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UDC: 364-56::616.314-084 DOI: https://doi.org/10.2298/VSP210127046M

# Habits, attitudes, and behavior of refugees and migrants in Serbia concerning oral health

Navike, stavovi i ponašanje izbeglica i migranata u Srbiji u vezi sa oralnim zdravljem

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## Abstract

Background/Aim. A large number of refugees and migrants have passed through the Republic of Serbia in recent years. Oral health is one of the key indicators of general health. The aim of this study was to investigate selfreported oral health, oral health related habits, nutrition, and the use of dental services among refugees and migrants in Serbia. Methods. A total of 226 migrants participated in the study. Participants were accommodated in the migrant centers Obrenovac and Krnjača in Belgrade, Serbia. All participants were given a questionnaire in order to examine oral health habits, attitudes, and behavior among refugees and migrants. The questionnaire consisted of 29 questions. SPSS 24 statistical software was used to analyze answers from the questionnaire. Results. Out of 226 examinees, 40 were female, and 186 were male. The majority (87.6%) were adults, and 12.4% were children. The results showed that refugees and migrants who spent 200-300 € per month consumed alcohol (33.3%) and tobacco (61.1%) the most. Only 10.8% of men answered they had been to the dentist in Serbia, whereas 35% of women had the same answer (p = 0.000). The research also showed that most women (67.5%) brush their teeth 2-3 times a day, and noticeably fewer men (37.1%) had the same habit. Fluoride supplements were used by 78.7% of examinees. Among the most common reasons for the last visit to the dentist were pain (36.9%) and regular checkups (22.5%). Conclusion. Preservation of oral health of refugees and migrants in Serbia depends on various factors. Improving and preserving the good general and oral health of refugees and migrants should be a public healthcare priority.

#### Key words:

attitude to health; habits; oral health; preventive dentistry; refugees; risk factors; serbia; transients and migrants.

# Apstrakt

**Uvod/Cilj.** Veliki broj izbeglica i migranata je poslednjih nekoliko godina prošao kroz Srbiju. Oralno zdravlje je jedan od ključih pokazatelja opšteg zdravlja. Cilj istraživanja bio je da se sprovede samoprocena oralnog zdravlja i utvrde navike vezane za oralno zdravlje, ishranu i korišćenje stomatoloških usluga izbeglica i migranata u Srbiji. Metode. U istraživanju je učestvovalo ukupno 226 ispitanika. Učesnici su bili smešteni u migrantskim centrima Obrenovac i Krnjača u Beogradu, u Srbiji. Svim ispitanicima je data anketa sa ciljem da se istraže navike, stavovi i ponašanje u vezi sa oralnim zdravljem izbeglica i migranata. Upitnik se sastojao od 29 pitanja. Statistički softver SPSS 24 korišćen je za analiziranje odgovora dobijenih u anketi. Rezultati. Od ukupno 226 ispitanika bilo je 40 ženskog, a 186 muškog pola. Većina ispitanika bila je punoletna (87.6%), a 12.4% su bila deca. Rezultati pokazuju da su izbeglice i migranti koji troše 200-300 € mesečno najviše konzumirali alkohol (33.3%) i duvan (61.5%). Svega 10.8% muškaraca je odgovorilo da je bilo kod stomatologa u Srbiji, dok je 35% žena dalo isti odgovor (p = 0.000). Istraživanje je, takođe, pokazalo da je većina žena (67.5%) prala zube 2-3 puta dnevno, dok znatno manje muškaraca ima tu naviku (37.1%). Suplemente fluorida koristilo je 78.8% ispitanika. Kao neki od najčešćih razloga za posetu stomatologu navedeni su bol (36.9%) i redovna kontrola (22.5%). Zaključak. Očuvanje oralnog zdravlja izbeglica i migranata u Srbiji zavisi od različitih faktora. Unapređivanje i očuvanje dobrog opšteg i oralnog zdravlja izbeglica i migranata trebalo bi da budu prioriteti javnog zdravlja.

