

Oral health effects on the nutritional status of elderly people

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SUMMARY

Introduction The aim of the study was to establish the association between oral health and malnutrition in people over the age of 65.

Material and Methods Cross-sectional study included 146 respondents residing in gerontology center, and 300 respondents who lived in their own homes or with their families. Nutritional status was evaluated using the Mini Nutritive Scale and standardized questionnaire. Dental status was evaluated by clinical examination using inspection method. The presence and absence of teeth was evaluated in each dental arch (third molars were not taken into consideration). Also, the presence of prosthetic restorations (total and partial dentures) was noticed without analyzing their adequacy and functionality. Self-assessment of health with categorical components assessed the overall health status. The research was conducted in 2018.

Results Most of respondents who had malnutrition or were at risk of malnutrition had worse dental status; they were completely or partially edentulous. There was high statistically significant difference in dental status of the upper ($\chi^2=47,797$; $p < 0,001$) and lower jaw ($\chi^2 = 66,680$; $p < 0,001$). The number of lost teeth had an impact on self-assessment of general health ($\chi^2 = 47,270$; $p < 0,001$).

Conclusion Oral health status in elderly people had significant influence on nutritional status.

Keywords: malnutrition; oral health; old people

INTRODUCTION

Nutritional status disorders and malnutrition usually occur as a result of changes in appetite, limited mobility, socio-economic constraints, chronic illness, depression, cognitive impairment, multiple types of medication, frequent complications and hospitalizations [1]. According to Chen [2], malnutrition of elderly is defined as inadequate nutritional status or malnutrition, followed by inadequate food intake, loss of appetite, loss of body mass and decreased muscle mass. Numerous studies have shown that the prevalence of this problem increases with age so that after 65 years of life it is 15% to 85% (depending on the parameters used, as well as the place of residence) [3, 4, 5]. Oral health, as one of the indicators of general health status, has great significance in determining nutritional status in older people [6, 7, 8]. This population often has loss of large number of teeth or all teeth, presence of caries lesions and periodontally compromised teeth, xerostomia and oral pre-cancer. The loss of teeth significantly reduces masticatory efficiency that affects the choice of food and eating habits. Soft food rich in saturated fatty acids and cholesterol are more consumed than fiber-rich food. Inability to chew food due to loss of teeth, lack or inadequate dental restorations or dentures is often associated with difficult swallowing, malnutrition or serious risk of malnutrition [9]. Numerous prospective studies have shown that the most frequent problems in elderly is the problems of chewing (42%) and xerostomia

(63%) [10, 11]. Also, worse oral and nutritional status is observed in higher percentages in elderly people residing in gerontological centers [12, 13, 14].

Previous studies were mostly focused on the association of oral health with malnutrition in elderly residing in gerontological institutions [12, 13, 14], but there is very little information on the impact of oral health on general health and risk of malnutrition in elderly people living in the community. The aim of the study was to establish the association between oral health and malnutrition in people over 65 years of age.

MATERIAL AND METHODS

Respondents

The cross-sectional study was carried out in the period from April to September 2018 among elderly people in four municipalities of Republika Srpska: East Sarajevo, Rogatica, Pale and Foca. The sample consisted of 446 respondents of both genders, divided into the two groups depending on their place of residence; 146 participants were from gerontology institutions while 300 respondents were community-based. Living in the community is defined as residing in your own or family home. Respondents in the community were selected using a register of patients older than 65 years of age in the family medicine services

of local health centers. By software, every third person according to specific criteria was included in the study. If the selected person did not meet criteria for inclusion in the study, the following one would be included until certain number of respondents was reached. The criteria for inclusion in the study was: person was orientated in time, space and able to recognize faces, while criteria for excluding were bad general condition, disorientation, inability to establish cooperation, the presence of mental illness, dementia, malignant diseases and chronic renal insufficiency. All users of gerontology centers, East Sarajevo, Pale and Rogatica who fulfilled the inclusion criteria and signed the informed consent were included in the study.

