



Evaluation of periodontal status and treatment needs of the Serbian Armed Forces population

Procena stanja parodonticijuma i potrebe lečenja profesionalnih pripadnika Vojske Srbije

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Abstract

Background/Aim. Periodontal disease is the second most common diseases after dental decay. The aim of the study was to determine frequency and seriousness of the periodontal disease, and periodontal treatment needs among the participants of the Serbian Armed Forces (SAF). **Methods.** A prospective cross-sectional study carried out on 1,411 military personnel aged 19–64 years (mean age: 35.20 ± 8.46 years). Periodontal health was recorded following the Community Periodontal Index (CPI) of Treatment Needs (CPITN). The frequency distributions were studied with regard to age groups, gender and military rank. The mean number of sextants affected per person was assessed. **Results.** Only 3% of the total SAF population had healthy periodontal tissue. The highest percentage of the studied population had the presence of calculus (42.7%), and the mean value of sextants with calculus was 1.77 per person. 35.8% of participants had the CPI score 3 (4–5 mm), and 5.4% of participants had the CPI score 4 (≥ 6 mm). Periodontal pockets (CPI score 3 and 4) were mostly present in the upper right (32%) and left (26%) sextant. Almost every subject needed better oral hygiene maintenance, but 41.2% of our participants required complex periodontal treatment. **Conclusion.** On the basis of all data, the treatment needs of SAF participants are big and vary in relation to the age, gender and military rank. Unfortunately, a dramatically small number of participants in the study had a completely healthy periodontium.

Key words: epidemiology; military personnel; oral health; periodontium; periodontal diseases; periodontal index; serbia.

Apstrakt

Uvod/Cilj. Parodontalna bolest je, posle karijesa, druga najčešća stomatološka bolest. Cilj studije bio je da odredi učestalost i težina periodontalne bolesti kao i potrebe lečenja među pripadnicima Vojske Srbije. **Metode.** Prospektivna studija preseka izvedena je na 1 411 profesionalnih vojnika starosti 19–64 godina (prosečne godine: 35,20 ± 8,46). Periodontalno zdravlje ispitanika praćeno je indeksom stanja periodoncijuma – CPI i potrebama lečenja u zajednici (CPITN). Ispitivana je učestalost raspodele u odnosu na starosne grupe, pol i čin u vojsci. Procenjavana je srednja vrednost zahvaćenih sekstanata po osobi. **Rezultati.** Samo 3% ukupne ispitivane populacije profesionalne vojske Srbije imalo je zdrav periodoncijum. Najveći procenat ispitanika imao je prisutan zubni kamenac (42,7%), a srednja vrednost sekstanata sa zubnim kamencom bila je 1,77 po osobi. 35,8% ispitanika imalo je CPI skor 3 (4–5 mm), a 5,4% CPI skor 4 (≥ 6 mm). Dubina periodontalnih džepova (CPI skorovi 3 i 4) najčešće je bila prisutna u gornjem desnom (32%) i gornjem levom (26%) sekstantu. Skoro svaka osoba imala je potrebu za obukom u vezi sa oralnom higijenom, a 41,2% naših ispitanika imalo je potrebu za kompleksnom periodontalnom terapijom. **Zaključak.** Potrebe lečenja pripadnika profesionalne vojske Srbije velike su i raznovrsne i variraju u odnosu na godište, pol i čin u vojsci. Na žalost, zabrinjavajuće mali broj ispitanika imao je potpuno zdrav periodoncijum.

Ključne reči: epidemiologija; vojni kolektiv; usta, zdravlje; periodoncijum; periodontalne bolesti; periodontalni indeks; srbija.

