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Oral Health and Specific Impact of Caries on the Quality of Life of Middle-Aged People

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SUMMARY

Introduction Dental caries is still an important social health problem in many countries. The aim of this study was to determine the incidence and impact of oral discomfort, particularly caused by dental caries on the quality of life of middle-aged people as well as the association between oral problems caused by caries and the current status of teeth.

Material and Methods The study included 72 patients, age 25-45 years. Serbian version of the questionnaire Oral Impacts on Daily Performance (OIDP) was used to determine the overall impact of oral health as well as the specific effect of caries (SP-OIDP) on the quality of life. To determine the status of teeth the DMFT index was used.

Results The incidence of oral health impact on daily activities was 68.1%. Carious teeth affected food intake (40.0%) and brushing teeth (31.0%) but had no effect on showing teeth and maintaining normal emotional state. Caries was the cause of oral discomfort in more than half of the respondents. Of all clinical variables only DMFT>22 was associated with the SP-OIDP score after inclusion of socio-demographic factors in the analysis (rs=0.273).

Conclusion The results of this study indicate that the incidence of the effect of oral conditions on the quality of life is high with most respondents showing difficulties while eating. Using specific questionnaire it was noted that dental caries had a significant effect on oral functions of respondents. Also, there was a significant correlation between dental status and the quality of life of middle-aged people.

Keywords: DMFT index; quality of life related to oral health; OIDP; caries prevalence

INTRODUCTION

Oral health is traditionally assessed based on the presence of oral diseases and disorders, and verified by clinical examination and different dental indices. In the recent years, considerable attention in epidemiological and clinical research has been devoted to negative effects of oral diseases, dental caries, periodontal diseases and traumas on the quality of life of individuals [1]. Quality of life related to oral health is based on the fact that the consequences of diseases or conditions cannot be determined by clinical examination only and it is a multidimensional concept that applies not just to "physical well-being" of an individual, but also to psychological and social dimensions of everyday life [2]. To cover this area, in the recent years, standardized questionnaires that can assess the impact of oral health on the quality of life have been developed. They differ in area they cover, the total number and form of questions and the type of answers.

Clinical findings and subjective assessment of oral health are not always in agreement showing that objective measures do not always represent the perception of an individual [3, 4]. Also, a little is known about individual factors that affect the quality of life related to oral health. In previous studies the association between the quality of life and clinical parameters that affect function and esthetics such as number of teeth, missing anterior teeth and the number of occluding teeth has been found [5-10]. The impact of caries on the quality of life is clear but not completely understood. Some studies have indicated the association between the quality of life related to oral health and dental caries [8, 9, 11]. However, Tsakos et al. [7, 12], Srisilapanan and Sheiham [10] have not confirmed this association. Dental caries affects the quality of life because it is one of the most common causes of pain in the oro-facial region [13], but also through other mechanisms such as dissatisfaction with teeth appearance, teeth loss or functional limitations due to teeth loss.

Caries prevalence is much higher in the studied age population in Republika Srpska [14] compared to other European countries [15, 16]. It is certain that poorer oral health status can significantly affect the quality of oral health as confirmed in the group of children and elderly people [7, 10, 12, 17], however, this association has not been studied in middle-aged population. In most studies, questionnaires used to examine the association between caries and the quality of life have been able to assess the impact of general oral conditions on the quality of life without analyzing individual factors. In a small number of studies specific questionnaires that analyzed the effect of caries on the quality of life have been conducted in children [18, 19, 20].

The aim of this study was to determine the incidence and impact of oral discomforts especially caused by caries on the quality of life of middle-aged population, i.e. the association of oral problems and carious teeth.

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MATERIAL AND METHODS

The cross sectional study was conducted at the Department of Dental Medicine of the Faculty of Medicine, Foca, University of East Sarajevo in the period from July to October 2012. Seventy two respondents of both genders (30.6% male and 69.4% female) age 25-45 years (mean age 32.78±5.11 years) were included in the study. The target population was selected randomly from people who accompanied dental patients. All of them signed written consent after they were explained the objectives and the expected outcomes of the research.

Data were collected using questionnaires and by clinical examination. Each participant filled in an anonymous questionnaire that related to socio-demographic characteristics: age, gender, level of education (completed primary school, secondary school, high school, university college or more), employment (employed full-time, employed part-time, unemployed). To determine the impact of oral health on the quality of life, Serbian version of the Oral Impacts on Daily Performance (OIDP) questionnaire was used. It was previously verified for the psychometric validity, reliability and sensitivity to change for the territory of Bosnia and Herzegovina [21]. In addition to measuring the overall impact of oral health on the quality of life using general OIDP questionnaire, the specific OIDP questionnaire (SP-OIDP) was used to determine the impact of caries on the quality of life. Oral discomforts caused by toothache, sensitive teeth, cavities, fractured fillings and pain after filling placement were specific effects of caries on the quality of life [20]. Each individual was asked about difficulties during eating, speaking, cleaning teeth, sleeping, resting, showing teeth without embarrassment, emotional state, performing light physical activity, social contacts, or enjoy spending time with other people due to oral problems (OIDP) or problems with caries (SP-OIDP) in the last six months. Respondents who gave positive answer to any of questions were asked about the frequency and severity of problems using a five-point scale. Respondents who had difficulties permanently provided answers from "less than once a month" (1) to "every day" (5), while respondents who had difficulties a certain period gave answers from "up to 5 days in total "(1) to "more than 3 months" (5). Using the scale from 0 to 5 the severity of the impact of oral problems on daily life was determined. SP-OIDP and OIDP were expressed as a sum of scores that were obtained by multiplying the frequency and severity of the impact of oral problem for each activity, divided by the maximum possible score. Higher OIDP scores indicated worse quality of life.

