, 16, 18, 19 and 22. Interesting finding was that subjects who reported regular use of mouth rinses or use of plaque disclosing solution had higher DMFT score. This could be the result of received professional advice after they experienced problems with their teeth or gums. In general, better oral health related behaviors were associated with better dental status.

**CONCLUSION**

Poor oral health of adolescents and DMFT index of 5.84 are caused by their inadequate attitudes and habits. Thus, emphasis should be placed on educating patients who are receiving dental treatment to improve their oral health attitudes and behavior.

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Uticaj navika i stavova u vezi s oralnim zdravlje na oralno zdravlje adolescenata u Beogradu

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KRATAK SADRŽAJ

Uvod Adolescencija je period intenzivnih fizičkih, psiholoških i emocionalnih promena koje mogu da utiču na doseg stvorene navike u vezi s oralnim zdravljem i dovedu do ispoljavanja novih rizičnih oblika ponašanja. Cilj ovog rada je bio da se utvrdi povezanost navika i stavova adolescenata koji žive na teritoriji grada Beograda i njihovog oralnog zdravlja, izraženog pomoću indeksa KEP.

Materijal i metode rada Istraživanje je urađeno kao studija preseka i obuhvatio je 404 učenika prvog razreda srednje škole na teritoriji grada Beograda. Dva obučena stomatologa su na osnovu stomatološkog pregleda obavljenog u učionicama utvrdila stanje oralnog zdravlja adolescenata (indeks KEP) i postojanje viđljivih znakova zapaljenja gingive. Podaci o navikama i stavovima u vezi s oralnim zdravljem prikupljeni su pomoću modificovane verzije upitnika o ponašanju u vezi s oralnim zdravljem Univerziteta u Hirošimi (Hiroshima University Dental Behavior Inventory – HU-DBI), koji je proširen sa tri pitanja.

Rezultati Prosečan HU-DBI skor bio je 6,22±1,45 kod ispitanih mladića, a 6,28±1,45 kod ispitanih devojaka (p<0,05). Najmanje jednom godišnje stomatologa je posećivalo 67,3% adolescenata, a to su češće činile devojke (p<0,05). Naviku odlaganja odlaska stomatologu do pojave zubobolje navelo je 47,1% adolescenata. Većina ispitanika (86.2%) prala je zube dva puta dnevno, pri čemu su devojke to činile češće nego mladići (p<0,001). Samo 13,4% ispitanika koristilo je konac za zube, a 30,3% rastvore za ispiranje ust a. Ukupan KIP je bio 5,6±2,0, sa 45% nerasnihanih karijskih zuba u strukturi KEP.

Zaključak Neodgovarajući stavovi i navike adolescenata uticali su na njihovo loše oralno zdravlje. Da bi se unapredili navike nege zuba i oralnog zdravlja, potrebno je da se adolescenti budu obuhvaćeni programom zdravstvenosučetnog rada usmerenim kao razvijanju odgovarajućih znanja, stavova i veština u očuvanju zdravlja ust a i zuba.

Ključne reči: adolescent; oralno zdravlje; oralna higijena; ponašanje u vezi s oralnim zdravljem; stavovi u vezi s oralnim zdravljem; upitnik HU-DBI

UVOD

Oralno i celokupno zdravlje zavise od dinamičkog odnosa brojnih faktora koji obuhvataju individualne osobine, ponašanja i shvaćanja pojedinaca. Ponašanja u vezi s oralnim zdravljem je blisko povezano s ishodom po zdravlje i može se smatrati značajnim determinantom zdravlja. Navike samostalne kućne nege zuba koje počivaju na ličnim izborima pojedinaca smatraju se značajnim aspektom ponašanja u vezi s oralnim zdravljem [1]. Deca i adolescen ti predstavljaju grupu posebno značajnu za sticanje znanja i stvaranje navika i stavova u vezi s očuvanjem oralnog zdravlja. Zbog dinamičkog fizičkog i psychološkog-emotivnog razvoja, u periodu adolescencije menjaju se doved usvojene navike, a pod uticajem neposrednog okruženja, vršnjaka i neformalnih grupa stvaraju se novi obrazci ponašanja i sistem vrednosti, koji često povećavaju rizik od narušavanja zdravlja. Pušenje, neodgovara juća ishrana, osečaj nedostatka vremena ili „zaboravljanje“ da se održava oralna higijena, kao i nerazumevanje rizika koji proizlazi iz postojećih oblika neprimernog zdravstvenog ponašanja, mogu loše uticati na oralno zdravlje adolescenata [2].