## Ključne reči:

stav prema zdravlju; navike; oralno zdravlje; stomatologija, preventivna; izbeglice; faktori rizika; srbija; prolaznici i migranti.

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# Introduction

Since the peak of the migration crisis in 2015, like many European countries, Serbia was struck with hundreds of thousands of refugees and migrants traveling across European borders <sup>1</sup>.

The United Nations High Commissioner for Refugees (UNHCR) stated that there were 30,216 newly arrived asylum seekers and migrants in Serbia in 2019. In the same year, the number of arrivals of unaccompanied/separated children was almost twice as high as the year before, with a total of 3,777 children. The majority of the asylum seekers and migrants were men (76%) and much fewer women (18%) and children (6%). When talking about nationalities, 51% came from Afghanistan, 13% from Syria, 7% from Pakistan, 6% from Bangladesh, 6% from Iran, 6% from Iraq, and 11% from other countries  $^2$ .

The effects of the migratory process can be noticed as changes in social determinants of health, lack of access to healthcare, interrupted care, poor living conditions, or others. That means general health could be in jeopardy. Healthcare systems and healthcare providers are the ones put to the test when this happens.

Most common regional health policies recommend that emergency and urgent care be available to all refugees and migrants, regardless of their legal status <sup>3</sup>. The Law on Healthcare of Serbia, specifically article 236 of this document, states that a person without citizenship, refugees, people seeking asylum, or registered foreigners seeking asylum, have the right to healthcare <sup>4</sup>.

Knowing that oral health is one of the key indicators of general health, well-being, and quality of life, we should thoroughly examine the impact of oral health habits in order to preserve and improve oral health among migrants and refugees <sup>5</sup>. The aim of this study was to provide information about oral health habits, attitudes, and behavior towards oral health and indicate how public healthcare can contribute to oral health preservation and improvement among refugees and migrants in Serbia.

#### Methods

This study was approved by the Commissariat for Refugees and Migration and the Ministry of Health of the Republic of Serbia. Approval from the University of Belgrade Faculty of Dental Medicine's Research Ethics Committee was obtained prior to this study (registration number: 36/16). The research took place in refugee centers in Obrenovac and Krnjača in Serbia from November through December 2019.

# Participants

A total of 226 refugees and migrants took part in this exploratory cross-sectional study. Inclusion criteria for the respondents in the study were a signed consent form and the ability to understand and answer the questions independently or with the help of a qualified translator. Exclusion criteria were refusal to take part in the study and refusal of the parent or guardian to have their child participate in the study. Participation in this study was anonymous and voluntary. All participants were fully informed before giving consent or allowing their children to take part in the research. Parents answered questions on behalf of their children.

## Data collection

The survey was carried out in migrant centers in Obrenovac and Krnjača. All questions were asked orally to ensure equality. Parents answered questions for children involved in the study. One certified dentist (the first author) conducted the interviews and one dental student (the second author) noted and saved the data. The interviews were carried out in Serbian, English, Pashto, and Farsi language with the help of certified translators in the migrant centers. Each interview took approximately 20 min.

The survey included both closed and open-ended questions. Participants were asked if they had any bad oral health habits (teeth grinding/thumb sucking/mouth breathing/chewing on one side of the mouth/no bad habits) and if they consumed tobacco (yes/no) or alcohol (yes/no).

Furthermore, we asked participants about their food regimen, such as the frequency of consuming sweetened drinks/juices, sweets, and fruits (daily/several times per week/several times per month/rarely/never).

Questions about the frequency of tooth brushing (never/2–3 times per month/once per day/two or more times per day), the use of fluoride supplements (toothpaste/mouthwash/fluoride tablets/fluoride varnish/tooth gel/no fluoride supplements), and oral hygiene utensils (toothbrush/interdental brush/oral irrigator/toothpick/dental floss/no utensils) were asked in order to investigate oral hygiene habits of migrants and refugees.