Clinical examinations were performed at the dental clinic of the Faculty of Medicine in Foca using artificial light, mirror and dental probe according to the standards and criteria of the World Health Organization [22]. Dental radiography was not done due to practical and ethical reasons. The status of all teeth including third molars was determined; each surface of the teeth was examined. The prevalence of dental caries was determined using the DMFT index and its components (D – decayed, M – missing, F – filled). Clinical examination was carried out by one dentist who was trained by another experienced dentist in this research field. The value of intraexaminer compliance was measured by kappa coefficient (0.83).

Statistical analysis was performed using SPSS 19.0 (IBM Corp., Armonk, NY, USA). Results were presented as mean and standard deviation for numerical data, or frequency for ordinal data. Due to the low frequency, independent variables with three or more groups were dichotomized: the level of education (completed primary and secondary school/ college, college or more), employment (employed full-time and part-time employment/ unemployed). In addition, the DMFT index was dichotomized according to the value in the last quartile in the frequency of this index (DMFT>22). Correlation of clinical variables with SP-OIDP score was determined using Spearman's correlation analysis. Values of $p<0.05$ were considered statistically significant in all analyzes.

RESULTS

Socio-demographic characteristics of respondents are shown in Table 1. More than half of the respondents were

Table 1. Sociodemographic variables, dental status and OIDP and SP-OIDP values in the study population
Tabela 1. Sociodemografske varijable, stanje zuba i vrednosti OIDP i SP-OIDP u ispitivanoj populaciji

Assessed variables Ispitivane varijable			Value Vrednost
Sociodemographic variables Sociodemografske varijable	Gender Pol	Male Muški	22 (30.6)
		Female Ženski	50 (69.4)
	Age (years) Starost (godine)		32.88±5.37
	Education level Stepen obrazovanja	Primary and secondary Osnovno i srednje obrazovanje	40 (55.5)
		High school and colledge Više i visoko obrazovanje	32 (44.5)
	Employed Zaposlenje	Yes Da	48 (66.7)
		No Ne	24 (33.3)
Dental status Stanje zuba	Carious teeth Broj zuba sa karijesom		2.03±2.49
	Extracted teeth Broj ekstrahovanih zuba		4.42±3.95
	Filled teeth Broj plombiranih zuba		11.31±3.94
	DMFT Indeks KEP		17.75±5.62
	Total number of healthy teeth Ukupan broj zdravih zuba		14.25±5.62
	Total number of teeth Ukupan broj zuba		27.75±3.94
Questionnaire score Skor upitnika	OIDP		5.39±8.34
	SP-OIDP		3.05±6.61

The values are expressed as mean value ± standard deviation, or number of patients (%).
Vrednosti su izražene kao srednja vrednost ± standardna devijacija ili kao broj ispitanika (%).

Table 2. Frequency of OIDP and SP-OIDP and their impact on daily activities in the study population
Tabela 2. Učestalost OIDP i SP-OIDP i njihov uticaj na svakodnevne aktivnosti u ispitivanoj populaciji

Parameter Parametar	Frequency (%) Učestalost (%)	
	OIDP	SP-OIDP
Total OIDP Ukupan OIDP	68.1	54.2
Food intake Obedovanje	50.0	40.3
Speaking Govor	6.9	0.0
Teeth cleaning Pranje zuba	38.9	30.6
Sleep Spavanje	1.4	0.0
Rest Odmaranje	1.4	0.0
Laugh Smejanje	22.2	2.8
Emotional state Emocionalno stanje	20.8	5.6
Physical activity Fizička aktivnost	1.4	0.0
Social contacts Socijalni kontakti	13.9	2.8
Friendship Druženje	8.3	2.8

Table 3. Spearman's correlation (r_s) between the SP-OIDP and clinical variables in the study population*
Tabela 3. Spirmanova korelacija (r_s) između SP-OIDP i kliničkih varijabli u ispitivanoj populaciji*

Variable Varijabla		SP-OIDP	SP-OIDP**
Number of carious teeth >1 Broj karijesnih zuba >1	r	0.274	0.211
	p	0.020	0.084
Number of extracted teeth >1 Broj ekstrahovanih zuba >1	r	0.128	0.069
	p	0.283	0.573
DMFT >22 KEP >22	r	0.328	0.273
	p	0.005	0.024
Number of present teeth Broj prisutnih zuba	r	-0.248	-0.044
	p	0.036	0.722
Number of healthy teeth Broj zdravih zuba	r	-0.238	-0.172
	p	0.044	0.159

* The number of restored teeth is not included in the analysis because all respondents have more than one filling.
** controlled for gender, age, level of education and employment

* Broj saniranih zuba nije uključen u analizu jer su svi ispitanici imali više od jednog ispuna.
** kontrolisano za pol, starost, nivo obrazovanja i zaposlenje ispitanika

employed and had primary or secondary education. The mean value of DMFT index was 17.7, and the dominant component was filled (F) teeth (63.7%). The average number of present teeth was 27.7, while the average number of healthy teeth was 14.2. The average OIDP score was 5.4, while the value of SP- OIDP score was 3.0.