Introduction

Periodontal disease (PD) is one of the most ubiquitous diseases of mankind, considered to be the second most common dental diseases worldwide, after dental decay¹. Global Burden of Disease Study (GBD), 1990–2010 showed that the advanced form of periodontitis is the sixth most common condition affecting 11.2 % or 743 million people throughout the world aged between 15 and 99. Global presence of periodontal disease increased by 57.3% from 1990 until 2010^{2,3}. Research results have demonstrated that the incidence of advanced form of periodontal disease did not change over the twenty year period. These age-standardised incidence and prevalence are similar for males and females. The prevalence of advanced periodontal disease increases with age (gradually between the third and fourth decade of life) and reach its peak at the age around 40 years⁴.

Male population of the average age 38 dominate in the population of military officers participants^{5,6}. From the military service perspective, oral and periodontal health is especially important, because loss of periodontal health can be negatively reflected on the professional performance of officers and military personnel. In other words, the oral health of military personnel has a significant impact on military operations since untreated oral conditions can result in increased rates of disease and non-battle injury for deployed soldiers⁷.

According to our knowledge there have been no published epidemiological studies related to gingival or periodontal health among professional soldiers in Serbia. There is only one study concerning the frequency and possible risk factors of periodontal disease among military personnel in Serbia⁸. This information is very important for establishing priorities and defining the kind and quantity of prevention and the need for medical treatment, as well as to ensure the presence of qualified personnel.

The aims of this study were to determine in detail the frequency and severity of periodontal disease, as well as the treatment needs among Serbian Army respondents, presented through the Community Periodontal Index (CPI) of treatment needs (CPITN). Also, we wanted to determine the association of age, gender and military rank with the prevalence of periodontal disease in this population, and to compare obtained results with similar studies in other countries.

Methods

A prospective cross-sectional study was designed. The sample consisted of 1,411 Serbian permanent-force military personnel, aged from 19 to 64 (mean age: 35.20 ± 8.46) years. The subjects' age, gender and military rank were recorded. The study lasted for 20 months. The sample size was calculated according to the results of the initial part of this study (25% prevalence of CPI codes 3 and 4 among Serbian permanent-force military personnel). With the test power of 0.8 (80%), alpha probability of 0.05 and allowable error of $\approx 10\%$, the calculated number of participants was at least 1,400. The calculation was based on formula: $N = 4PQ/d^2$; P

= prevalence (initial study), Q = 100-P, d = allowable error (5%–20% of P).

The including criteria were professional military officers employed in the army in all the regions of Serbia. The excluding criteria were all system diseases that could harm in any way general or oral health of a studied participant, as well as the lack of corresponding teeth for evaluation.

The Clinical Research Study Protocol and the positive opinion were obtained from the Military Medical Academy (MMA) Ethics Committee. All participants of the study filled in a Volunteer Consent Form for participation in the study, and subsequently they were sent to the oral clinical examination. The clinical examination was conducted by three calibrated periodontists using dental mirrors and a specially designed World Health Organization (WHO) periodontal probe (CPITN probe), not employing a force greater than 20 g, following WHO criteria (WHO 1987). Six sextants were examined in every participant, and the index teeth were the following: 17, 16, 11, 26 and 27 in the upper jaw, and 37, 36, 31, 46 and 47 in the lower jaw. Only those sextants containing at least 2 functional teeth were examined; otherwise they were not included in the study.

The depth of the periodontal pockets was measured on 6 locations around each tooth. Each sextant was designed as: CPI code 0 – healthy, CPI score 1 – bleeding on probing, CPI score 2 – the presence of calculus, CPI score 3 – the depth of periodontal pockets 4–5 mm, and CPI score 4 – depth of periodontal pockets of 6 mm and more. In each sextant only the highest value for each sextant was scored and recorded⁹.

Statistical analysis

Complete statistical analysis of data was done with the statistical software package SPSS Statistics 18. Most of the variables were presented as number (frequency) of certain categories, while statistical significance of differences was tested with the χ^2 test. In case of continuous data, variables were presented as mean value \pm standard deviation (SD). Kolmogorov-Smirnov test was used for the evaluation of distribution of these data. Statistical significance between groups was tested by *t*-test and one-way ANOVA test. All the analyses were estimated at minimal $p < 0.05$ level of statistical significance.