Oral health problems (yes/no/I do not know) and the number of dental visits (once/twice/three or more times/ I have not been to the dentist in the last year) in the year prior to the research were questions of great value for this research. We also inquired about the reason for the last visit to the dentist (pain/trauma/swelling/gum bleeding/regular checkup/none of the above). Questions about the satisfaction of overall and oral health (very dissatisfied/dissatisfied/neither satisfied nor dissatisfied/satisfied/very satisfied) were also incorporated in this study.

A specific part of this research was the attitude of migrants and refugees toward dental healthcare in Serbia. We inquired whether the participants knew they were provided free dental care in Serbia (yes/no/I do not know), as well as their thoughts on whether there was a language barrier that would endanger their dental treatment (yes/no). Participants were asked if they had been to a dentist in Serbia (yes/no) or had ever been denied dental treatment (yes/no). Those who had dental treatment in Serbia were asked if they were satisfied with the service (very dissatisfied/dissatisfied/neither satisfied nor dissatisfied/satisfied/very satisfied).

The participants were also asked about their age, gender (male/female), marital status (single/married/divorced/ widowed), country of origin, time spent in Serbia (under 10

days/10–30 days/1–2 months/more than 2 months), migrant and refugee center they were situated at (Obrenovac/Krnjača), and the amount of money at their disposal per month (less than 100 €100–200 €200–300 €more than 300 €). In addition to these questions, participants answered questions about their own, their mother's, and their father's education level (primary school or less/high school/bachelor's degree/master's degree/PhD/unknown).

#### Statistical analysis

All statistical analyses were performed using Statistical Package for the Social Sciences (IBM Corp. Released 2016. IBM SPSS Statistics for Windows, version 24.0; Armonk, NY: IBM Corp.) The Chi-squared test was used to determine the significance of differences between two independent groups. In the process of examining the relationship between variables, the ANOVA test was used. The level of significance was set at 5% (p < 0.05).

## Results

#### Socio-demographic characteristics

This study included 226 refugees and migrants staying in migrant centers in Serbia. Single male refugees and migrants were situated in Obrenovac, whereas families, children, and female refugees and migrants were in Krnjača. Their average age was  $23 \pm 8.24$ , aged 1 to 64. The ages of children that participated in the study were from 1 to 17, with an average age of  $10 \pm 3.87$ , whereas the youngest adult was 18 and the eldest 64. The demographic and socio-economic characteristics of the examinees are shown in Table 1. The results showed that refugees and migrants originate from Asian and African countries: Afghanistan 73.89%, Iran 7.52%, Pakistan 4.87%, Syria 4.42%, Iraq 3.54%, Somalia 3.1%, Yemen 0.88%, Cameroon 0.44%, Ethiopia 0.44%, Lebanon 0.44%, and Sudan 0.44%. Concerning educational attainment, participants answered in the majority that their mother finished only primary school or less (41.6%). Similar results were obtained when asked about their father, with 38.1% of the participants answering primary school or less and 23.9% high school. As for the participants themselves, 35.8% finished primary school or less, 35.4% finished high school, and 25% did not answer the question.

## Habits

When answering the question about bad habits, most participants (46.5%) answered they did not have any of the following: unilateral chewing, teeth grinding, thumb sucking, or mouth breathing. A much smaller percentage had bad habits: 22.9% unilateral chewing and 19.8% teeth grinding. A large percentage of refugees and migrants consume tobacco (48%). Even though 86.7% of participants do not drink alcohol, refugees and migrants who have 200–300  $\bigoplus$  per month at their disposal consume alcohol the most, as well as tobacco (61.1%).

#### Table 1

Parameter	Participants		
	male (n = 186)	female (n = 40) n (%)	
	n (%)		
Migrant center			
Obrenovac	152 (81.7)	0 (0)	
Krnjača	34 (18.3)	40 (100)	
Age (years)			
< 18	13 (7)	15 (37.5)	
$\geq 18$	173 (93)	25 (62.5)	
Months lived in Serbia			
< 1	42 (22.6)	15 (37.5)	
1–2	46 (24.7)	7 (17.5)	
> 2	94 (50.5)	17 (42.5)	
no answer	4 (2.2)	1 (2.5)	
Marital status			
Single	127 (68.3)	19 (47.5)	
Married	54 (29)	19 (47.5)	
Divorced	1 (0.5)	0 (0)	
Widowed	2 (1.1)	1 (2.5)	
no answer	2 (1.1)	1 (2.5)	
Money on disposal per month (in euros)			
< 100	118 (63.4)	34 (85)	
100–200	27 (14.5)	3 (7.5)	
200–300	18 (9.7)	0 (0)	
> 300	14 (7.5)	0 (0)	
no answer	9 (4.8)	3 (7.5)	