The overall incidence of oral impact on daily activities in the last six months was 68.1%. Oral problems were most pronounced during meals (50%), cleaning teeth (38.9%), showing teeth without discomfort (22.2%) and had an effect on maintaining normal emotional state (21%) (Table 2). In more than half of the respondents (54.2%) oral impact was related to tooth pain, sensitivity, tooth cavity (decay), fractured restorations and pain after placement of restoration. Dental caries was the most common cause of discomfort during eating (40.3%) and cleaning teeth (30.6%) (Table 2). Comparison of the frequency of oral discomforts due to the different conditions in oral cavity with oral discomforts caused by tooth decay only suggest that decay had lower impact on daily activities than the overall condition of oral cavity (Table 2).

Table 3 shows the correlation between SP-OIDP score and clinical variables. Poorer dental status (DMFT>22) and the existence of at least one carious tooth were associated with higher values of SP-OIDP score. In contrast, respondents who had higher number of present teeth (r=0.248), and healthy teeth (r=-0.238) had lower SP-OIDP score. After inclusion of socio-demographic variables (gender, age, level of education and employment) in the analysis, a significant correlation was observed only between SP-OIDP and DMFT>22 (Table 3).

DISCUSSION

This study highlights the impact of oral problems on individual's daily activities as well as the association between clinical status of teeth and the quality of life. Poorer dental status measured by the DMFT index is associated with higher SP-OIDP score. This finding points to the importance of using questionnaire for the assessment of the quality of life indicators to complement clinical findings. To assess the quality of life related to oral health several questionnaires were used. OIDP used in this study is multidimensional questionnaire that measures the frequency and severity of oral impact on daily activities of patients. It is based on a theoretical model of the World Health Organization and it is related to the third level measurements [23], thus showing strong coherence and less chance of double scoring of oral impacts at different levels [24]. It was proved valid and reliable in the number of studies in population o different cultures and age [9, 10, 25, 26]. Compared with others, this questionnaire allows determination of not only general but also the specific impact of oral disease on the quality of life.

About 68.1% of the respondents had at least one oral impact on daily activities. These results are similar to the results of the study of Dorri et al. [27] who found the value of OIDP score 64.9% in people age 20-50 years. Higher values of OIDP were recorded in people aged 35-44 years in Thailand (73.6%) [24] and Brazil (71.4%) [28]. On the other hand, the lowest prevalence of oral impacts was observed in elderly in the UK (13%) [29] and Norway (18.3%) [6]. These differences in results can be attributed to differences in oral health of patients as well as cultural differences and different measures applied for the assessment of the quality of life. In some studies the intensity of individual effect was determined which may limit the comparison results. However, it was noted that intensity determination does not improve psychometric characteristics for assessing the quality of life [30].

In the current study, the most pronounced difficulties were associated with eating and cleaning teeth. Also, oral problems showed a significant impact on showing teeth and maintaining normal emotional state, while there was a little impact on social dimension of oral health. Obtained results from the current study are in accordance with other studies that included people of different background, age and used different questionnaires to assess the quality of life [6, 24, 25]. These findings suggest that the status of oral health plays an important and complex role in middle age population not only in terms of function, but also in psychological domain.

In addition to determining the overall impact, it is possible to link oral discomforts with specific oral status (SP-OIDP). This is the first study where SP-OIDP was used to determine specific effect of caries on the quality of life in adults. As found in our study, toothache, sensitive teeth, decayed teeth, fractured fillings and sensitivity after restoration placement are responsible for 80% of all recorded oral discomforts. This can be attributed to relatively high prevalence of caries in patients in the current study which was also found in the study that assessed oral health of middle-age population in Republika Srpska [14]. More than half of oral impacts are the result of caries in younger population, even in those cases where caries prevalence is relatively low [19, 20].

Comparing the frequency of specific with general effects for each daily activity, it was found that caries had an impact on food intake and teeth cleaning, but did not affect showing teeth and maintaining normal emotional state. These findings suggest that discomforts caused by tooth decay in middle aged people affect their quality of life only due to functional limitations in daily activities without affecting the psychosocial sphere. The problem of showing teeth was not always associated with caries, but also with discoloration and position of teeth in the arch [31]. Also, toothache had lower impact on speech, smile and emotional stability [32]. Tooth sensitivity, toothache and caries had impact on almost all daily activities, but the least on those related to psychological and social aspects [33].