Research Instruments

A standardized questionnaire was used to collect socio-demographic data on respondents in the study (gender, age of respondents, education, residence, income, social activity and integration, cohabitation, socializing, hobby, use of mobility aids). Dental status was evaluated by clinical examination, using inspection method. The presence of complete or partial edentulism (third molars were not taken into consideration) for each jaw was assessed. The presence of prosthetic restorations (complete and partial dentures) was assessed without analyzing their adequacy and functionality. General health was analyzed with one question: "For your age, what would you say in general, that your health is?" The answers offered were: "Excellent", "Good", "Medium Good", "Average", "Bad" and "Very Bad". Nutritional status was investigated using the Mini Nutritional Scale Short Version-MNA-SF, which included two steps: screening (MNA-SF1) and evaluation (MNA-SF2). The maximum total score for MNA was 30 points (> 23.50 and indicated adequate nutritional status, 17 - 23.49 risk for malnutrition and <17 points indicates malnutrition) [15].

Statistical analysis

Data analysis was done using descriptive statistical analysis measures in SPSS packages 22 (SPSS IBM, Inc., Chicago, IL, United States). Results were presented as mean values \pm SD for continuous variables and numbers / percentages for categorical variables. Differences were tested using Chi square test. As the level of statistical significance, usual value of $p < 0.05$ was considered.

Ethical considerations

The study was approved by the Ethics Committee of the Faculty of Medicine in Foca, University of East Sarajevo, with the decision: 01-2-1. All respondents gave written informed consent. Data were presented in a way that it hides the identity of all participants.

THE RESULTS

The study enrolled 446 respondents aged over 65 years. There were 251 female (56.3%) and 195 male (43.7%). The

youngest person was 65 years old (5.2%) and the oldest 99 years old (0.2%). The majority of respondents (87%) were married, had a certain hobby (55.8%) while 70% of them did not use mobility aids. Upper complete edentulous jaw was present in 62 respondents (13.9%), partially edentulous in 167 (37.4%), natural dental arch in 2 (0.4%), and prosthetic restorations in 215 (48.2%). Lower complete edentulous jaw was found in 92 subjects (20.6%), partially edentulous in 184 (41.3%), natural dental arch in 4 (0.9%) and prosthetic restorations in 166 (37.2%). The results of the study showed that 51.3% of respondents had complete or partially edentulous upper jaw while 61.9% had complete or partially edentulous lower jaw.

According to self-evaluation of general health, only 1.6% of respondents had excellent health, 43.8% good health, 38.1% medium-well, 16.1% poor and 0.4% very poor. The highest number of respondents in gerontology institutions (93.2%) was either in malnutrition or at risk of malnutrition, as opposed to community respondents (40.8%). People with lower educational level ($\chi^2=30,221$; $p < 0,001$) who stayed in geriatric institutions ($\chi^2=126,224$; $p < 0,001$) used mobility aids ($\chi^2=94,192$; $p < 0,001$) and did not have hobby ($\chi^2 = 68,155$; $p < 0,001$) had higher risk of malnutrition (Table 1). Table 2 shows the results of the overall nutritional status assessment in relation to dental status of respondents. It was found that respondents, who had malnutrition or were at risk of malnutrition, had poorer dental status. There was high statistically significant difference in dental status of upper ($\chi^2 = 47,797$; $p < 0,001$) and lower jaw ($\chi^2 = 66,680$; $p < 0,001$). Respondents who had poorer nutritional and dental status were considered to have poorer overall health status, while among respondents without risk of malnutrition, good health was observed ($\chi^2=47,270$; $p < 0,001$) (Table 3).

DISCUSSION

The study found link between oral health and nutritional status in elderly subjects. Study subjects with poorer dental status also had poorer nutritional status, ie. they were malnourished. Our results confirmed the results of previous studies [12, 14]. Earlier it was believed that loss of teeth and edentulism is expected and normal result of aging. However, age, by itself, does not cause teeth loss. The most common causes of teeth loss are: periodontal disease, tooth decay, worsened general health condition of the patient [16, 17]. Meta-analysis of results from about 1000 publications published in English in the last 20 years have shown negative impact of teeth loss on the quality of life, regardless of where studies were conducted or methodology used [16]. Today it is considered that changes in periodontium, loosening and loss of tooth in older age, are the consequence of cumulative effects of many risk factors during life. Aging cannot be considered the main risk factor for the occurrence and progression of periodontal diseases if some other factors are not present: decrease of the amount of saliva, poor oral hygiene, systemic illness, poor diet, some medications, mental state or social status of the person. Namely, periodontal disease is not specific for elderly people and diet is one of

Table 1. Nutritional status of participants in relation to socio-demographic characteristics**Tabela 1.** Nutritivni status ispitanika u odnosu na sociodemografske karakteristike