Za izučavanje stavova, opažanja i ponašanja povezanih s oralnim zdravljem Kavabata (Kawabata) i saradnici [3] su sačinili Upitnik o ponašanju u vezi s oralnim zdravljem Univerziteta u Hirošimi (engl. Hiroshima University – Dental Behavioral Inventory – HU-DBI). Upitnik HU-DBI sadrži dvadeset pitanja koja se prvenstveno odnose na navike u vezi s higijenom usta i zuba. Sva pitanja imaju dva moguća odgovora: „Slažem se“ i „Ne slažem se“. Kvantitativno ocenjivanje stavova i ponašanja u vezi s oralnim zdravljem moguće je na osnovu utvrđenog ukupnog broja odgovarajućih odgovora, sa maksimalnim zbirom od 12 bodova. Veći skor označava primenjenje stavove i ponašanje u odnosu na oralno zdravlje [4]. Bodovanje svakog pitanja koje se odnosi na određeni stav ili ponašanje u ovom upitniku zasniva se na analitičkom istraživanju u okviru kojeg je razvijen statistički model [5]. U skorije vreme ovaj upitnik je korišćen u istraživanjima u kojima su poredeni stavovi i ponašanje u vezi s oralnim zdravljem studenata stomatologije i dentalnih higijeničara širom sveta [6, 7, 8]. Utvrđeno je da postoje značajne razlike kod studenata iz različitih zemalja i kulturoloških grupa, kao i razlike među studentima u odnosu na godinu studija.

Za potrebe ovog istraživanja engleska verzija upitnika HU-DBI prevedena je na srpski jezik. U konačnu verziju upitnika uključena su još tri pitanja koja se odnose na oralnu higijenu i naviku pušenja.

Cilj ovog istraživanja bio je da se utvrdi povezanost stavova i ponašanja utvrđenih pomoću upitnika HU-DBI i oralnog zdravlja (izraženog pomoću indeksa KEP) u grupi petnaestogodišnjaka iz Beograda.

MATERIJAL I METODE RADA

Studija preseka je obuhvatila 404 slučajno odabrana učenika prvog razreda srednje škole (uzrasta 15–16 godina) koja su pohadala jednu od deset nasumično odabranih srednjih škola iz različitih opština na području grada Beograda. Podaci o ponašanju u vezi s oralnim zdravljem prikupljeni su pomoću modificovane srpske verzije engleskog upitnika HU-DBI. Uпитnici su nastavnici podelili odabranim učenicima da ih popune za vreme školskog časa. U izračunavanju HU-DBI skora, jedan bod je dodeljen za svaki odgovor „Slažem se“ za pitanja 4, 9, 11, 12, 16 i 19, kao i za svaki odgovor „Ne slažem se“ za pitanja 2, 6, 8, 10, 14 i 15.
Dva prethodno obučena istraživača obavila su stomatološki pregled u školskim učionicama i utvrdila broj zdravih, karijesnih, plombiranih i izvadjenih zuba (indeks KEP), te ima li vidljivih znakova zapaljenja gingive.

Dobijeni podaci su obrađeni u programu SPSS 17.0 (Čikago, Illinois, SAD). Prikazana distribucija frekvencija i descriptivna statistika (srednja vrednost i standardna devijacija) analizirane su primenom χ²-testa i Fišerovog testa. Za poredenje indeksa KEP, kao i prošećnog broja karijesnih, izvadjenih i plombiranih zuba između ispitanika koji su različito odgovorili na pojedinačna pi tanja u upitniku, korišćen je Studentov t-test nezavisnih uzoraka.