In the current study, there was observed weak but significant correlation between clinical indicators: dental caries, number of present and intact teeth, DMFT and quality of life. The highest coefficient value was 0.328; according to the psychometric standards it can be considered as low impact. This finding is probably not result of OIDP questionnaire limitations which has been shown to have excellent psychometric properties when applied in adult population in this region [5], but rather points to the conceptual and empirical distinction between health and disease. While clinical indicators determine a disease (biological concept) subjective indicators are more oriented towards health (a concept that is more oriented toward sociology and psychology) [8,34]. In those cases where the disease has an impact it is caused by individual expectations, material, social and psychological resources, and even more importantly, social and cultural values [34]. Studies that used SP-OIDP found a strong correlation between untreated caries and oral impacts caused by caries [18, 20], which has not been a case in the studies that used general questionnaire [35]. Taking into account that in the current study group 80% of oral discomforts resulted from caries, and that specific questionnaire was used to examine the linkage between subjective and objective indicators, the weak correlation between quality of life and clinical variables or the absence of their association, except for the DMFT>22, indicate remarkable influence of socio-demographic factors on the quality of life.

According to the model of Chen and Hunter [36], a socio-economic status, behavior related to oral health and oral status can affect the quality of life directly or indirectly, through oral health status. However, the worst clinical status had negative impact on daily life regardless of gender, age, employment and education level of the respondents. On the other hand, if DMFT index was used to assess the presence of caries, a correlation between caries and quality of life has not been observed [26, 37], except in cases where the caries prevalence was categorized based on disease severity [11, 17] which was done in the current study. It is important to note that the DMFT index is a cumulative index that measures currently present and earlier caries, however, it is important to summarize the individual susceptibility to the disease over time.

This study has some limitations. The sample consisted of people who came with dental patients so we expected that they cared more about their oral health. However, observed prevalence of dental caries in this study group was similar to that obtained in other studies in this region [14]. To obtain more representative data on the quality of life of middle aged population in this area, it is necessary to conduct extensive research with sample from general population. One of the shortcomings of this study is also the type of the study. Although this is a cross sectional study, there is no sufficient data about the specific impact of caries on the quality of life, especially in middle aged population. A prospective study could provide clearer picture of the association between the status of teeth and the quality of life as well as the relation between oral health and quality of life over time. Our research showed that quality of life depends on the status of teeth even after inclusion of socio-demographic factors in the analysis. For a more accurate determination of this bond and obtaining final conclusions it is important to include a number of factors in the multivariate analysis, not only socio-demographic, but also associated to the behavior related to own oral health.

CONCLUSION

Based on the results it can be concluded that there is high correlation between oral conditions and the quality of life. Discomforts caused by caries often lead to functional limitations in daily activities such as eating and cleaning teeth, but had no significant impact on the psychosocial domain. Poorer dental status, measured by DMFT index, was the only clinical variable that showed a significant correlation with the SP-OIDP.

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Oralno zdravlje i specifični uticaj karijesa na kvalitet života osoba srednje životne dobi

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KRATAK SADRŽAJ

Uvod Karijes je i dalje u mnogim zemljama značajan socijalno-medicinski problem. Cilj ovog istraživanja je bio da se utvrde incidencija i uticaj oralnih nelagodnosti, posebno onih uzrokovanih karijesom, na kvalitet života osoba srednje životne dobi, odnosno da se utvrdi povezanost oralnih problema uzrokovanih karijesom sa stanjem zuba.

Materijal i metode rada U istraživanje su uključene 72 osobe starosti 25–45 godina. Srpska verzija upitnika *Oral Impacts on Daily Performance* (*OIDP*) korišćena je za određivanje opšteg uticaja oralnog zdravlja i specifičnog uticaja karijesa (*SP-OIDP*) na kvalitet života ispitanika. Za određivanje stanja zuba korišćen je indeks KEP.

Rezultati Ukupna incidencija oralnog uticaja na dnevne aktivnosti bila je 68,1%. Poređenjem učestalosti specifičnih sa opštim uticajima za svaku dnevnu aktivnost uočava se da je karijes uticao na jedenje (40,0%) i pranje zuba (31,0%), ali ne i na pokazivanje zuba i održavanje uobičajenog emocionalnog stanja. Karijes je bio uzrok oralnih nelagodnosti kod više od polovine ispitanika. Od svih ispitivanih kliničkih varijabli samo je vrednost indeksa KEP veća od 22 bila povezana sa SP-OIDP skorom posle uključivanja sociodemografskih faktora u analizu (r_s=0,273).

Zaključak Rezultati ovog istraživanja pokazuju da je incidencija uticaja oralnih stanja na kvalitet života visoka, pri čemu su ispitanici imali najviše poteškoća tokom jela. Koristeći specifični upitnik uočeno je da karijes zuba ima značajan uticaj na oralno funkcionisanje ispitanika, te da postoji značajna korelacija između stanja zuba i kvaliteta života osoba srednje životne dobi.