SOCIODEMOGRAPHIC CHARACTERISTICS SOCIODEMOGRAFSKE KARAKTERISTIKE	MNA			x ²	p
	< 17.00 N	17.00–23.49 N	> 23.50 N		
Education Obrazovanje					
Elementary school Osnovna škola	11	189	100	30.221	< 0.001
High school Srednja škola	6	43	74		
University Fakultet	1	9	13		
Place of residence Mesto boravka					
Community Zajednica	1	121	177	126.224	< 0.001
Gerontological institution Gerontološka ustanova	17	120	10		
Hanging out with friends Druženje sa prijateljima					
Yes Da	16	226	184	7.170	0.028
No Ne	2	15	3		
Hobby Hobi					
Yes Da	1	104	144	68.155	< 0.001
No Ne	17	137	43		
Use mobility aids Upotreba pomagala za mobilnost					
Yes Da	14	108	12	94.192	< 0.001
No Ne	4	133	175		

MNA – Mini nutritional scale; N – number of respondents

MNA (engl. mini nutritional scale) – Mini nutritivna skala; N – broj ispitanika

Table 2. Nutritional status of participants in relation to dental status**Tabela 2.** Nutritivni status ispitanika u odnosu na stanje zuba

DENTAL STATUS STATUS ZUBA	MNA			x ²	P
	< 17.00 N	17.00–23.49 N	> 23.50 N		
Upper jaw Gornja vilica					
– complete edentulous – bezuba	6	45	11	47.797	< 0.001
– partially edentulous – krezuba	9	106	52		
– natural dental arch – pun prirodan zubni niz	0	1	1		
– total or partial dentures – mobilne zubne nadoknade	3	89	123		
Lower jaw Donja vilica					
– complete edentulous – bezuba	7	76	9	66.680	< 0.001
– partially edentulous – krezuba	8	101	75		
– natural dental arch – pun prirodan zubni niz	0	3	1		
– total or partial dentures – mobilne zubne nadoknade	3	61	102		

MNA – Mini nutritional scale; N – number of respondents

MNA (engl. Mini nutritional scale) – Mini nutritivna skala; N – broj ispitanika

Table 3. Nutritional status of participants in relation to subjective assessment of health status**Tabela 3.** Nutritivni status ispitanika u odnosu na subjektivnu procenu zdravstvenog statusa

SUBJECTIVE HEALTH ASSESSMENT SUBJEKTIVNA PROCENA ZDRAVLJA	MNA			x2	P
	<17.00 N	17.00–23.49 N	> 23.50 N		
Excellent Odlično	0	3	4	47.270	<0.001
Good Dobro	3	79	113		
Average Srednje dobro	10	103	57		
Bad Loše	5	55	12		
Very bad Veoma loše	0	1	1		

MNA – Mini nutritional scale; N – number of respondents

MNA (engl. mini nutritional scale) – Mini nutritivna skala; N – broj ispitanika

the main factors contributing to the maintenance of good oral health [18]. In regards to socio-demographic characteristics of respondents, significant correlation was observed between gender, degree of education, cohabitation, as well as place of residence and assessment of oral and nutritional status. These results are in accordance with findings of other studies. Knowing the influence of oral clinical variables on self-assessment of health is of great importance for obtaining clearer insight into association with objectively and subjectively assessed mouth and tooth health [19].

Based on the results of our research it was found that the incidence of malnutrition was present in subjects with poorer dental status. Inadequate food also affects oral health [20], and poor oral health affects the choice of consumed food. Nutrition with no vitamins, minerals, proteins and low calories affect immune system and is associated with oral health, and especially dental diseases in older people [21]. The lack of appetite in elderly people is common, especially in individuals who suffer from anorexia, nausea, vomiting, or xerostomy caused by medications. Food intake has been further reduced in individuals with chronic diseases. The Swiss study conducted in hospitalized elderly was focused on the relationship between clinical parameters of malnutrition, serum albumin levels, and oral health indicators (dental status, oral hygiene, chewing function) [22]. Choosing the type of food largely depends on the ability to consume food with pleasure, and some food is refused due to inability to chew. The function of chewing in elderly can be called into question in the case of loss of teeth and inadequate dentures. Individuals living in institutions are more likely to have this problem and need help of appropriately trained staff [23].

