Procjena pacijenata o uspješnosti protetske terapije potpunim protezama različite starosti

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Sažetak

Svrha rada bila je ocijeniti zadovoljstvo pacijenata mobilno-protetskom terapijom potpunim protezama različite starosti i kakvoće te procjeniti zadovoljstvo pacijenata retencijom proteza, fonacijom, estetikom, kakvoćom žvakanja i udobnošću nošenja. Svrha je bila i ocjeniti utjecaj čimbenika kao što su dob, spol, stupanj naobrazbe, broj prijašnjih proteza, starost proteza i godine bezubosti, na zadovoljstvo pacijenata. U istraživanju je sudjelovalo 222 pacijenata, 73 muškarca i 149 žene, u dobi od 39 do 89 godina. Pacijenti su ocjenjivali svoje proteze s pomoću analogno-vizualne skale od 1 do 5, a također su ocjenjivali retenciju proteza, fonaciju, kakvoću žvakanja, udobnost nošenja proteza itd. Nakon statističke raščlambe moglo se zaključiti: 1. Pacijenti su uglavnom zadovoljni svojim protezama (asimetrična distribucija dobivenih rezultata prema najvišim ocjenama). Samo 7,2% pacijenata nije zadovoljno svojim potpunim protezama, a postotak jedinica i dvica bio je 16%. 2. Više od polovice ispitanika ocijenilo je ispitivane varijable najvišom ocjenom (5). Najbolje ocijenjene varijable (najveći postotak izvrsnih ocjena) bile su: retencija GPP sa 78,4%, fonacija sa 79,3%, udobnost (nebolnost ležišta) GPP s 88,7% i estetika sa 72,1% izvrsnih ocjena. Najlošije ocijenjene varijable jesu retencija DPP 14,4% (ocjena 1) i udobnost (nebolnost ležišta) DPP 11,7% (ocjena 1). 3. Pacijenti višega stupnja naobrazbe imaju više estetske kriterije te su lošije ocijenili estetiku proteza od pacijenata niže naobrazbe, a također su i kasnije ostali bez zuba 4. Između pacijenata različite dobi nije bilo razlike u ocjenama različitih parametara na potpunim protezama. 5. Što su pacijenti imali više napravljenih proteza, prije su ostali bez zuba i slabije su ocjenili retenciju GPP. Međutim pacijenti s prvim protezama i najboljim ležištem DPP najlošije su ocjenili retenciju DPP što upućuje na duže razdoblje privikavanja na donju protezu.

Ključne riječi: *zadovoljstvo pacijenata, potpune proteze različite starosti i kakvoće, ocjenjivanje, analogno-vizualna skala od 1 do 5.*

IZVORNI ZNANSTVENI RAD
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Uvod

Unatoč sve većoj uporabi implantata u svijetu, izradba gornje i donje potpune proteze još je uvijek najčešći način kojim se rješava problem potpune bezubosti.

Prema Bergu (1) izradba dobrih potpunih proteza ovisi o tehničkim, biološkim i fiziološkim interakcijama između pacijenta i terapeuta.

Osim vještine terapeuta mnogi su drugi čimbenici, koji ovise isključivo o pacijentu, također važni da se dobije najbolja retencija i stabilnost potpunih proteza. To su: sile adhezije i kohezije, viskozitet i volumen sline, oblik i resorpcija alveolarnih grebena, kakvoća i količina alveolarne kosti, rezilijencija sluznice, međusobni odnos alveolarnih grebena, neuromuskularna koordinacija, stanje oralne mukoze, dubina vestibularnoga prostora i hipertrofija jezika (2-7).

Većina potpuno bezubih pacijenata zadovoljna je svojim protezama (1). No unatoč dobro izrađenim potpunim protezama, uvijek postoje i pacijenti koji nisu zadovoljni pruženom protetskom terapijom i dobivenim protezama.

Istraživanja raznih autora u zadnjih trideset godina pokazala su da se broj nezadovoljnih pacijenata, koji su dobili nove dobro izrađene potpune proteze, kreće od 10-15% (8-12).

Množina pacijenata koji su nezadovoljni svojim protezama povećava se nekoliko godina nakon insercije proteza (13). U radovima u kojima se istraživalo zadovoljstvo pacijenata svojim potpunim protezama, a koje su bile različite starosti i kakvoće, broj nezadovoljnih je pacijenata bilo između 20-35% (14-18).