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# Food regimen

Food is provided in both migrant centers, Krnjača and Obrenovac. In addition to the provided food, refugees and migrants can buy and consume other foods. The majority of respondents ate sweets on a daily basis or a few times a week (Table 2). The male population drinks sweetened juices more often than the female (p = 0.008). Statistical analysis showed that the duration of the stay of refugees and migrants in Serbia affected the consumption of fruits (p = 0.008). According to the results, 50% of migrants who stayed in Serbia for a longer period of time, longer than one month, ate fruits daily, and 28.4% of them ate fruits a few times a week.

#### Oral hygiene

Good oral hygiene is mandatory for good oral health. The results show that 42.5% of participants brush their teeth two or more times a day, and 19% of refugees and migrants mentioned they brush their teeth once a day. There was statistical significance between men and women concerning the frequency of brushing teeth (Figure 1). The results show a statistical significance of p = 0.000 in the correlation between the frequency of tooth brushing and satisfaction with oral health. A noticeably large percentage of participants used fluoride supplements (79%). The most preferred fluoride supplement among migrants and refugees in Serbia is toothpaste.

#### Dental healthcare

The majority of respondents ranked their general health as satisfactory (64.6%). Twice as many men answered that their oral health is dissatisfactory (22%), whereas 10% of women had the same answer (p = 0.002). Out of the total number of participants, 36.7% of refugees and migrants mentioned having had problems with oral health in the past year. Although there is a widespread need for dental treatment, 57.1% of the participants have not been to the dentist in the past year. The most common reason for their last visit to the dentist was pain (39.2%). Refugees and migrants who have between 200 € and 300 € per month at their disposal had the highest percent (50%) of last visits to the dentist caused by pain.

#### Dental healthcare in Serbia

The majority of the participants answered that they did not know if dental treatment in Serbia was free (45.5%); the rest were divided, 27.5% stating it was free and 27% stating it was not. Most of the single participants (60%) believed no language barrier would endanger their dental treatment. However, married participants were not as sure, with a total of 47.9% answering there was a language barrier. The results show that women have been to a dentist in Serbia more often than men (Table 3). Based on the results obtained, a total of 38 refugees and migrants were in a situation where a dentist

#### Table 2

Parameter	Daily	Several times per week	Several times per month	Rarely	Never	No answer
Consumption of sweets	35	30.5	7.1	18.6	8.4	0.4
Consumption of fruits	45.5	29.2	6.2	12.4	5.8	0.9
Consumption of sweetened drinks/juices	36.7	28.8	7.1	18.6	10.6	0.9



Fig. 1 – Frequency of tooth brushing among refugees and migrants (%).

Dental healthcare in Serbia for migrants and refugees

Table .
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	Partic		
Parameter	male $(n = 186)$	female (n = 40)	<i>p</i> -values*
	n (%)	n (%)	-
Language barrier endangering dental treatment			0.16
yes	65 (34.9)	14 (35)	
no	98 (52.7)	25 (62.5)	
no answer	23 (12.4)	1 (2.5)	
Visit to a dental office in Serbia			0.00
yes	20 (10.7)	14 (35)	
no	159 (85.5)	26 (65)	
no answer	7 (3.8)	0 (0)	
Been refused dental treatment in Serbia?			0.17
yes	35 (18.8)	3 (7.5)	
no	143 (76.9)	34 (85)	
no answer	8 (4.3)	3 (7.5)	

\*Pearson's  $\chi^2$  test.

refused to give them dental treatment. Most participants (44.1%) were satisfied with dental treatment in Serbia.