Ključne reči: indeks KEP; kvalitet života u vezi s oralnim zdravljem; OIDP; prevalencija karijesa

UVOD

Oralno zdravlje tradicionalno se procenjuje na osnovu zastupljenosti oboljenja i poremećaja usta i zuba, a potvrđuje kliničkim pregledom i primenom različitih stomatoloških indeksa. U poslednje vreme značajna pažnja u epidemiološkim i kliničkim istraživanjima posvećuje se lošim uticajima oralnih bolesti, karijesa, parodontopatije i traumatskih oštećenja na kvalitet života pojedinca [1]. Kvalitet života u vezi s oralnim zdravljem zasnovan je na činjenici da se posledice bolesti ili stanja ne mogu potpuno utvrditi kliničkim pregledom i on zapravo predstavlja multidimenzionalni koncept koji se ne odnosi samo na „fizičko blagostanje" pojedinca, već i na njegovu psihološku i socijalnu dimenziju svakodnevnog života [2]. S tim u vezi poslednjih decenija su razvijeni standardizovani upitnici koji mogu proceniti uticaj oralnog zdravlja na kvalitet života. Ovi upitnici se međusobno razlikuju u pogledu širine koje pojedini upitnik obuhvata, ukupnog broja pitanja, formulacije pitanja, ali i vrste ponuđenih odgovora.

Ispitivanja o međusobnoj povezanosti kliničkih merenja oralnih bolesti i subjektivne procene oralnog zdravlja pokazuju da objektivne mere nisu uvek u saglasnosti s percepcijom pojedinca [3, 4]. Takođe, malo se zna o individualnim faktorima koji utiču na kvalitet života u vezi s oralnim zdravljem. U prethodnim istraživanjima uočena je povezanost kvaliteta života i kliničkih pokazatelja koji u velikoj meri utiču na funkcionalnu i estetsku komponentu, kao što su broj zuba, nedostatak zuba interkaninog sektora i broj okludirajućih parova [5-10]. Uticaj karijesa na kvalitet života je jasan, ali nepotpuno razjašnjen. Neke studije ukazale su na povezanost kvaliteta života u vezi s oralnim zdravljem i karijesa [8, 9, 11], dok s druge strane, Cakos (*Tsakos*) i saradnici [7, 12] i Srisilapanan (*Srisilapanan*) i Šajam (*Sheiham*) [10] nisu zapazili tu vezu. Karijes utiče na kvalitet života ljudi jer je najčešći uzrok bolnih stanja u orofacijalnoj regiji [13], ali i preko drugih mehanizama kao što su nezadovoljstvo izgledom zuba, gubitkom zuba ili funkcionalnim ograničenjem zbog gubitka većeg ili manjeg broja zuba.

Prevalencija karijesa je mnogo veća u ispitivanoj starosnoj populaciji na području Republike Srpske [14] u poređenju s rezultatima studija iz drugih evropskih zemalja [15, 16]. Sigurno je i da ovaj lošiji oralnozdravstveni status ispitanika može značajno da utiče na kvalitet oralnog zdravlja, pri čemu je uticaj karijesa na kvalitet života procenjivan kod dece ili kod starih osoba [7, 10, 12, 17], dok je vrlo malo podataka o osobama srednje životne dobi. Za ispitivanje povezanosti karijesa i kvaliteta života uglavnom su korišćeni generički upitnici, tako da dobijeni rezultati predstavljaju, u stvari, uticaj opšteg oralnog stanja na kvalitet života, bez analize pojedinačnih. U malom broju istraživanja primenjivani su specifični upitnici za određivanje uticaja karijesa na kvalitet života, a ona su urađena u dečjoj populaciji [18, 19, 20].

Cilj ovog istraživanja je bio da se utvrde incidencija i uticaj oralnih nelagodnosti, posebno onih uzrokovanih karijesom, na kvalitet života osoba srednje životne dobi, odnosno da se utvrdi povezanost oralnih problema uzrokovanih karijesom sa stanjem zuba.

MATERIJAL I METODE RADA

Studija preseka urađena je na Klinici za stomatologiju Medicinskog fakulteta u Foči, Univerziteta u Istočnom Sarajevu, od jula do oktobra 2012. godine. Uzorak su činila 72 ispitanika oba pola (30,6% muškaraca i 69,4% žena) starosti 25–45 godina (prosečna starost bila je 32,78±5,11 godina). Ciljna populacija odabrana je metodom slučajnog izbora od osoba koje su došle u pratnji stomatoloških pacijenata. Svi ispitanici su nakon pisanog upoznavanja s ciljevima i očekivanim ishodima istraživanja potpisali pristanak za učešće u istraživanju.