Postoje međutim i slučajevi da su pacijenti dobro adaptirani i zadovoljni svojim postojećim, a objektivno lošim protezama (15,19,20).

Ocjena pacijentova prihvaćanja potpunih proteza i njihova zadovoljstva ograničena je različitim načinima na koje se prikupljaju i ocjenjuju svi čimbenici koji na to utječu (8), a to su: broj korekcija proteza nakon insercije, psihičke osobitosti pacijenata, demografski i društveno-ekonomski čimbenici (dob, spol, stupanj naobrazbe, društveni položaj itd.), pacijentova očekivanja od proteza, kakvoća izradbe proteza (kakvoća materijala, retencija, stabilnost proteza, okomita relacija, estetika i fonacija, okluzija itd.), čimbenici u vezi s anatomsko-fiziološkim značajkama pacijenta (stupanj resorpcije alveolarnih grebena, kakvoća sline, hipertrofija jezika, stanje oralne mukoze itd.).

Prema Bergu (1) i Van der Waasu (21) sedam je čimbenika koji su važni pri ocjeni pacijentova zadovoljstva protezom, a to su: kakvoća proteze, stanje usne šupljine (alveolarnih grebena, mukoze), odnos pacijent-protetičar, odnos prema protezama, pacijentova osebujnost te društveno-ekonomski i demografski čimbenici, i prijašnje nošenje potpunih proteza.

Svrha rada

Svrha ovog istraživanja bila je odrediti pacijentovo zadovoljstvo mobilno-protetskom terapijom potpunim protezama različite starosti i kakvoće. Željelo se utvrditi i zadovoljstvo pacijenata retencijom proteza, fonacijom, žvakanjem i udobnošću proteza, tj. nebolnošću ležišta.

Također je svrha rada bila utvrditi utjecaj čimbenika kao što su dob, spol i edukacija pacijenata na pacijentovo zadovoljstvo mobilno-protetskom terapijom. Željelo se je utvrditi i utječu li starost proteza, broj prijašnjih proteza i godine bezubosti na pacijentovo zadovoljstvo protetskom terapijom.

Ispitanici i postupci

U ispitivanju je sudjelovalo ukupno 222 ispitanika, nositelja gornje i donje potpune proteze (GPP i DPP). U stomatološkoj ambulanti "Prelog" Doma zdravlja Čakovec pregledano je 98 ispitanika, a 124 ispitanika u ambulanti mobilne protetike Stomatološkog fakulteta u Zagrebu. Bilo je 73 ispitanika muškog i 149 ispitanika ženskog spola. Dob ispitanika bila je od 39 do 89 godina. Upotrebljena je metoda ankete. U anketi su prikupljeni opći podatci o pacijentima: spol, dob, stručna sprema, redni broj proteza i trajanje bezubosti, a pacijenti su na posebnom listiću davali ocjene svojih potpunih proteza. Posebno su ocjenjivali proteze općenito, a posebno retenciju gornje i donje proteze, fonaciju, žvakanje, udobnost proteza (nebolnost ležišta proteze) itd. Ocjenjivanje se je u početku provodilo analogno - vizualnom skalom od 1 do 10, čiji su autori Lamb i Ellis (22,23). No, pacijenti se u ocjenjivanju na skali od 1 do 10 nisu snalazili pa je odlučeno prijeći na analogno-vizualnu skalu od 1 do 5 jer su pacijenti u na-