Results

A total of 1,411 Serbian military officers were examined. There was a big disproportion in the number of male (89.7%) and female (10.3%) participants. Also, a statistically significant difference in the age was observed between the tested groups of men and women (35.85 ± 8.48 vs 29.55 ± 5.80 years, respectively). The average age of the participants was 35.2 ± 8.46 years. The majority of participants aged 25–34 years (39.1%). The ratio of officers: non-commissioned officers was 1 : 2 (Table 1). Also, non-commissioned officers were statistically significantly younger.

Table 1
Basic demographic and professional characteristics of subjects

Parameters	n (%)	Age (years) mean \pm SD	Test (<i>p</i>)
Gender			
male	1,266 (89.7)	35.85 \pm 8.48	<i>t</i> = 11.71
female	145 (10.3)	29.55 \pm 5.80	(< 0.001)
Age category (years)			
\leq 24	153 (10.8)	22.39 \pm 1.35	
25 – 34	552 (39.1)	29.80 \pm 2.93	F = 3846.09
35 – 44	471 (33.4)	39.03 \pm 2.94	(< 0.001)
45 – 64	235 (16.7)	48.56 \pm 2.83	
Military rank			
officer	482 (34.2)	36.68 \pm 8.77	<i>t</i> = 4.67
corporal	929 (65.8)	34.43 \pm 8.19	(< 0.001)
Total	1,411 (100.0)	35.20 \pm 8.46	

SD – standard deviation.

Taking into account the total examined population, only 3% of the study participants had a completely healthy periodontium (Table 2). The presence of periodontal pockets (scores 3 and 4) was detected in very high percentage (41.2%) of tested subjects. Calculus was present equally in both genders, but significantly more women had a completely healthy periodontium compared to men (26.9% vs 2.4%, respectively), as well as gingival inflammation (8.3% vs 11.5%, respectively).

In the age group from 35 to 44, shallower periodontal pockets were present in 44.8%, but the older group (45–64 years) had periodontal pockets with CPI scores 3 and 4 in 69.3% of cases. In the military rank category, there was no significant difference in comparison with all tested CPI scores. Score 2 prevailed in both populations also in this group (39.6%/44.3%).

The analysis of all the participants regarding the presence of CPI score per sextants (data not shown) indicated

that 14.7% sextants per person (mean 0.881) had healthy periodontium and 37% (mean 2.226) were affected by gingival bleeding. At the same time, calculus was present in 29.6% (mean 1.773). Periodontitis and the presence of periodontal pockets of 4–5 mm or larger than 6 mm were found in 14.8% (mean 0.888), i.e. 1.3% of sextants per person (mean 0.075).

Analysing the CPI score per sextants with regard to gender, it was shown that women had 1,676 sextants per person with a completely healthy periodontium, as opposed to men who had only 0.791 healthy sextants per person. Gingival bleeding was the most common in both populations. Periodontal pockets (CPI score 3 and 4) were present in an average of 17% sextants per male participants which is significantly higher than in female participants (7.1%) (Table 3, Figure 1).

Regarding the age category, the youngest population had 1.32 sextants per person with the healthy periodontium, but also one half of sextants (50%) had gingival bleeding.

Table 2
Number and percentage of subjects with different CPI scores by gender, age and rank