Podaci su prikupljeni pomoću upitnika i na osnovu kliničkog pregleda. Svaki ispitanik je popunjavao anonimni upitnik koji se odnosio na sociodemografske odlike: starost, pol, nivo obrazovanja (završena osnovna škola, završena srednja škola, završena viša škola, završen fakultet i više) i zaposlenje (zaposlen s punim radnim vremenom, zaposlen s nepunim radnim vremenom, nezaposlen). Za određivanje uticaja oralnog zdravlja na kvalitet života korišćena je srpska verzija upitnika *Oral Impacts on Daily Performance* (*OIDP*), koja je prethodno verifikovana u pogledu psihometrijske validnosti, pouzdanosti i osetljivosti na promenu za područje Bosne i Hercegovine [21]. Pored merenja ukupnog uticaja oralnog zdravlja na kvalitet života opštim OIDP upitnikom u istraživanju je korišćen i specifični OIDP upitnik (*SP-OIDP*) radi određivanja uticaja karijesa na kvalitet života. Oralne nelagodnosti nastale zbog zubobolje, osetljivosti zuba, kaviteta u zubu, frakturisanog ispuna i bola posle postavljanja ispuna predstavljale su specifičan uticaj karijesa na kvalitet života [20]. Svakom pojedincu je postavljeno pitanje o poteškoćama tokom jedenja, govorenja, pranja zuba, spavanja i odmaranja, pokazivanja zuba bez nelagodnosti, emocionalnog stanja, izvršavanja laganih fizičkih aktivnosti, socijalnih kontakata ili uživanja u druženju sa drugim ljudima u poslednjih šest meseci zbog oralnih problema (OIDP) ili problema s karijesom (SP-OIDP). Ispitanicima koji su odgovorili potvrdno na bilo koju stavku postavljeno je dodatno pitanje o učestalosti i težini koristeći petostepenu skalu. Za ispitanike kod kojih su teškoće bile redovne odgovori su varirali od „ređe od jednom mesečno" (1) do „da, svaki dan" (5), a za pacijente kod kojih su teškoće postojale kroz određeno razdoblje odgovori su varirali od „do pet dana ukupno" (1) do „više od tri meseca" (5). Skalom od 0 do 5 utvrđena je težina oralnog uticaja na svakodnevni život. OIDP i SP-OIDP izraženi su kao sume skorova koji su rezultat množenja frekvencije i težine oralnog uticaja za svaku aktivnost podeljene s najvećim mogućim skorom. Veći OIDP skor je ukazivao na lošiji kvalitet života.

Klinički pregledi su obavljeni na stomatološkoj klinici Medicinskog fakulteta u Foči uz primenu veštačkog osvetljenja, stomatološkog ogledalceta i stomatološke sonde prema standardima i kriterijumima Svetske zdravstvene organizacije [22]. Radiografisanje zuba nije obavljeno iz praktičnih i etičkih razloga. Određen je status svih zuba, uključujući i treće molare, a prilikom pregleda ispitivana je svaka površina zuba. Rasprostranjenost karijesa određena je pomoću indeksa KEP i njegovih komponenti (K – karijes, E – ekstrahovan zub, P – plombiran zub). Kliničke preglede obavio je obučeni stomatolog. Vrednost unutarposmatračke saglasnosti, merene koeficijentom kapa, bila je 0,83.

Statistička obrada podataka urađena je u programu SPSS 19.0 (*IBM Corp., Armonk, NY*). Podaci su prikazani kao srednje vrednosti i standardne devijacije za numerička, odnosno učestalosti za atributivna obeležja. Zbog male učestalosti, nezavisne varijable sa tri ili više grupa su dihotomizirane: nivo obrazovanja (završena osnovna škola i srednja škola/završena viša škola, fakultet i više) i zaposlenje (zaposlen s punim i nepunim radnim vremenom/nezaposlen). Takođe, indeks KEP je dihotomiziran prema vrednosti poslednjeg kvartila u učestalosti indeksa (KEP>22). Povezanost kliničkih varijabli sa SP-OIDP skorom određena je primenom Spirmanove (*Spearman*) korelacione analize. Vrednosti p manje od 0,05 smatrane su statistički značajnim u svim analizama.

REZULTATI

Sociodemografske odlike ispitanika prikazane su u tabeli 1. Više od polovine ispitanika bili su zaposleni i imali su osnovno ili srednje obrazovanje. Srednja vrednost indeksa KEP bila je 17,7, a dominantnu komponentu činili su restaurisani zubi (63,7%). Prosečan broj prisutnih zuba bio je 27,7, dok je prosečan broj zdravih zuba bio 14,2. Srednji OIDP skor bio je 5,4, a vrednost SP-OIDP skora bila je 3,0.

Ukupna incidencija oralnog uticaja na dnevne aktivnosti u poslednjih šest meseci bila je 68,1%. Tegobe su najviše bile izražene tokom obedovanja (50,0%), pranja zuba (38,9%), pokazivanja zuba bez osećaja nelagodnosti (22,2%) i uticale su na održavanje uobičajenog emocionalnog stanja (21%) (Tabela 2). Kod više od polovine ispitanika (54,2%) oralni uticaj je bio vezan za bol zuba, osetljivost zuba, kavitet (šupljinu) u zubu, frakturisani ispun i bol nakon postavljanja ispuna. Karijes zuba je najčešće uzrokovao nelagodnosti tokom jela (40,3%) i pranja zuba (30,6%) (Tabela 2). Upoređujući učestalost oralnih nelagodnosti koje su se javljale zbog različitih stanja u usnoj duplji s oralnim nelagodnostima koje su uzrokovane karijesom, može se uočiti da je karijes imao manji uticaj na različite dnevne aktivnosti ispitanika u odnosu na sveukupno stanje usne duplje (Tabela 2).