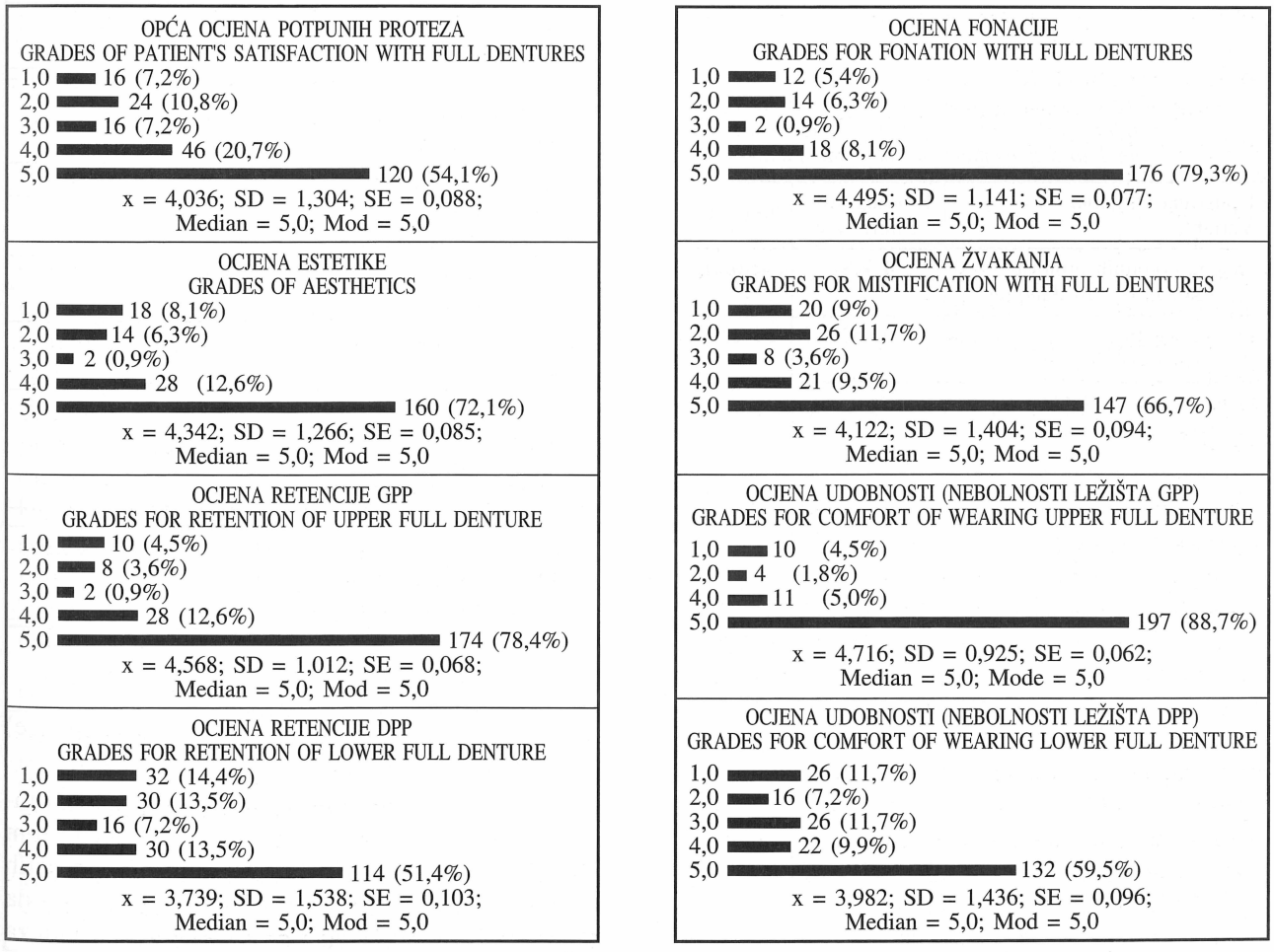
šemu društvu socijalizacijski naviknuti na skalu procjene od 1 do 5. U pacijenata koji su ispunjavali analogno-vizualnu skalu od 1 do 10 učinjena je linearna preinaka skale prema uputama koje su dobili pacijenti kada su ispunjavali izravnu skalu (od 1 do 10), tj. ako su bili nezadovoljni, ocijenili su pojedine parametre ocjenom manjom od 5. Tako su sve ocjene od 1 do 5 linearno preinačene i uvrštene pod kategorijom 1. Ocjene od 5,1 do 6,4 na izvornoj skali uvrštene su na preinačenoj skali pod 2; od 6,5 do 7,5 uvrštene su pod 3; od 7,6 do 9,5 pod 4; a sve ocjene veće od 9,5 uvrštene su pod 5. Oko 20 pacijenata ocjenjivalo je proteze skalom od 1 do 10, koja je preinačena u skalu od 1 do 5, a ostali pacijenti služili su se analogno-vizualnom skalom od 1 do 5.