Parameters	CPI score					Total
	0	1	2	3	4	
Gender						
male	31 (2.4)	145 (11.5)	541 (42.7)*	474 (37.4)	75 (5.9)	1,266 (100.0)
female	12 (8.3)	39 (26.9)	62 (42.8)*	31 (21.4)	1 (0.7)	145 (100.0)
Significance	$\chi^2 = 54.28$; <i>p</i> < 0.001; both gender categories, comparison to normal distribution.					
Age category (years)						
\leq 24	10 (6.5)	47 (30.7)	72 (47.1)*	24 (15.7)	0 (0.0)	153 (100.0)
25–34	24 (4.3)	98 (17.8)	275 (49.8)*	152 (27.5)	3 (0.5)	552 (100.0)
35–44	5 (1.1)	32 (6.8)	195 (41.4)	211 (44.8)*	28 (5.9)	471 (100.0)
45–64	4 (1.7)	7 (3.0)	61 (26.0)	118 (50.2)*	45 (19.1)	235 (100.0)
Significance	$\chi^2 = 285.20$; <i>p</i> < 0.001; all age categories, comparison to normal distribution.					
Military rank						
officer	24 (5.0)	70 (14.5)	191 (39.6)*	176 (36.5)	21 (4.4)	482 (100.0)
corporal	19 (2.0)	114 (12.3)	412 (44.3)*	329 (35.4)	55 (5.9)	929 (100.0)
Significance	$\chi^2 = 13.40$; <i>p</i> = 0.009; both military rank categories, comparison to normal distribution.					
Grand total	43 (3.0)	184 (13.0)	603 (42.7)	505 (35.8)	76 (5.4)	1,411 (100.0)

Data are presented as number (%).

CPI – Community Periodontal Index; * – maximal percent value in rows.

Table 3**Mean number and percentage of sextants per person for each score by age category and military rank**

Parameters	Inclined sextants/per patients [mean (%)]					
	CPI score					X-excluded sextant
	0	1	2	3	4	
Gender						
male	0.791 (13)	2.198 (37)	1.820 (30)	0.945 (16)	0.084 (1)	0.163 (3)
female	1.676 (28)	2.476 (41)	1.372 (23)	0.393 (7)	0.007 (0.1)	0.076 (1)
Age category (years)						
≤ 24	1.320 (22)	2.980 (50)	1.379 (23)	0.307 (5)	0.000 (0)	0.013 (0.2)
25–34	1.074 (18)	2.621 (44)	1.670 (28)	0.580 (10)	0.005 (0.1)	0.049 (0.8)
35–44	0.696 (12)	1.985 (33)	1.936 (32)	1.132 (19)	0.076 (1)	0.174 (3)
45–64	0.515 (9)	1.294 (22)	1.949 (32)	1.502 (25)	0.289 (5)	0.451 (7)
Military rank						
officer	1.060 (18)	2.212 (37)	1.687 (28)	0.882 (15)	0.058 (1)	0.102 (2)
corporal	0.789 (13)	2.235 (37)	1.819 (30)	0.891 (15)	0.085 (1)	0.181 (3)

CPI – Community Periodontal Index.