The results obtained with MNA weight loss questionnaires were logical and expected. Previous research suggests connection between poor oral health and weight loss, where it is evident that tooth loss is a risk factor for body weight loss. Poor oral health may be related to systemic

diseases in a bidirectional manner, and weakening the chewing ability and food consumption may affect nutrition [24]. Social relationships also play an important role since they are optimized for the benefit of elderly. Many authors [25] described a model of social relations that clearly point to the relationship between behavior and social behavior and their influence on the quality of life associated with oral health (OHRQOL). Petersen et al. [26] determined the life expectancy index for elderly people in a community in Denmark where they found close association between poor dental health and reduced life activity. In addition, indexes for measurement of health support in relation to inclusion in social activity (families, friends or neighbors) are registered. Numerous studies [27] have shown that isolated seniors have the poorest dental health status and rarely use health services. Results of our study showed that malnourished subjects differed significantly in terms of dental status than those who did not have malnutrition. Important risk factors for oral health are eating habits, as well as some bad habits. Inadequate nutrition habits were found in our research that contributed to the risk of malnutrition. Our research showed that great number of respondents took more than 3 drugs per day (74.4%), 53.4% did not consume meat, fish or chicken every day, 43.7% of respondents did not consume two or more portions of fruits and vegetables daily, while 49.3% of respondents consumed up to five cups of liquid per day. The results of the research suggested that 55.8% of respondents reduced food intake due to chewing problems and swallowing difficulties, and 34.3% of respondents believed that there was no adequate diet. Previous research has shown that older people usually consume sweets and snacks (63.0%), juices, sweet drinks and carbonated drinks (54.0%) every day, which is inadequate diet. Similar data have been published and other authors have confirmed consumption of inadequate food due to poor dental status [28].

Older people around the world have issues with health-care, as access to dental services is limited, especially in rural areas. Health promotion programs dedicated to elderly are rare, therefore the evaluation of oral and nutritional status can provide important information that will lead to improved oral health promotion and health care of elderly.

CONCLUSION

Dental status in older people is associated with the risk of malnutrition. Socio-demographic characteristics and their own perception of health are important factors in assessing the effect of oral health on the nutritional status of elderly. Concerning that treatment of oral diseases is costly and requires high level of engagement of dental staff and resources, the prevention of oral diseases should focus also on nutrition. Establishing co-operation between a dentist and a family physician, family nurses as well as improving dental care of the elderly can play a significant role in preservation of dental health and malnutrition.

Authors declare that there are no conflicts of interest.

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Uticaj oralnog zdravlja na nutritivni status starih osoba

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KRATAK SADRŽAJ

Uvod Cilj studije je bio utvrditi povezanost oralnog zdravlja sa malnutricijom kod osoba starijih od 65 godina.

Materijal i metode rada Studija preseka je obuhvatila 146 ispitanika, korisnika gerontološkog centra, i 300 ispitanika koji žive u vlastitom domu ili sa porodicom. Nutritivni status je evaluiran korišćenjem Mini nutritivne skale i standardizovanog upitnika. Za procenu dentalnog statusa korišćen je klinički pregled, metod inspekcije. Utvrđivano je prisustvo bezubosti, krezubosti, prirodnog zubnog niza za svaku vilicu zasebno, kao i prisustvo mobilnih zubnih nadoknada bez analize njihove adekvatnosti i funkcionalnosti. Samoprocenom zdravlja uz kategoričke komponente procenjen je opšti zdravstveni status. Istraživanje je sprovedeno 2018. godine.

Rezultati Veći broj ispitanika koji su bili u malnutriciji i u riziku od malnutricije imali su lošiji dentalni status, bezubost i krezubost. Između ispitanika je uočena visoko statistički značajna razlika u odnosu na dentalni status gornje ($\chi^2 = 47,797$; $p < 0,001$) i donje vilice ispitanika ($\chi^2 = 66,680$; $p < 0,001$). Broj zuba koji je nedostajao imao je uticaja na samoprocenu zdravlja ($\chi^2 = 47,270$; $p < 0,001$).

Zaključak Oralno zdravlje starih osoba ima značajan uticaj na nutritivni status.