Statistička raščlamba napravljena je s pomoću statističkog paketa SPSS 3,0. Od standardnih procedura koje su u sklopu programa SPSS, upotrebljene su sljedeće metode: a) računanje prosječne vrijednosti (aritmetička sredina i standardna devijacija) i izračunavanje ostalih mjera središnje tendencije (medijan, mod), b) prikaz distribucija i frekvencija grafički s pomoću histograma, c) testiranje normalnosti distribucija s pomoću Kolmogorov-Smirnova testa na svim numeričkim obilježjima, d) znatnost razlika testirana je neparametrijskim Kruskal-Wallisovim testom, budući da je ispitivanje procjena preinačeno u ordinalnu skalu a da rezultati nisu bili normalno distribuirani.

Rezultati

Rezultati provedene ankete prikazani su u Tablici 1.

Tablica 1. *Histogrami frekvencija za varijable koje su pacijenti, nositelji GPP i DPP ocjenjivali ovisno o tome koliko su zadovoljni protezama s pomoću analogno-vizualne skale od 1 do 5*
Table 1. *Histograms for variables assessed by complete denture patients using the analogue-visual scale from 1 to 5 dependent of the level of their satisfaction*



Više od polovice ispitanika ocijenilo je ispitivane varijable najvišom mogućom ocjenom, 5. Najbolje ocijenjene varijable (najveći postotak najviših ocjena) bile su: retencija GPP 78,4% izvrsnih ocjena, fonacija 79,3%, udobnost (nebolnost ležišta GPP) 88,7% i estetika 72,1% izvrsnih ocjena. Najlošije ocijenjene varijable jesu retencija DPP 14,4% (ocjena 1) i udobnost DPP (nebolnost ležišta DPP 11,7%).

Testiranje normalnosti distribucija za varijable koje su ocijenili pacijenti na osnovi analogno-vizualne skale napravljeno je Kolmogorov-Smirnovim testom, a dobiveni rezultati prikazani su u Tablici 2. Sve p vrijednosti su < 0,01, što znači da se sve distribucije razlikuju od normalne distribucije. Ocjene pacijenata nisu normalno distribuirane zato jer su izrazito asimetrične prema najvišim vrijednostima,

Tablica 2. *KOLMOGOROV-SMIRNOV test normalnosti distribucija za varijable koje su pacijenti, nositelj GPP i DPP, ocjenjivali s pomoću analogno-vizualne skale 1-5, ovisno o tome koliko su zadovoljni protezama*

Table 2. *KOLMOGOROV-SMIRNOV test of the normality of distribution for the variables assessed by the patients with dentures by analogue-visual scale from 1 to 5 dependent on their satisfaction*

Ispitivana varijabla Variable	Kolmogorov-Smirnov Z	2-tailed P
Ocjena potpunih proteza Assessment of full dentures	4,318	< 0,01
Ocjena estetike Assessment of aesthetics	6,062	< 0,01
Ocjena retencije GPP Assessment of the retention of upper full denture	6,468	< 0,01
Ocjena retencije DPP Assessment of the retention of lower full denture	4,231	< 0,01
Ocjena fonacije Assessment of fonation	6,758	< 0,01
Ocjena žvakanja Assessment of mastication	5,711	< 0,01
Ocjena udobnosti - nebolnosti ležišta GPP Assessment of the comfort of wearing upper full denture	7,479	< 0,01
Ocjena udobnosti - nebolnosti ležišta DPP Assessment of the comfort of wearing lower full denture	5,063	< 0,01

Tablica 3. *Kruskal-Wallisov test znatnosti razlike između spolova, nositelja potpunih proteza u odnosu prema njihovoj ocjeni kakvoće proteza; ** = znatno pri 99%; muški spol - n = 73; ženski spol - n = 149*

Table 3. *Kruskal-Wallis test for the significance of the difference between different gender dependent on their assessments of satisfaction with their full dentures; ** = significant at the level of 99%; males - n = 73; females - n = 149*

Ispitivana varijabla Variable	Korigirani x^2 Corrected x^2	Znatnost Probability
Godine bezubosti Years of edentulous	0,0486	0,8255
Redni broj proteza Number of previous dentures	12,2844	0,0005**
Starost postojećih proteza Age of existing dentures	0,2457	0,6201
Edukacija Level of education	15,0734	0,0001**
Općenita ocjena proteza Grade of full denture assessment	0,0173	0,8954
Ocjena estetike Grade for aesthetics	1,3174	0,2511
Ocjena retencije GPP Grade for retention of upper full denture	5,6329	0,0562
Ocjena retencije DPP Grade for retention of lower full denture	0,0192	0,8897
Ocjena fonacije Grade for fonation	1,0215	0,3122
Ocjena žvakanja Grade for mastication	0,4964	0,4811
Ocjena udobnosti (nebolnosti ležišta GPP) Grade for comfort of wearing upper full denture	1,5705	0,2101
Ocjena udobnosti (nebolnosti ležišta DPP) Grade for comfort of wearing lower full denture	0,0139	0,9063

tj. većina pacijenata dala je najviše ocjene (petice) za sve ispitivane varijable.