#### Discussion

In 2019, 14 reception centers and 6 centers for asylum were at the disposal of refugees and migrants across Serbia. The total capacity of all available migrant centers is approximately 5,890 <sup>6</sup>. European Union Agency for Fundamental Rights (FRA) report from May 2017 states that the majority of refugees and migrants in European Union (EU) countries have only a primary school degree <sup>7</sup>. UNHCR statistics show that 91% of the world's children attend primary school, whereas 61% of refugee children have the same chance. Serbia follows other European countries and provides children with primary school education <sup>8</sup>. When comparing the monthly budget of refugees and migrants, we should take into consideration that in Serbia, in 2019, the minimum wage was approximately 30,000 RSD ( $\approx 255 \oplus$ , and the basic amount of monthly social assistance was 8,508 RSD  $(\approx 72 \bigoplus^{9, 10}$ . This information might explain the low amount of money the participants had at their disposal. The financial aspect is an ongoing issue when dental healthcare comes to mind. Serbian public dental clinics do not charge only for emergencies, such as trauma, swelling, and dental complications directly impacting oral health. That means all other cases are obligated to pay for dental treatment. Not being able to afford dental treatment might lead to deterioration of oral health and, later on, to a state of a dental emergency. All of that could be avoided by introducing adequate preventive measures. Various studies conclude that preventive measures are crucial when preserving good health among migrants and refugees is the aim <sup>11</sup>.

The findings gathered in this study show that drinking alcohol among refugees and migrants in Serbia is infrequent. Only 13.3% of participants answered they consumed alcohol, whereas research results from 2006 showed 31.6% of adults in Serbia consumed alcohol 30 days prior to participating in the research <sup>12</sup>. Alcohol consumption is uncommon among

refugees and migrants in Belgrade since most of them come from Muslim countries where alcohol consumption is forbidden. A study conducted in Germany found a strong correlation between alcohol consumption and maximal periodontal pocket depth. In addition, smoking and maximal periodontal pocket depth were significantly associated <sup>13</sup>. The data obtained in this study show that 48% of refugees and migrants consume tobacco. Unfortunately, research conducted by the Institute of Public Health of Serbia in 2016 affirms that many adults in Serbia share the same bad habit (38%)<sup>14</sup>. Consuming tobacco, especially smoking, is known to increase the risk of periodontal disease, bad breath, tooth discoloration, delayed healing of intraoral wounds, different types of oral carcinoma, and many more <sup>15</sup>. People who consume tobacco are prone to having various oral health issues and should, therefore, be prioritized as high-risk patients. A public health strategy could be effective in educating and early screening both tobacco and alcohol consumers.

Nutrition is a key factor in general health. Malnutrition and vitamin D deficiency especially have been identified among migrant children in northern parts of the WHO European Region<sup>4</sup>. Findings obtained show that more than onethird of the participants consume sweets on a daily basis. Various studies have shown the side effects of sweetened juices on oral health <sup>16</sup>. The most common effect of high consumption of added sugars on oral health is a greater prevalence of dental caries but also periodontal disease. Both dental caries and periodontal disease are major public health problems globally and are widespread non-communicable diseases. Addressing these health issues and preventing them is of high importance. With significantly more male participants drinking sweetened juices, the findings obtained in this research concur with a study from Udaipur<sup>17</sup>. Our study shows that almost half of the participants consume fruits daily. The results of our study on average fruit intake are higher than in a study conducted in Lithuania but lower than in a study conducted in the European Union <sup>18, 19</sup>. Malnutrition can intensify the severity of oral infections and may evolve into life-threatening diseases 20. Public healthcare should address refugees and migrants suffering either from malnutrition or being overweight/obese but also educate refugees and migrants on a balanced and healthy diet.