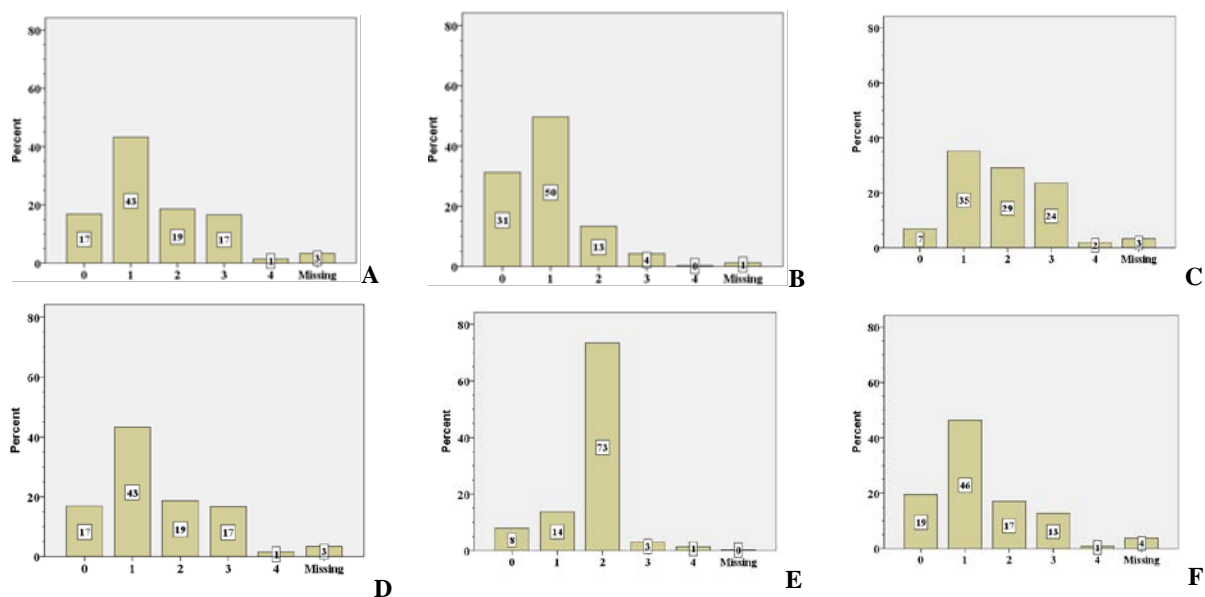


Fig. 1 – Percentage of Community Periodontal Index (CPI) score divided into 6 sextants (A:17-14; B:13-23; C:24-27; D:44-47; E: 33-43; F:34-37).

Except in the oldest group, gingival bleeding was most prevalent in all tested age groups. Interestingly, calculus per sextants was present in approximately the same percentage in all analysed categories (age, gender, military rank). The most visible destructive changes in periodontium were found in the oldest population in which rise in scores 3 and 4 per sextants was detected (Table 3). All CPI scores per sextants had almost identical values in both tested populations (officers and non-commissioned officers) (Table 3).

Upper left and right sextants, which had similar CPI scores, were mostly affected by pathological changes of the periodontium (Figure 1). Periodontal pockets were also present mostly in these sextants (CPI score 3 and 4). Healthy periodontium was mostly found in upper middle sextant (32%).

The results illustrated in Table 4 indicate that giving instruction of oral hygiene was required in 97% of participants, whereas 84% of them needed motivating alongside with scal-

ing and root planning. Finally, 41.2% of subjects needed a complex periodontal treatment. Only 3% of participants had a completely healthy periodontium (no need for any periodontal therapy).

The results also showed that there were numerous gender differences concerning treatment needs. Motivation in the maintenance of oral hygiene and plaque control was necessary in 97.6% of men and 91.7% of women. Scaling and root planning were needed in 86% of men and 64.9% of women. The most significant difference between genders was observed in the need of performing complex periodontal treatments (43.3% in male population and 22.15% in female population). Treatment needs distribution in relation to age had an increasing trend with increasing age, so the youngest population had the smallest need for treatment, especially for the complex periodontal treatment (15.7%) in comparison to the oldest population (64.4%). It is interesting that 50.7% of the most active and the most important population from the

Table 4

Parameters	Distribution of treatment needs (TNs) in corresponding gender, age and military rank			
	No need	TNs		
	Healthy periodontium	Instruction of oral hygiene	Scaling and root planning	Complex periodontal treatment
Gender				
male	31 (2.4)	1,235 (97.6)	1,091 (86)	549 (43.3)
female	12 (8.3)	133 (91.7)	94 (64.8)	32 (22.1)
Age category (years)				
≤ 24	10 (6.5)	143 (93.5)	96 (62.7)	24 (15.7)
25–34	24 (4.3)	528 (95.6)	430 (77.9)	155 (28.1)
35–44	5 (1.1)	466 (98.9)	434 (92.1)	239 (50.7)
45–64	4 (1.7)	231 (98.3)	224 (95.3)	163 (69.4)
Military rank				
officer	24 (5.0)	458 (95.0)	388 (80.5)	197 (40.9)
corporal	19 (2.0)	910 (97.9)	796 (85.7)	384 (41.3)
Total	43 (3.0)	1,368 (96.9)	1,184 (83.9)	581 (41.2)

All values are expressed as number (percentage).

age of 35 to 44 years had a need for a complex periodontal treatment (Table 4).

With regard to the military rank, it is noticeable that officers in 5% of cases did not need any periodontal treatment, while this percentage was smaller in non-commissioned officers (2%). Regarding treatment needs, both categories showed almost the same treatment needs (Figure 2).