U tabeli 3 prikazana je korelacija između SP-OIDP skora i kliničkih varijabli. Lošiji status zuba (KEP>22) i postojanje najmanje jednog karijesnog zuba bili su povezani s većim vrednostima SP-OIDP skora. Nasuprot tome, ispitanici koji su imali veći broj zuba u ustima (r=-0,248) i veći broj zdravih zuba (r=-0,238) imali su manji SP-OIDP skor. Posle uključivanja sociodemografskih varijabli (pol, starost, nivo obrazovanja i zaposlenje) u analizu, značajna povezanost je zabeležena samo između SP-OIDP i vrednosti indeksa KEP većih od 22 (Tabela 3).

DISKUSIJA

Ova studija pokazuje uticaj oralnih problema na dnevne aktivnosti pojedinca, kao i da je kliničko stanje zuba povezano s kvalitetom života. Lošiji status zuba, meren indeksom KEP, povezan je s većim SP-OIDP skorom. Ovaj nalaz ukazuje na značaj primene upitnika za procenu kvaliteta života kao dopune kliničkim pokazateljima u istraživanjima oralnog zdravlja. Za procenu kvaliteta života u vezi s oralnim zdravljem korišćeno je nekoliko upitnika. OIDP, koji je primenjen u ovom istraživanju, jeste višedimenzijski upitnik kojim se mere učestalost i težina oralnih uticaja na dnevne aktivnosti ispitanika. Zasnovan je na teoretskom modelu Svetske zdravstvene organizacije i odnosi se na treći nivo merenja [23], čime pokazuju snažnu koherentnost i manju mogućnost dvostrukog bodovanja istih oralnih uticaja na različitim nivoima [24]. Pokazao se validnim i pouzdanim u velikom broju studija u kojima su uzorak činile osobe različitih kultura i starosnih doba [9, 10, 25, 26]. U poređenju sa drugim, ovaj upitnik omogućava određivanje ne samo opšteg, već i specifičnog uticaja oralnih oboljenja na kvalitet života pojedinca.

Najmanje jedan oralni uticaj na svakodnevne aktivnosti imalo je oko 68,1% ispitanika. Ovi rezultati su slični rezultatima studije Dorija (*Dorri*) i saradnika [27], u kojoj je kod osoba starosti između 20 i 50 godina vrednost OIDP skora bila 64,9%. Veće vrednosti OIDP su zabeležene kod osoba starosti 35–44 godine

na Tajlandu (73,6%) [24] i u Brazilu (71,4%) [28]. S druge strane, najniža prevalencija oralnih uticaja uočena je kod starijih osoba u Velikoj Britaniji (13%) [29] i Norveškoj (18,3%) [6]. Ove razlike u rezultatima mogu se pripisati razlikama u oralnom zdravlju ispitanika, kulturološkim i razlikama u primenjenim merama procene kvaliteta života. U pojedinim istraživanjima određivan je i intenzitet pojedinačnog uticaja, što može ograničiti poređenje rezultata. Međutim, uočeno je da određivanje intenziteta ne utiče na poboljšanje psihometrijskih karakteristika za procenu kvaliteta života ispitanika [30].

U ovom istraživanju najčešće izražene teškoće bile su u vezi sa jelom i pranjem zuba. Takođe, oralne teškoće su pokazale znatan uticaj na pokazivanje zuba i održavanje uobičajenog emocionalnog stanja, dok je postojao mali uticaj teškoća na socijalnu dimenziju oralnog zdravlja. Dobijeni rezultati o učestalosti teškoća u našem uzorku su u skladu s rezultatima drugih istraživanja koja su uključivala osobe različitog porekla i starosti i u kojima su korišćeni različiti upitnici za procenu kvaliteta života [6, 24, 25]. Ovi nalazi pokazuju da usna duplja ima važnu i višestruku ulogu kod osoba srednje dobi, ne samo u pogledu funkcionalne aktivnosti, već i u psihičkom domenu.

Pored određivanja opšteg uticaja, moguće je i povezati oralne nelagodnosti sa specifičnim oralnim stanjem (SP-OIDP). Ovo je prva studija u kojoj je korišćen SP-OIDP radi određivanja specifičnog uticaja karijesa na kvalitet života odraslih osoba. Prema nalazima ove studije, zubobolja, osetljivosti zuba, kavitet u zubu, frakturisani ispuni i bol posle postavljanja ispuna su odgovorni za 80% svih zabeleženih oralnih nelagodnosti. To se može pripisati relativno visokoj prevalenciji karijesa ispitanika u ovom istraživanju, na šta su ukazala i istraživanja oralnog zdravlja osoba srednje životne dobi u Republici Srpskoj [14]. Više od polovine oralnih uticaja su posledica karijesa kod mlađe populacije, čak i u onim slučajevima kada je prevalencija karijesa relativno niska [19, 20].

Poređenjem učestalosti specifičnih s opštim uticajima za svaku dnevnu aktivnost uočava se da je karijes imao uticaja na jedenje i pranje zuba, ali ne i na pokazivanje zuba i održavanje uobičajenog emocionalnog stanja. Ovi nalazi otkrivaju da nelagodnosti uzrokovane karijesom kod osoba srednje životne dobi utiču na kvalitet života dovodeći do ograničenja u svakodnevnim funkcionalnim aktivnostima, ali bez uticaja na psihosocijalne sfere. Uticaj na pokazivanje osmeha nije uvek povezan s karijesom, već sa diskoloracijom i pozicijom zuba u zubnom luku [31]. Takođe, zubobolja ima manji uticaj na govor, smeh i emocionalnu stabilnost [32]. Osetljivost zuba, zubobolja ili karijesna šupljina imaju uticaj na skoro sve svakodnevne aktivnosti, ali najmanje na one koji se odnose na psihološke i socijalne aspekte [33].