Findings from our study showed less than half of migrants brushed their teeth two or more times per day. A study conducted in the United Kingdom showed a higher percentage (71.5%) of Pakistani/Bangladeshi brushing their teeth twice a day <sup>21</sup>. Asylum seekers and immigrants that participated in a study in Finland had similar tooth brushing habits. Women (75%) brushed their teeth more often than men (56%). The same study showed that 57.5% of the participants used toothpaste, whereas 79% of participants in our study used some kind of fluoride supplements <sup>22</sup>. The findings showed a large percentage of children brushed their teeth more than once a day (more than 80%)<sup>23</sup>. These findings are much higher than the ones in this study. Recognizing the need for early dental treatment, providing migrants with adequate oral hygiene utensils, and promoting good oral hygiene could highly impact oral and, therefore, general health.

Oral health affects general health by causing considerable pain and suffering. Because of that, people tend to change their eating habits, speech, quality of life, and wellbeing <sup>24</sup>. That is the reason for the existence of the undeniable connection between general health and oral health. A comparative study found that approximately one-third of the refugees from the Middle East and Africa that participated in the study had regular oral pain <sup>25</sup>. Oral pain is the most common reason for a visit to the dentist, and our research concurs <sup>22, 26</sup>. Postponing dental treatment may lead to the occurrence of higher risk complications and more difficult treatment procedures. Public healthcare systems should strive to promote early dental treatment and emphasize the importance of prevention.

Some of the principles of healthcare in Serbia are based on our solidarity, efficiency, and protection of patients' rights. Free healthcare is provided to all children under 18 years of age and students till the age of 26, as well as people over 65 years and people with disabilities. Refugees and migrants in Serbia have the same rights and are included in the public healthcare system. The law concerning free dental treatment applies to trauma, swelling, etc., only at public dental clinics<sup>4</sup>. A lower percentage of refugees and migrants go to the dentist in Serbia, probably due to financial issues, language barriers, fear of the dentist, and many more. Conclusions from other studies indicate that the financial aspect and the lack of adequate dental insurance is one of the leading issues for not seeking dental treatment 27, 28. As for language barriers, refugees and migrants must be able to communicate with healthcare workers. Specialized translators should be at the disposal of refugees and migrants at all times when seeking medical treatment.

This study was among the first attempts to tackle the habits, attitudes, and behavior of refugees and migrants in Serbia in relation to oral health. The study had, however, certain limitations. The sample size of this study can be considered a limitation. Since special permissions were necessary to be obtained prior to every visit to the migrant centers, we limited the sample group to two migrant centers situated in Belgrade. In addition to the excluding factors, an element that also impacted the sample size was that not all residents of the migrant centers were at the premises at the time of conducting the interview.

The number of male participants was dominant in comparison to the number of female participants, which could be seen as a limitation. However, the majority of migrants and refugees in Serbia in 2019 were male  $^{2}$ .

The lack of clinical examinations is one of the shortcomings of this study. Patients with decayed, missing due to caries and filled teeth in the permanent teeth (DMFT) and community periodontal index of treatment need (CPITN) oral status were not registered, and this study did not include radiographs.

Obtaining this information about migrants and refugees would further explain how habits, attitudes, and behavior impact the oral health of migrants and refugees. Clinical examinations should be conducted in future studies.

#### Conclusion

Based on the study findings, we can understand that in order to provide a safer and healthier environment, attempts should be made to educate and motivate refugees and migrants to maintain oral health. The public healthcare system should focus on refugees and migrants as an at-risk population and make a specialized strategy for them. With a large number of refugees and migrants coming every day to Serbia and other European countries, this public health care issue should be prioritized and further analyzed. Early identification of oral health issues may mean less costly procedures, which would be in the best interest of patients needing dental treatment. Health care providers should have in mind the specifics of the migrant population and adjust procedures and treatment to their needs. The ultimate goal is to preserve and improve oral health among refugees and migrants in Serbia.

## Acknowledgement

The authors thank the Ministry of Health of the Republic of Serbia and the Commissariat for Refugees and Migration of the Republic of Serbia, as well as the personnel of the migrant centers Obrenovac and Krnjača.

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Received on January 27, 2021 Revised on March 17, 2021 Accepted on April 20, 2021 Online First April 2021

Mandinić Z, et al. Vojnosanit Pregl 2022; 79(9): 897-903.