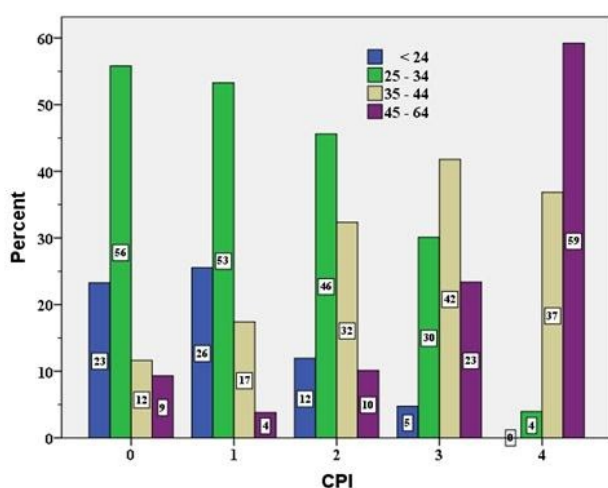


Fig. 2 – Community Periodontal Index (CPI) according to age-groups.

Although the youngest category (aged 15 to 24 years) was present with only 10.8% in the whole group, its participation in CPI categories 0 and 1 was 23% and 26%, respectively. On the other hand, the oldest category was present with 16.7% in the sample, but its presence in CPI categories 3 and 4 was 23% and 59% respectively (Figure 3). Figure 3 illustrates the distribution of genders in relation to CPI. Although there were only 10.3% of the female population in the whole sample, its presence in categories CPI 0 and 1 was 28% and 21%, respectively. In the relatively low percentage of the female population, categories 3 and 4 have been registered. A quite opposite trend was shown in the male population – 99% of the total number of study participants with CPI 4 were of the male gender (Figure 4).

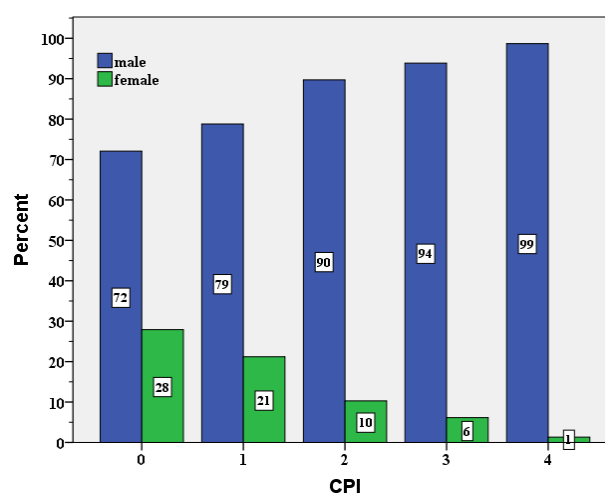


Fig. 3 – Community Periodontal Index (CPI) according to gender category.

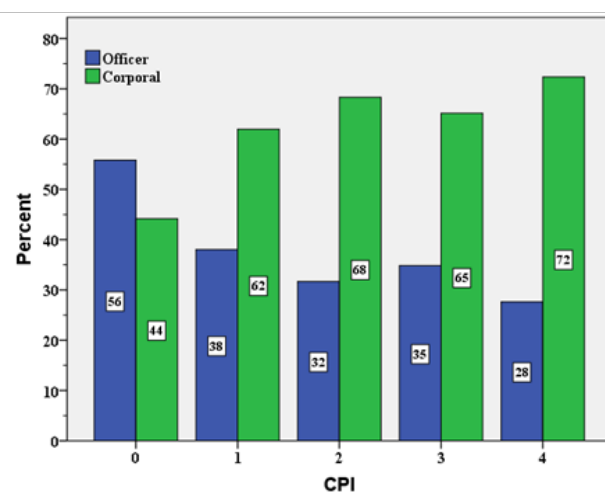


Fig. 4 – Community Periodontal Index (CPI) according to military rank.