U ovom istraživanju zabeležena je slaba, ali ipak značajna povezanost kliničkih pokazatelja: karijesnih zuba, broja prisutnih, intaktnih zuba, indeksa KEP i kvaliteta života. Najveća vrednost koeficijenta je iznosila 0,328, što se, prema psihometrijskim standardima, može smatrati slabim uticajem. Ovaj nalaz verovatno nije posledica ograničenja OIDP upitnika, za koji je pokazano da ima odlične psihometrijske karakteristike kada se primenjuje kod odrasle populacije na našim prostorima [5], već naprotiv, ukazuje na konceptualnu i empirijsku razliku između zdravlja i bolesti. Naime, dok se kliničkim pokazateljima određuje oboljenje (što je biološki koncept), subjektivni pokazatelji su više orijentisani ka zdravlju (koncept koji je više okrenut ka sociologiji i psihologiji) [8, 34]. U onim slučajevima kada oboljenje i ima uticaja, ono je uslovljeno očekivanjima pojedinca, materijalnim, socijalnim i psihološkim resursima, ali još značajnije i socijalnim i kulturološkim vrednostima [34]. U istraživanjima gde je korišćen SP-OIDP upitnik uočena je jaka veza između nesaniranog karijesa i oralnih uticaja koji su posledica karijesa [18, 20], što se ne beleži kada se u istraživanjima koristi generički upitnik [35]. Uzimajući u obzir činjenicu da je 80% oralnih nelagodnosti posledica karijesa u ovoj ispitivanoj grupi, kao i da je za ispitivanje povezanosti subjektivnih i objektivnih pokazatelja korišćen specifični upitnik, slaba korelacija kvaliteta života i kliničkih varijabli i izostanak njihove povezanosti, osim za vrednosti indeksa KEP veće od 22, ukazuju na izražen uticaj sociodemografskih faktora na kvalitet života.

Prema modelu Čena (*Chen*) i Hantera (*Hunter*) [36], socioekonomski status, ponašanja u vezi s oralnim zdravljem i oralni status mogu da utiču na kvalitet života direktno ili indirektno, preko stanja oralnog zdravlja. Ipak, najgore kliničko stanje imalo je loš uticaj na svakodnevni život ispitanika, koji je nezavisan od pola, godina starosti, zaposlenja i stepena obrazovanja ispitanika. S druge strane, u studijama gde je korišćen indeks KEP za procenu postojanja karijesa, nije zabeležena povezanost s kvalitetom života [26, 37], osim kada je prevalencija karijesa kategorisana na osnovu težine oboljenja [11, 17], kao i u ovom istraživanju. Važno je napomenuti da je indeks KEP, kao kumulativan indeks kojim se meri i sadašnje i prijašnje postojanje karijesa, značajan za sumiranje individualne osetljivosti ka bolesti tokom vremena.

Ovo istraživanje ima i određena ograničenja. Naime, uzorak su činile osobe koje su došle kao pratnja stomatološkim pacijentima, pa se može očekivati da ove osobe više brinu o svom oralnom zdravlju. Međutim, zabeležena prevalencija karijesa u ovoj ispitivanoj grupi je slična kao i u drugim istraživanjima u ovom regionu [14]. Za dobijanje reprezentativnijih podataka o kvalitetu života ispitanika srednje životne dobi na ovim prostorima potrebno je uraditi obimnije istraživanje s uzorkom koji čine osobe iz opšte populacije. Nedostaci ovog istraživanja leže i u vrsti studije. Iako je ovo studija preseka, ovde ne postoji dovoljno podataka o specifičnom uticaju karijesa na kvalitet života, posebno kada je reč o osobama srednje životne dobi. Prospektivna istraživanja mogla bi dati jasniju sliku o povezanosti stanja zuba s kvalitetom života u vezi s oralnim zdravljem, kao i njegovom uticaju na kvalitet života u funkciji vremena. Ovo istraživanje je pokazalo da je kvalitet života zavisan od stanja zuba i pored uključivanja sociodemografskih faktora u analizu. Za preciznije određivanje povezanosti i dobijanja konačnih zaključaka potrebno je u multivarijantnu analizu uključiti veći broj ne samo sociodemografskih, već i faktora vezanih za ponašanje u vezi sa sopstvenim oralnim zdravljem.

ZAKLJUČAK

Na osnovu dobijenih rezultata može se zaključiti da je incidencija uticaja oralnih stanja na kvalitet života ljudi visoka. Nelagodnosti izazvane karijesom najčešće dovode do ograničenja u svakodnevnim funkcionalnim aktivnostima, kao što su obedovanje i pranje zuba, ali su bez znatnog uticaja na psihosocijalne domene. Lošije stanje zuba, mereno indeksom KEP, jedina je klinička varijabla koja je pokazala značajnu povezanost sa SP-OIDP.