Ključne reči: malnutricija; oralno zdravlje; stare osobe

UVOD

Poremećaji nutritivnog statusa i nastanak malnutricije obično se javljaju kao posledica promena apetita, ograničene pokretljivosti, socioekonomskih ograničenja, prisustva hroničnih bolesti, depresije, oštećenja kognitivnih funkcija i uzimanja više vrsta lekova, čestih komplikacija i većeg broja hospitalizacija [1]. Prema Chenu [2], malnutricija starih osoba se definiše kao neadekvatan nutritivni status ili pothranjenost, praćen nedovoljnim unosom hrane, gubitkom apetita, gubitkom telesne mase i smanjenjem mišićne mase. Brojna istraživanja pokazuju da se prevalencija ovog problema povećava starenjem, tako da posle 65. godine života iznosi od 15% do 85% (u zavisnosti od korišćenih parametara, kao i mesta stanovanja) [3, 4, 5]. Oralno zdravlje, kao jedan od pokazatelja opšteg zdravstvenog stanja osobe, ima veliki značaj u determinisanju nutritivnog statusa kod osoba starije životne dobi [6, 7, 8]. Kod ovih osoba često se uočava loš oralni status kao posledica: gubitka velikog broja ili svih zuba, prisustva karijesnih i parodontopatičnih zuba, kserostomije i oralnih prekanceroza. Gubitkom većeg broja zuba značajno je redukovana žvaćna efikasnost, što utiče na izbor hrane i prehrambene navike, više se konzumira mekša hrana bogata zasićenim masnim kiselinama i holesterolom u odnosu na hranu bogatu vlaknima. Nemogućnost osoba starije životne dobi da sažvaću hranu usled gubitka zuba, nepostojanje ili postojanje neadekvatnih zubnih nadoknada često udruženo sa problemima gutanja dovodi do toga da je veliki procenat ovih osoba neuhranjeno ili u ozbiljnom riziku za malnutriciju [9]. Brojne prospektivne studije pokazuju da su najučestaliji oralni problemi kod neuhranjenih starih osoba problemi žvakanja (42%), kao i kserostomija (63%) [10, 11]. Takođe, lošiji oralni i nutritivni status u većem procentu je uočen kod osoba starije životne dobi koje borave u gerontološkim centrima [12, 13, 14].

Prethodna istraživanja su se uglavnom bavila povezanošću oralnog zdravlja sa malnutricijom kod korisnika gerontoloških ustanova [12, 13, 14], ali je veoma malo podataka o uticaju oralnog zdravlja na opšte zdravlje i rizik za nastanak malnutricije kod starih osoba koje žive u zajednici. Cilj studije je bio utvrditi povezanost oralnog zdravlja sa malnutricijom kod osoba preko 65 godina starosti.

MATERIJAL I METODE

Ispitanici

Studija preseka je sprovedena u periodu od aprila do septembra 2018. godine kod osoba starije životne dobi u četiri opštine Republike Srpske: Istočno Sarajevo, Rogatica, Pale i Foča. Uzorak su činila 446 ispitanika oba pola, podeljena u dve grupe zavisno od mesta boravka, 146 ispitanika iz gerontoloških ustanova i 300 ispitanika koji žive u zajednici. Boravak u zajednici je definisan kao stanovanje u vlastitom ili porodičnom domu. Ispitanici u zajednici su izabrani pomoću registra pacijenata starijih od 65 godina života službi porodične medicine lokalnih domova zdravlja. Softverski, svaka treća osoba prema specifično zadatim kriterijumima je uključivana u studiju. Ako izabrana osoba nije ispunjavala kriterijume uključivanja u studiju, uključivana je sledeća, sve dok se nije dobio određeni broj ispitanika. Kriterijumi za uključivanje u studiju su bili orijentisanost u vremenu, prostoru i prema licima, a kriterijumi za isključivanje loše opšte stanje, dezorijentisanost, nemogućnost uspostavljanja saradnje, te prisustvo psihičkih oboljenja, demencije, malignih oboljenja i hronične bubrežne insuficijencije. Svi korisnici gerontoloških centara Istočno Sarajevo, Pale i Rogatica koji su ispunili kriterijume uključivanja i potpisali informisani pristanak uključeni su u studiju.

Instrumenti istraživanja

Standardizovani upitnik korišćen je za prikupljanje sociodemografskih podataka o ispitanicima u studiji (pol, dob ispitanika, obrazovanje, mesto stanovanja, primanja, socijalna aktivnost i integracija, kohabitacija, druženje, hobi, korišćenje pomagala za mobilnost).