Figure 4 shows the distribution of officers and non-commissioned officers in relation to CPI. Although there were 34.2% of officers in the whole sample, their presence in

CPI categories 0 and 1 was 56% and 38%, respectively. This indicates a slightly better condition of oral health regarding the starting CPI categories. In higher CPI categories these differences completely disappeared.

Discussion

According to our study, people with completely healthy periodontal tissues (CPI score 0, average age of 35.2 years) were in minority. A significantly larger percentage of healthy sextants was found in Italian officers (40.95%), in group of cadets (57.95%) whose average age was between 19–25 years¹⁰, in Danish military population whose average age was 25 (53%)¹¹, as well as in the Spanish military personnel¹². Also, other authors have shown that the percentage of people with a healthy periodontium depends on age and ranges from 5% to 10%^{13–15}. In contrast to these findings, Israeli permanent military force population had 1.19% of healthy periodontium in all sextants¹⁰, and the civilian population in India had 1.7%¹⁶.

In our study the prevalence of the tested military personnel with healthy sextants showed a statistically relevant difference in relation to gender and age. A significantly higher percentage of women had a healthy periodontium – two times higher prevalence of healthy periodontium per sextants compared to men (1.68 vs 0.79, respectively). These results are in accordance with the results of other authors^{10–12, 17}. It could be explained by good habits and greater awareness of women, as well as their care for maintaining good oral hygiene, but also by the fact that in our study women were statistically significantly younger ($p < 0.001$), accounting for only 10.3% of the total number of study participants.

As expected, the youngest military population (< 25 years) had on average 1.32 healthy sextants and there was a declining trend with the increase age. Namely, the percentage of healthy sextants in tested subjects under 25 years of age was 22%, while among the oldest it was almost three times lower (8.6%). These results were identical to the findings of Katz et al.¹. However, our findings were not in agreement with the results of Mombiedro-Sandoval and Llana-Puy¹², whose study participants (Spanish military personnel) were significantly younger (average age 27.39), than our subjects (average age 35.2). On the other hand, no difference was observed between groups of officers and corporals, even though other authors have shown that people with a higher level of education have fewer dental ailments than people with lower level of education¹. In general, a small percentage of healthy sextants in our tested subjects can be explained by inadequate oral hygiene habits, fear from dental interventions, the lower level of awareness for the importance of oral health, as well as numerous professional officers' duties, frequent military drills, operational tasks.

In this research we have shown that the highest percentage of the studied population had the presence of calculus (42.7%), and the mean value of sextants with calculus was 1.77 per person. The percentage of calculus varied in various studies^{1, 8, 12, 13, 15, 18}. The presence of calculus per sextants in

male subjects was more dominant compared to female subjects (1.82 vs 1.37, respectively), and with the increase in age the mean value of sextants with calculus was also increasing and was in range 1.38–1.95. With regard to the military rank, both tested categories (males and females) had very similar mean values of calculus per sextants.

In our study, most of the sextants on average were affected by gingival bleeding (37.1%; mean 2.23). The incidence of gingivitis per sextants among age groups was present as follows: higher proportion in the youngest population (50% of cases) and lower proportion among participants ages 45–64 years (22% of cases). Unlike our results, in other studies, the mean value of sextants with signs of gingival inflammation did not exceed 1.5 sextants per person^{10, 19}. Similar results of the presence of gingivitis in female population (37.9%) were obtained by Al Mugeiren¹⁷.

The total prevalence of people with periodontal pockets of both types (CPI score 3 and 4) was around 16%, which was in accordance with a studied American military population (average age 30)²⁰, as well as with the personnel in the Israeli army²¹. However, the results of many studies, conducted in younger population, have shown a smaller percentage of area affected by periodontal disease^{10–12}. When we analysed the age groups, we found that the oldest group had the most frequent and deepest periodontal pockets. Unlike the oldest group, the participants under the age of 25 had on average 0.31 or 0.0 sextants with periodontal pockets. This was in agreement with the results of other authors^{1, 14, 21–23}. Analysing data from WHO GODB²⁴, it can be concluded that in a large number of countries the prevalence of people with deep pockets was less than 22.4%, while in our study 35.8% of participants had the highest CPI score 3 (4–5 mm), and 5.4% of participants had the biggest CPI score 4 (≥ 6 mm).