U Tablici 3 prikazano je testiranje znatnosti razlike Kruskal-Wallisovim neparametrijskim testom između muškog i ženskoga spola u ocjeni različitih parametara potpunih proteza. Test je pokazao da ženski **spol** ima znatno manje napravljenih proteza

Tablica 4. *Znatnost razlike (Kruskal-Wallisov test) između pacijenata s različitim stupnjevima naobrazbe u odnosu prema njihovoj ocjeni različitih čimbenika potpunih proteza, ** = znatno pri 99%; * = znatno pri 95%; EDUKACIJA: OSNOVNA ŠKOLA; ZANATSKA TROGODIŠNJA ŠKOLA; SSS ILI VKV (ČETVEROGODIŠNJA); VIŠA ŠKOLA; VISOKA ŠKOLA*

Table 4. *Kruskal-Wallis test for the significance of the difference between patients with different level of education dependent on their assessments of satisfaction with their full dentures ** = significant at the level of 99%; * = significant at the level of 95%; EDUCATION: PRIMARY SCHOOL; THREE YEAR SCHOOL; FOUR YEAR SCHOOL; HIGHER SCHOOL; UNIVERSITY*

Ispitivana varijabla Variable	Korigirani x^2 Corrected x^2	Znatnost Probability
Redni broj proteza Number of previous dentures	16,1488	0,0028*
Dob Age	7,5118	0,1112
Starost postojećih proteza Age of existing dentures	19,9735	0,0005**
Godine bezubosti Years of being edentulous	4,7183	0,3174
Općenita ocjena zadovoljstva protezama Grade of full denture assessment	11,7668	0,0192*
Ocjena zadovoljstva estetikom Grade for aesthetics	12,0855	0,0167*
Ocjena zadovoljstva retencijom GPP Grade for retention of upper full denture	14,0840	0,0070**
Ocjena zadovoljstva retencijom DPP Grade for retention of lower full denture	2,8299	0,5867
Ocjena zadovoljstva fonacijom Grade for fonation	11,7265	0,0195
Ocjena zadovoljstva žvakanjem Grade for mastication	8,6918	0,0195
Ocjena bolnosti ležišta GPP Grade for comfort of wearing upper full denture	11,0853	0,0256*
Ocjena bolnosti ležišta DPP Grade for comfort of wearing lower full denture	7,1729	0,1270

i niži stupanj naobrazbe od muškaraca ($p<0,01$; Tablica 3), a u ocjenjivanju nije bilo razlike između spolova ($p>0,05$).

U Tablici 4 prikazano je testiranje znatnosti razlike Kruskal-Wallisovim neparametrijskim testom između pacijenata različitih stupnjeva naobrazbe. Pacijenti više naobrazbe znatno su lošije ocjenili estetiku, a pacijenti nižeg stupnja naobrazbe imali su starije postojeće proteze i više napravljenih proteza te su bolje ocjenili estetiku ($p<0,05$; Tablica 4).

U Tablici 5 prikazano je testiranje znatnosti razlike Kruskal-Wallisovim neparametrijskim testom

Tablica 5. *Znatnost razlika (Kruskal-Wallisov test) između pacijenata s različitim rednim brojem proteza u odnosu prema njihovoj ocjeni kakvoći proteza; ** = znatno pri 99%; * = znatno pri 95%*

Table 5. *Kruskal-Wallis test for the significance of the difference between patients with different number of previous dentures dependent on their assessments of satisfaction with their full dentures ** = significant at the level of 99%; * = significant at the level of 95%*