Dentalni status je procenjen pomoću kliničkog pregleda, metodom inspekcije. Utvrđivano je prisustvo bezubosti, krezubosti, prirodnog zubnog niza (treći molari nisu se uzimali u obzir) za svaku vilicu zasebno, kao i prisustvo mobilnih zubnih nadoknada bez analize njihove adekvatnosti i funkcionalnosti.

Opšte zdravlje je analizirano pomoću jednog pitanja: „Za Vaše godine, da li biste rekli uopšteno da je Vaše zdravlje...?“

Ponudeni odgovori su glasili: „odlično“, „dobro“, „srednje dobro“, „prosečno“, „loše“ i „veoma loše“.

Nutritivni status se ispitivao pomoću upitnika Mini nutritivna skala (engl. Mini nutritional scale short version-MNA-SF), koji sadrži dva koraka: skrining (MNA-SF1) i procenu (MNA-SF2). Maksimalan ukupni skor za MNA iznosi 30 bodova (> 23,50 označava adekvatan nutritivni status; od 17 – 23,49 rizik za malnutriciju i < 17 bodova malnutriciju) [15].

Statistička analiza

Postupak obrade podataka vršen je pomoću 22 SPSS paketa (SPSS IBM, Inc., Chicago, IL, United States). Za analizu prikupljenih podataka korišćene su deskriptivne statističke mere analize. Ishodi su opisani putem srednjih vrednosti (\pm SD) za kontinuirane varijable i brojeva/postotaka za kategorijske varijable. Razlike su testirane pomoću hi-kvadrat testa. Kao nivo statističke značajnosti razlika uzeta je uobičajena vrednost $p < 0,05$.

Etička razmatranja

Istraživanje je odobreno od strane Etičkog komiteta Medicinskog fakulteta u Foči, Univerziteta u Istočnom Sarajevu odlukom broj: 01-2-1. Svi ispitanici su dali pisani informisani pristanak. Podaci su predstavljeni na način koji prikriva identitet svih učesnika.

REZULTATI

Studijom je bilo obuhvaćeno 446 ispitanika starosti preko 65 godina, od kojih je bilo 251 (56,3%) žena i 195 (43,7%) muškaraca. Najmlađi ispitanik je imao 65 godina (5,2%), a najstariji 99 godina (0,2%). Većina ispitanika (87%) bila je u braku, određeni hobi je imalo 55,8% ispitanika, dok njih 70% nije koristilo pomagala za mobilnost.

U gornjoj vilici bezubost je bila prisutna kod 62 ispitanika (13,9%), krezubost kod 167 (37,4%), pun prirodan zubni niz imala su dva ispitanika (0,4%), a saniran zubni niz zubnim nadoknadama 215 ispitanika (48,2%). U donjoj vilici bezubost je pronađena kod 92 ispitanika (20,6%), krezubost kod 184 (41,3%), pun prirodan zubni niz kod četiri (0,9%) i saniran zubni niz zubnim nadoknadama kod 166 ispitanika (37,2%). Rezultati istraživanja pokazali su da je kod 51,3% ispitanika gornja vilica, a kod 61,9% donja vilica bezuba ili krezuba.

Prema samoproceni zdravlja samo 1,6% ispitanika je imalo odlično zdravlje, 43,8% dobro zdravlje, 38,1% srednje dobro, 16,1% loše i 0,4% veoma loše. Najveći broj ispitanika u gerontološkim ustanovama (93,2%) bilo je u malnutriciji ili u riziku za malnutriciju, za razliku od ispitanika u zajednici (40,8%). Osobe sa manjim stepenom obrazovanja ($\chi^2 = 30,221$; $p < 0,001$), koje su boravile u gerontološkim ustanovama ($\chi^2 = 126,224$; $p < 0,001$), koristile pomagala za mobilnost ($\chi^2 = 94,192$; $p < 0,001$) i koje nisu imale hobi ($\chi^2 = 68,155$; $p < 0,001$) imale su veći rizik za malnutriciju (Tabela 1). U Tabeli 2 prikazani su rezultati ukupne procene nutritivnog statusa u odnosu na dentalni status ispitanika. Utvrđeno je da su ispitanici koji su bili u malnutriciji i u riziku za nastanak malnutricije imali lošiji dentalni status, bezubost i krezubost. Između ispitanika je uočena visoko statistički značajna razlika u odnosu na dentalni status gornje (χ^2

$= 47,797$; $p < 0,001$) i donje vilice ispitanika ($\chi^2 = 66,680$; $p < 0,001$). Ispitanici koji su imali lošiji nutritivni i dentalni status smatrali su da imaju i lošiji opšti zdravstveni status, dok je kod ispitanika bez rizika za malnutriciju konstatovano dobro zdravlje ($\chi^2 = 47,270$; $p < 0,001$) (Tabela 3).