Concerning the third variable related to the military rank, it was shown that officers and corporals had almost the same values of all tested parameters. These results were in general in accordance with the study of Mombiedro-Sandoval and Llana-Puy¹², except with regard to gingivitis and more shallow periodontal pockets.

Periodontal pockets (CPI score 3 and 4) were mostly present in the upper right (32%) and left (26%) sextant, and also in 3.4% of cases this sextant was missing (edentulous X). Anyway, the lower right sextant (44–47) was the most jeopardised one regarding tooth loss. On average, 3.7% of this sextant was missing, and as a consequence, in the majority of cases this sextant was not included in our study. Correlation between the presence of all periodontal pockets and tooth loss could indicate that the missing teeth were removed due to periodontitis that was insufficiently treated, especially in the upper right and left region. The distribution of risk factors in the onset and development of periodontal disease generally has a significant impact on the severity and frequency of the disease. It is known that there is a positive correlation between the prevalence of attachment and tooth loss²⁵. Upper anterior teeth (13–23) had healthy sextants in the highest percentage (31.3%) compared to other sextants, but on average 1.2% of the sextant was missing. The smallest

number of missing teeth was in the lower anterior sextant (0.4% of sextants). Male participants had more missing teeth than female participants (ratio 3 : 1, respectively). Analysing the group of participants with respect to their age, significant difference in the number of missing teeth was found. This finding also fits with the results of research conducted in some European countries²⁵.

Considering the goal of treatment needs of the military environment, it is necessary to achieve good general health condition (especially oral health) to be able to train and to take part in exercises, manoeuvres and deployments²⁶. In our study, the biggest need (over 96% of all participants) was for adequate training and maintenance of oral hygiene. This percentage is almost the same in all tested variables and their categories. Our findings are similar to the findings of other authors^{11, 13, 27}. Only scaling and root planning, as well as the removal of all factors that cause dental biofilm accumulation, should be carried out in the smallest proportion in the youngest population (62.7%) and in women (64.8%), but in the largest proportion in the oldest population (95.3%). Complex periodontal treatment required 41.2% of our participants, which is much more compared to results of Mombiedro-Sandoval and Llena-Puy¹². People aged from 35 to 44 and 45 to 64 had advanced periodontitis and a need for a complex treatment of periodontium in 50.7% and 69.4% of cases, respectively. This kind of interventions should be performed by a periodontist, which is difficult to be achieved in military health centres. Moreover, this kind of treatment takes time and requires several session, which would oblige military officers to be absent from their regular activities. This is something that definitely implies the need for a detailed plan in the resolution of the current situation, and it is definitely necessary to make a lasting and multi-year plan. The plan would emphasize the preventive programme, which would be implemented by general dentists in military health centres, in order to reduce the health, social and economic consequences at a later age.

Conclusion

Unfortunately, a dramatically small number of people have a completely healthy periodontium. Twice as many men suffer from periodontitis compared to women. On the basis of all data, the treatment needs are significant, and diverse and vary depending on age, gender and military rank. It is obvious that there is insufficient information about the importance of oral and periodontal health, as well as of the correct maintenance of oral hygiene. The capacity of dental service should definitely be increased. All military garrisons should be equipped with a dental office and full-time dentists. Dentists should also introduce an obligatory screening for this group of subjects, to hold educational programmes of primary health protection through multimedia presentations and short lectures, in order to increase the awareness of the population about the importance of oral hygiene and early diagnostics of gingival and periodontal diseases. These activities should generally impact the army's capability in performing the most delicate duties in hard conditions.

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Conflict of interest

There are no a conflict of interests.

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