Ispitivana varijabla Variable	Korigirani x^2 Corrected x^2	Znatnost Probability
Općenito - ocjena zadovoljstva protezama Grade of full denture assessment	5,6087	0,2303
Ocjena zadovoljstva estetikom Grade for aesthetics	5,3889	0,2497
Ocjena zadovoljstva retencijom GPP Grade for retention of upper full denture	13,0464	0,0111*
Ocjena zadovoljstva retencijom DPP Grade for retention of lower full denture	12,5029	0,0140*
Ocjena zadovoljstva fonacijom Grade for fonation	0,2864	0,9907
Ocjena zadovoljstva žvakanjem Grade for mastication	7,2114	0,1251
Ocjena udobnosti GPP Grade for comfort of wearing upper full denture	5,6996	0,2227
Ocjena udobnosti DPP Grade for comfort of wearing lower full denture	5,0860	0,2786

između pacijenata s različitim rednim brojem proteza. Što su pacijenti imali više napravljenih proteza (**redni broj proteza**) slabije su ocjenjivali retenciju GPP. Pacijenti s prvim protezama DPP dali su najlošije ocjene retenciji DPP ($p<0,01$; Tablica 5), a između ocjena ostalih parametara nije bilo znatne razlike.

U Tablici 6 prikazana je znatnost razlika (Kruskal-Wallisov test) između pacijenata **različitih dobnih skupina** u ocjeni kakvoće proteza. Nije bi-

Tablica 6. *Znatnost razlika (Kruskal-Wallisov test) između pacijenata različite dobi, u odnosu prema njihovoj ocjeni kakvoće proteza; ** = znatno pri 99%; * = znatno pri 95%; DOBNE SKUPINE: 1. od 0 do 50 god.; 2. od 51 do 60 god.; 3. od 61 do 70 god; 4. od 71 do 80 god.; 5. > od 81 god.*

Table 6. *Kruskal-Wallis test for the significance of the difference between patients of different age, dependent on their assessments of satisfaction with their full dentures ** = significant at the level of 99%; * = significant at the level of 95%; AGE GROUPS: 1. 0 to 50 years; 2. from 51 to 60 years; 3. from 61 to 70 years; 4. from 71 to 80 years; 5. > than 81 years*

Ispitivana varijabla Variable	Korigirani x^2 Corrected x^2	Znatnost Probability
Općenito - ocjena zadovoljstva protezama Grade of full denture assessment	8,2237	0,0837
Ocjena zadovoljstva estetikom Grade for aesthetics	3,5045	0,4772
Ocjena zadovoljstva retencijom GPP Grade for retention of upper full denture	0,7373	0,9466
Ocjena zadovoljstva retencijom DPP Grade for retention of lower full denture	1,3345	0,8555
Ocjena zadovoljstva fonacijom Grade for fonation	4,1092	0,3914
Ocjena zadovoljstva žvakanjem Grade for mastication	2,9016	0,5744
Ocjena udobnosti GPP Grade for comfort of wearing upper full denture	5,2339	0,2641
Ocjena udobnosti DPP Grade for comfort of wearing lower full denture	4,0543	0,3987

Tablica 7. *Znatnost razlike između pacijenata s različitim razdobljem bezubosti, nositelja potpunih proteza u odnosu prema njihovoj ocjeni zadovoljstva raznim čimbenicima kakvoće proteza; **= znatno pri 99%; *= znatno pri 95%*

Table 7. *Kruskal-Wallis test for the significance of the difference between patients with different period of being edentolous dependent on their assessments of satisfaction with their full dentures **= significant at the level of 99%; *= significant at the level of 95%*

Ispitivana varijabla Variable	Korigirani x^2 Corrected x^2	Znatnost Probability
Redni broj proteza Number of previous dentures	82,4989	< 0,01**
Starost postojećih proteza Age of existing dentures	38,0824	< 0,01**
Naobrazba Level of education	4,8248	0,1851
Općenita ocjena zadovoljstva protezama Grade of full denture assessment	5,6272	0,1312
Ocjena zadovoljstva estetikom Grade for aesthetics	2,4165	0,4906
Ocjena zadovoljstva retencijom GPP Grade for retention of upper full denture	1,4874	0,6852
Ocjena zadovoljstva retencijom DPP Grade for retention of lower full denture	6,2380	0,1006
Zadovoljstvo retencijom GPP i DPP Grade for retention of both full dentures	3,6844	0,2976
Ocjena zadovoljstva fonacijom Grade for fonation	2,1907	0,5338
Ocjena zadovoljstva žvakanjem Grade for mastication	2,9960	0,3922
Ocjena bolnosti ležišta GPP Grade for comfort of wearing upper full denture	9,8235	0,0201
Ocjena bolnosti ležišta DPP Grade for comfort of wearing lower full denture	2,8136	0,4213

lo statistički znatnih razlika u ocjenjivanju između pacijenata različite dobi.