DISKUSIJA

Studija je utvrdila vezu između oralnog zdravlja i nutritivnog statusa kod starih osoba. Ispitanici studije sa lošijim dentalnim statusom su imali i lošiji nutritivni status, odnosno bili su neuhranjeni. Naši rezultati potvrđuju rezultate prethodnih studija [12, 14]. Ranije se verovalo da su gubitak zuba i pojava bezubosti očekivana i normalna pojava u starosti. Međutim, starost, sama po sebi, ne dovodi do gubitka zuba. Najčešći razlozi gubitka zuba su: parodontopatije, karijes zuba, pogoršano opšte zdravstveno stanje bolesnika [16, 17]. Rezultati metaanalize kojom je obuhvaćeno oko 1000 publikacija objavljenih na engleskom jeziku u poslednjih 20 godina su pokazali da sve analizirane studije potvrđuju negativni uticaj gubitka zuba na kvalitet života, nezavisno od mesta gde su studije sprovedene i od korišćene metodologije [16]. Danas se smatra da su promene na parodonticijumu, labavljenje i gubitak zuba do kojih može doći u starosti posledica kumulativnog delovanja više faktora rizika, koji deluju tokom celog života. Starenje se ne može smatrati glavnim faktorom rizika za pojavu i napredovanje oboljenja parodonticijuma ukoliko nisu prisutni i drugi faktori: smanjena količina pljuvačke, loša oralna higijena, sistemska oboljenja, loš način ishrane, uzimanje nekih lekova, psihičko stanje osobe, materijalno stanje osobe. Naime, starije osobe nisu sklonije obolevanju od parodontopatije od mlađih osoba, a način ishrane je jedan od glavnih faktora koji doprinose očuvanju kvaliteta zuba [18]. Od ispitivanih sociodemografskih karakteristika ispitanika, značajna povezanost je uočena između pola, stepena obrazovanja, kohabitacije, kao i mesta boravka i procene oralnog i nutritivnog statusa. Ovi rezultati su u skladu sa nalazima drugih studija koje ukazuju na značajnost procene oralnog zdravlja starih osoba. Poznavanje uticaja oralnih kliničkih varijabli na samoprocenu zdravlja od velikog je značaja zbog dobijanja jasnijeg uvida o povezanosti objektivno sa subjektivno procenjenim zdravljem usta i zuba [19].

Na osnovu rezultata našeg istraživanja utvrđeno je da je učestalost malnutricije prisutna kod većeg broja ispitanika sa lošijim dentalnim statusom. Neodgovarajuća ishrana utiče na oralno zdravlje [20], a slabo oralno zdravlje utiče na izbor konzumirane hrane. Ishrana u kojoj nedostaju vitamini, minerali, belančevine i kalorije utiče na pad imuniteta i zbog toga je ishrana povezana s oralnim zdravljem, a posebno sa stomatološkim bolestima kod starijih osoba [21]. Manjak apetita kod starijih osoba je uobičajen, posebno kod pojedinaca koji pate od anoreksije, mučnine, povraćanja ili kserostomije uzrokovane lekovima. Unos hrane još je više smanjen kod pojedinaca s hroničnim bolestima. Švajcarsko istraživanje hospitalizovanih starijih osoba bilo je usmereno na odnos između kliničkih parametara neuhranjenosti, nivoa seruma albumina i indikatora povezanih s oralnim zdravljem (dentalnog statusa, oralne higijene, funkcije žvakanja) [22]. Odabir vrste hrane u velikoj meri zavisi od sposobnosti konzumiranja hrane sa zadovoljstvom, te se neka hrana odbija ukoliko je smanjena sposobnost žva-