**REZULTATI**

Dobijeni HU-DBI skor je bio u opsegu od 2 do 11 bodova, a u proseku je iznosio 6,27±0,27. Kod ispitanih devojaka utvrđen je veći skor (6,28±1,45) u poredenju s ispitanim mladićima (6,22±1,45), ali ta razlika nije bila značajna. Vrednost KIP je bila u opsegu od 0 do 23 (prosečno 5,84±0,20). Kod 35 ispitanika (8,66%) utvrđeni su svi zdravi zubi (KEP=0). Manje od treći ne ispitanika (119 učenika; 29,46%) imalo je potpuno sanirane zube u trenutku ispitivanja (K=0). Prosečan broj nesaniranih karijesnih zuba (K) bio je 2,65±0,14. Prosečan broj plombiranih zuba (P), koji predstavlja saniranu patologiju, bio je 2,71±0,14, što ukazuje na relativno nisku stopu sanacije oboljelih zuba. Stepen sanacije izražen kao odnos broja plombiranih zuba i ukupnog broja oboljelih zuba, izračunat prema formuli P/KEP, bio je 46,40%, dok je učestalost karijesnih zuba, koji predstavlja stepen nesanirane oralne patologije izražen kroz odnos broja karijesnih i ukupnog broja oboljelih zuba (K/KEP), bio je 45,37% (Tabela 1). Zapaljenje gingive (crvenilo, otok, krvarenje marginalne gingive) zabeleženo je kod 74,9% zenašena, neznatno češće kod devojaka (p<0,05).

Pitanja u okviru upitnika HU-DBI i distribucija odgovora „Slažem se“ i „Ne slažem se“ prikazana su u tabeli 2. Naviku odlaska stomatologu najmanje jednom godišnje imalo je 67,3% zenašena, a češće devojke, ali ova razlika nije bila statistički značajna. Krvarenje desne prilikom pranja zuba navelo je 18,4% ispitanika, a 65,1% je odgovorilo da zapaljenje gingive nije moguće sprečiti samo pranjem zuba. Većina ispitanika (70,7%), ali češće devojke (p<0,05), navela je da ih je stručno lice obučilo kako da pravilno peru zube. Većina ispitanika (91,8%) smatra da je za pranje zuba neophodno koristiti pastu za zube, pri čemu je ovaj stav zastupalo značajno više devojaka, ali bez statistički značajnih razlika. Više od polovine ispitanika (češće devojke) navelo je da koristi tvrdu četkicu za zube i da prilikom pranja vrši snažan pritisak na zube (p<0,05). Skoro polovina zenašena (47,1%) izjasnila se da odlaza odlazak stomatologu dok se ne javi Zubobolja. Većina ispitanika (86,2%) se izjasnila da ponekad po prtljevanje dnevno, pri čemu je učestalost ove navike bila značajno veća kod devojaka (p<0,001). Samo 13,4% ispitanika je navelo da koristi konac za zube, a 30,3% da redovno primenjuje rastvor za ispiranje zuba. Gotovo četvrtina zenašena (23,3%) izjasnila se da se vukov način olupljene cigarete.

Značajne razlike u vrednostima indeksa KEP i njegovih komponenta (K, E i P) utvrđena je u odnosu na odgovore na pitanja broj 1, 2, 5, 6, 13, 14, 16, 18, 19 i 22 (Tabela 3).

Saglasnost s izjavom „Odlazim stomatologu najmanje jednom godišnje“ bila je povezana sa značajno nižom vrednostima KIP (p<0,01) i brojem karijesnih zuba (p<0,05). Saglasnost s izjavom „Desni mi kravare kada perem zube“ bila je povezana s većim vrednostima indeksa KEP i njegovih komponenta K i E (p<0,05). Zapaženo je da je saglasnost s odričnim stavom da je nemoguće izbegati veštak zube u starosti povezana s visokom vrednošću komponente E (p<0,05). Viši KIP i broj karijesnih zuba utvrđen je kod ispitanika koji su bili saglasni sa izjavom „Mislim da se stanjem zdravlja mojih zuba pogoršava upravo sva-kodnevnom pranju“ (p<0,01). Takođe je uočeno da ispitanici koji su saglasni sa izjavom „Odlazim odlazak stomatologu dok se ne javi Zubobolja“ imaju manji broj saniranih zuba. Ispitanici koji su naveli da koriste sredstvo za bojenje plaka kako bi videli da im je zubi čisti imali su viši KIP (p<0,01). Ispitanici koji su naveli da smatraju da nisu dobro oprali zube ukoliko ih ne traju snažno imali su veći broj zuba zahvaćenih karijes- som (p<0,05) i ekstrahovanih zuba (p<0,01). Ispitanici koje je stručno lice obučilo kako da peru zube imali su niži vrednosti KIP i komponenta K i E (p<0,01). Oni koji su bili zadovoljni izgledom svojih zuba takođe su imali niži vrednosti KIP i komponenta K, E i P (p<0,01). Utvrđeno je da su ispitanici koji su imali pozitivnu naviku da koriste rastvore za ispiranje usta imali viši skor KEP (p<0,01).