U Tablici 7 prikazana je znatnost razlike između **pacijenata s različitim razdobljem bezubosti,** nosilaca potpunih proteza u odnosu prema njihovoj ocjeni zadovoljstva raznim čimbenicima kakvoće proteza. Ocjene se nisu znatno razlikovale, ali su pacijenti s dužim razdobljem bezubosti imali prosječno starije postojeće proteze, ili su imali više proteza (viši redni broj proteza) ($p<0,01$).

Rasprava

Pacijenata koji su nezadovoljni svojim novim dobro napravljenim protezama ima 10-15% prema rezultatima raznih autora (8-12), i taj se postotak povećava nekoliko godina nakon insercije proteza (13). Broj nezadovoljnih pacijenata potpunim protezama, različite starosti i kakvoće, kreće se između 20-35% (14-18). Pri tome postoje i slučajevi da su pacijenti dobro adaptirani i zadovoljni svojim postojećim, premda objektivno lošim protezama (15,19,20,21).

Kako bi se ustanovilo koliko su pacijenti zadovoljni svojim protezama, slučajnim izborom odabrano je 222 pacijenta, nositelja različito starih gornjih i donjih potpunih proteza. Pacijenti su ispunili anketni listić i s pomoću analogno-vizualne skale od 1-5 ocijenili svoje proteze ovisno o tome koliko su njima bili zadovoljni, a također su posebno ocijenili retenciju proteza, estetiku, fonaciju, žvakanje i udobnost. Anketa je bila anonimna kako bi se osigurala objektivnost ocjenjivanja. U početku se je upotrebljavala izvorna analogno-vizualna skala (AV skala) od 1 do 10 po Lambu i Ellisu (22, 23), ali je utvrđeno da pacijenti imaju poteškoća procjenjivati u rasponu od 1 do 10. Zato je odlučeno skalu od 1 do 10 zamijeniti analogno-vizualnom skalom od 1 do 5, jer su ljudi socijalizacijski u našemu društvu naviknuti na taj raspon ocjena od osnovne škole do fakulteta. Za dvadeset pacijenata, koji su se služili skalom od 1 do 10, skala je linearno preinačena u skalu od 1 do 5.

Ocjene proteza bile su iznenađujuće visoke. Više od polovice ispitanika ocijenilo je ispitivane varijable najvišom ocjenom (5), što je bolje od rezultata sličnih ispitivanja u drugim zemljama. Najbolje ocijenjene varijable (najveći postotak najviših, tj. izvrsnih ocjena) bile su: retencija GPP sa 78,4%, fonacija sa 79,3%, nebolnost ležišta GPP s 88,7% i estetika sa 72,1% izvrsnih ocjena. Najlošije ocijenjene varijable jesu retencija DPP 14,4% (ocjena 1) i nebolnost ležišta DPP, tj. udobnost DTP 11,7% (ocjena 1).

Potpuno nezadovoljnih pacijenata potpunim protezama prema ovom istraživanju bilo je samo 7,2% (ocjena 1). Ako se i ocjena 2, koja je prolazna, uzme kao loša ocjena, onda je zajedno s ocjenom jedan 16% pacijenata nezadovoljno svojim protezama (opća ocjena potpunih proteza). To je bolji rezultat od sličnih ispitivanja u drugim zemljama gdje je ustanovljeno da je nezadovoljnih pacijenata protezama različite starosti između 20-35% (4,5,6), iako rezultati nisu potpuno usporedivi zbog uporabe različitih skala procjene.

Rezultate slične našima navodi Van der Waas (24,25). U njegovu istraživanju 55% pacijenata vrlo je zadovoljno potpunim protezama, 26% umjereno, a 15% pacijenata njima je nezadovoljno.