kanja. Funkcija žvakanja kod starih osoba može biti dovedena u pitanje ako se radi o gubitku zuba i starosti zubne proteze. Pojedinci koji žive u ustanovama češće imaju ovaj problem, te im je potrebna pomoć osoblja koje je primereno obučeno za to [23]. Dobijeni rezultati pomoću upitnika MNA za gubitak težine su logični i očekivani. Dosadašnja istraživanja ukazuju na povezanost lošeg oralnog zdravlja i gubitka težine, gde je evidentno dokazano da je manjak zuba rizični faktor koji doводи do gubitka telesne težine. Loše oralno zdravlje može biti povezano sa sistemskim bolestima na dvosmeran način, a slabljenje sposobnosti žvakanja i konzumiranja hrane može uticati na stepen uhranjenosti [24]. Takođe, društveni odnosi imaju važnu ulogu, jer optimiziraju dobrobit starijih osoba. Mnogi autori [25] opisali su model društvenih odnosa koji jasno ukazuje na povezanost samog ponašanja i društvenog delovanja i njihov uticaj na kvalitet života povezan s oralnim zdravljem (OHRQOL). Petersen i saradnici [26] odredili su indeks životne aktivnosti kod starijih osoba u jednoj zajednici u Danskoj gde su pronašli usku povezanost lošeg dentalnog zdravlja i smanjene životne aktivnosti. Pored toga, registrovani su indeksi za merenje zdravstvene podrške u odnosu na uključenost u društveno delovanje (porodice, prijatelji ili komšije). Brojna istraživanja [27] pokazala su da izolovane starije osobe imaju najslabiji dentalni zdravstveni status i retko koriste zdravstvene usluge. Rezultati našeg istraživanja govore da se neuhranjeni ispitanici statistički značajno razlikuju u pogledu dentalnog statusa u odnosu na ispitanike koje nisu u malnutriciji, tj. u većoj meri su prisutni bezubost i krezubost. Bitni faktori rizika za oralno zdravlje jesu i navike u ishrani, kao i neke loše navike. Neadekvatne navike u ishrani su pronađene i u našem istraživanju i doprinose riziku za nastanak neuhranjenosti. Naše istraživanje je pokazalo da veći broj ispitanika uzima više od tri leka dnevno (74,4%), da njih 53,4% ne konzumira meso, ribu ili piletinu svakodnevno, 43,7% ispitanika ne troši dve ili više porcija voća i povrća dnevno, dok 49,3% ispitanika konzumira do pet šoljica tečnosti dnevno. Dobijeni rezultati istraživanja idu u prilog

činjenici da 55,8% ispitanika ima smanjen unos hrane zbog problema žvakanja i teškoća sa gutanjem, a samim tim 34,3% ispitanika smatra da nema adekvatan način ishrane. Dosadašnja istraživanja su evidentirala da stare osobe najčešće svakodnevno konzumiraju slatkiše i grickalice (63%), sokove, zaslađene napitke i gazirana pića (54%), što ukazuje na neadekvatan način ishrane. Slične podatke su objavili i drugi autori koji su potvrdili konzumiranje neadekvatne hrane zbog nemogućnosti žvakanja upravo zbog lošeg dentalnog statusa [28].

Velike probleme sa oralnim zdravljem imaju stare osobe širom sveta, pri čemu je dostupnost korišćenja stomatoloških usluga veoma mala, naročito u ruralnim krajevima. Programi promocije zdravlja posvećeni starim osobama su retki, pa procjena oralnog i nutritivnog statusa može pružiti važne informacije koje će dovesti do poboljšanja promocije oralnog zdravlja, kao i unapređenja zdravstvene zaštite starih osoba u trećem životnom dobu.

ZAKLJUČAK

Dentalni status kod starih osoba je povezan sa rizikom za nastanak malnutricije. Sociodemografske karakteristike i sopstvena percepcija zdravlja su važani faktori u proceni uticaja oralnog zdravlja na nutritivni status starih osoba. S obzirom na to da saniranje oralnih oboljenja podrazumeva velike materijalne izdatke i visok stepen angažovanosti stomatološkog osoblja i resursa, u prevenciji oralnih oboljenja akcenat treba usmeriti prema ishrani. Rezultati do kojih smo došli predstavljaju samo jedno od mogućih polazišta u procesu istraživanja i unapređivanja života starih osoba i mogu biti podsticaj za dalja istraživanja ovog fenomena. Uspostavljanje saradnje između stomatologa, lekara porodične medicine i patronažnih sestara, te poboljšanje stomatološke zaštite starih osoba, može imati značajnu ulogu u očuvanju dentalnog zdravlja i prevenciji malnutricije.

Autori izjavljuju da nemaju sukob interesa.