Nivo obrazovanja majke značajno je uticao na broj zdravih (F=3,156; p=0,04) i karijesnih zuba ispitanika (F=3,021; p=0,05), kao i na vrednost KIP (F=3,090; p=0,047). Adolescenti čije su majke imale samo osnovno obrazovanje imali su manje zdravih i više nesaniranih zuba, kao i veći prosečan broj obole- lih zuba (KIP) u poredenju s adolescentima čije su majke imale viši stepen obrazovanja. Adolescenti čije su majke imale niži nivo obrazovanja u većem procentu ocenili su sopstveno oral- no zdravlje kao loše ili osrednje u poredenju s adolescentima čije su majke imale viši stepen obrazovanja (χ²=9,45; p=0,051). Štaviše, zabeleženo je da ne poseduju stomatologa jednom godišnje (χ²=11,752; p=0,001), češće brinu zbog boje svojih zuba (χ²=9,58; p=0,003), imaju lepilje bele naslage na zubima (χ²=7,54; p=0,012) i u manjem procentu su dobili stručne informacije u vezi s higijenom usta i zuba (χ²=6,74; p=0,018) u poredenju s adolescentima čije su majke završile srednju školu ili fakultet.

U odnosu na adolescente koji oči su imali srednje ili visoko obrazovanje, adolescenti čiji oči su imali osnovno obrazovan- je češće su naveli da brinu zbog boje svojih zuba (χ²=9,80; p=0,001), imaju lepilje bele naslage na zubima (χ²=18,77; p=0,001) i rede su ocenjavali svoje oralno zdravlje kao „dobro“ (χ²=9,37; p=0,009).

**DISKUSIJA**

Zdravstveno ponašanje se formira tokom procesa socijalizacije, usvajanjem i izgradnjom stavova, navika, vrednosti, verovanja i shvatanja, ali i učenjem komunikacije s okruženjem. Znanja, veštine i sposobnosti koje je osoba stekla na kognitivnom i afek- tivnom nivou pod sociokulturnim i razvojnim uticajima okru- ženja utiču na sposobnost pojedinca da donosi odluke u vezi s ponašanjem u pogledu zdravlja.

Istraživanje u kojem je uporedivana učestaloća pranja zuba kod dece različitog uzrasta u 32 zemlji Evropske i Severne Amerike pokazalo je da je učestaloća pranja zuba više od jedan dan na 16% do 80% kod dečaka i od 26% do 89%.
Kod devojčica, te da se u nekim zemljama povećava sa uzrastom dece, dok se u drugima smanjuje [9]. Pomenuto istraživanje je utvrdilo kako vežu između zastupljenosti navike pranja zuba više od jednom dnevno i porodičnih prihoda i zanimanja roditelja, dok je povezanost ponašanja sa strukturom porodice (porodica s jednim roditeljem) i roditeljskom kontrolom oralne higijene deteta bila nekonzistentna i relativno slaba.

U ovom istraživanju takode je potvrđen uticaj socijalno-de
mografskih faktora, odnosno obrazovnog nivoa roditelja na percepciju i navike adolescenata u vezi s oralnim zdravljem, kao i na stajanje oralnog zdravlja. Naime, nizak obrazovni nivo roditelja doprinosi lošijim navikama povezanim s oralnim zdravljem i izraženijom oralne patologije. Rezultati ovog istraživanja su takode ukazali na to da je navika redovnog pranja zuba veoma česta u ispitivanom uzorku petnaestogodišnjaka. Međutim, relativno mali broj ispitanika koristi dodatna sredstva za oralnu higijenu, kao što su konac za zube i rastvori za ispiranje ustva, te se ne obezbeđuje dovoljno temeljna kontrola oralnog biofilma. Primena past za zube s fluorom u visokom procentu, s druge strane, predstavlja značajan faktor u preven
ciji karijesa, pa je visoka učestalost stava da je primena past za zube neophodna prilikom pranja zuba poželjna u ispitanoj populaciji adolescenata.

U istraživanju zdravlja stanovništva Srbije koje je Ministarstvo zdravlja sprovedlo 2006. godine [10] zabeleženo je smanjenje učestalosti odlaska stomatologu jednom godišnje sa 36,8% u 2000. godini na 30,7% u 2006. godini, ali je porastao broj poseta zbog redovne kontrole oralnog zdravlja. Međutim, u odnosu na 2000. godinu povećan je procenat dece i omladine koja su u poslednjih godinu dana posetila stomatologa sa 58,9% na 63,7%. Ovo istraživanje je u skladu sa našim podacima.

Stanje oralnog zdravlja adolescenata sa aspekta realizovanog rizika za nastanak karijesa i parodontalnih oboljenja odlikuje se postojanjem oboljelih zuba kod većine ispitanika (KIO=91%), sa 45% karijesnih zuba u strukturi KEP. Na nivou celokupnog uzorka, KIP je bio 5,84. Prema podacima iz literature, prosegna vrednost ovog indeksa kod petnaestogodišnjaka u Nemačkoj je 1,8 [11], u Grčkoj 3,19 [12], u Sloveniji 4,3 [13], a u Bosni 6,6 [14].

U zemljama centralne i istočne Evrope veća prevalencija karijesa kod dece školskog uzrasta i adolescenata dovodi se u vezu s nekonzistentnom primenom preventivnih mera i izostankom organizovanih programskih aktivnosti promocije zdravlja [15]. Tačno, visoka prevalencija karijesa u zemljama u razvoju možete se pripisati činjenici da se sistem stomatološke zdravstvene zaštite u pomenutim zemljama nalazi u tranziciji [16]. Kako i Srbija, najzalost, pripada grupi zemalja gde se zdravstvenoaspite
ne aktivnosti primenjuju u nedovoljnom obimu, a zdravstveni sistem je orijentisan ka terapiji a ne ka prevenciji oralnih oboljenja, ne iznenađuju visoke vrednosti KIP u ispitivanom uzorku petnaestogodišnjaka.

U ovom istraživanju nije utvrđena povezanost ukupnog HU
DBI skora i broja zdravih, karijesnih, ekstrahovanih i plombiranih zuba. Međutim, značajne razlike u vrednostima KIP ili komponenta K, E i P indeksa KEP utvrđene su u odnosu na potvrđene i odrične odgovore na pitanja 1, 2, 5, 6, 13, 14, 16, 18, 19 i 22 u upitniku HU-DBI. Zanimljivo je da su ispitanici koji su naveli da koriste rastvore za ispiranje usta i sredstva za bo
jenje dentalnog plaka imali više vrednosti indeksa KEP. Ovo se verovatno može smatrati rezultatom stručnog saveta koji je dat određenim ispitanicima nakon što su se javili stomatologu zbog problema sa zubima ili desnima. U celini, utvrđeno je da su pri
merena ponašanja u pogledu zdravlja usta i zuba bila povezana sa boljim stanjem oralnog zdravlja adolescenata.

ZAKLJUČAK

Neodgovarajući stavovi i navike adolescenata uticali su na loše oralno zdravlje adolescenata, a ukupan indeks KIP bio je 5,84. Zbog toga akcenat treba staviti na edukaciju adolescenata u sklopu stomatološkog lečenja, kako bi se unapredili njihovi stavovi i ponašanje u vezi s oralnim zdravljem.