Najmanji postotak jedinica i dvica pacijenti su dali za fonaciju i estetiku proteza, koji su uz retenciju GPP ujedino dobili i najviše izvrsnih ocjena, a najviše jedinica i dvica pacijenti su dali za retenciju DPP, udobnost DPP, žvakanje i za opću ocjenu potpunih proteza. Retencija DPP ujedino je dobila i najmanje izvrsnih ocjena. Kolmogorov-Smirnovim testom utvrđeno je da se je distribucija ocjena koje su pacijenti dali svojim potpunim protezama znatno razlikovala od normalne distribuirane po Gaussu ($p<0,01$, Tablica 2) i to zato što je distribucija bila izrazito asimetrična prema najvišim vrijednostima (Tablica 1). Lamb i Ellis (22,23), koji su ispitivanja zadovoljstva potpunim protezama provodili s pomoću analogno-vizualne skale od 1 do 10, također nisu dobili normalnu distribuciju ocjena, već je distribucija bila bimodalna s grupacijom oko 2,5, što je odgovaralo nezadovoljnim pacijentima, i oko 7,5, što je odgovaralo zadovoljnim pacijentima. Prema rezultatima ovog istraživanja nije bilo bimodalne distribucije ocjena, već je distribucija asimetrična zbog najviše najboljih ocjena. To može značiti da su naši pacijenti zadovoljniji, da su proteze bolje, da pacijenti nisu previše zahtjevni ili da skala procjene drugačije funkcionira u raznim populacijama. I u pacijenata koji su ispunjavali skalu od 1 do 10 (koja je poslije preinačena u skalu od 1 do 5) također nije bilo bimodalne grupacije ocjena, već je također postojala izrazita asimetrija prema najvišim vrijednostima.

Da bi se utvrdilo imaju li neki društveno-demografski čimbenici utjecaj na pacijentovo zadovoljstvo i ocjenjivanje potpunih proteza testirano je postoje li razlike između pacijenata različitih spolova, različita stupnja naobrazbe, različitih dobnih skupina i pacijenata koji imaju različit redni broj proteza ili su bezubi duže ili kraće razdoblje. U tu svrhu upotrebljen je neparametrijski Kruskal-Wallisov test za nezavisne uzorke, budući da su se distribucije razlikovale od normalne.

Kruskal-Wallisov test pokazao je da ženski **spol** ima znatno manje napravljenih proteza i niži stupanj naobrazbe od muškaraca ($p<0,01$; Tablica 3), ali se u ocjenama potpunih proteza pacijenti nisu razlikovali po spolu. Manji redni broj proteza u ženskoga spola mogao bi se pripisati činjenici da žene više skrbe o svojemu izgledu, a time i o svojim zubima, te zato kasnije ostaju bezube nego muškarci. Kada je riječ o naobrazbi, općenito je poznato da su u populaciji starije dobi bolje naobraženi muškarci, a to je i usputni rezultat ove studije.

Statistički znatna razlika među pacijentima različitih stupnjeva **naobrazbe** ($p<0,05$, Tablica 4) postoji za sljedeće varijable: za redni broj proteza, starost postojećih proteza, opću ocjenu proteza i za ocjenu estetike. Pacijenti višega stupnja naobrazbe lošije su ocjenili estetiku proteza jer vjerojatno imaju drugačije kriterije (više kriterije) za ocjenu estetike, dok su pacijenti nižega stupnja naobrazbe (osnovna škola i zanat) dale najbolje ocjene estetici proteza. Pacijenti najvišeg stupnja naobrazbe imaju manji redni broj proteza, ali su im postojeće proteze starije od prosjeka (to su im prve proteze). U skupini najviše naobraženosti bila su samo dva pacijenta, a to je premalen uzorak za valjan zaključak. Pacijenti nižega stupnja naobrazbe imali su veći broj napravljenih proteza, vjerojatno zato što su ostali ranije bez zuba jer se razlikuju i po dužini razdoblja bezubosti ($p<0,01$; Tablica 4).

Statistički znatna razlika između pacijenata s različitim **rednim brojem proteza** postoji za ocjenu zadovoljstva retencijom GPP i DPP ($p<0,05$, Tablica 5).

Za retenciju GPP statistički znatnu razliku čine pacijenti s već petim protezama, koji su dali najlošiju ocjenu za retenciju, što je vjerojatno uvjetovano i resorpcijom alveolarnoga grebena nakon dugoga razdoblja bezubosti te je zato retencija na resorbiranom alveolarnom grebenu manja.

Zanimljiv nalaz odnosi se na retenciju DPP. Pacijenti s najmanjim rednim brojem proteza (prve proteze) dali su najlošiju ocjenu za retenciju svoje donje potpune proteze. Dakle, pacijenti koji imaju najbolje ležište DPP dali su najlošiju ocjenu retenciji DPP, a pacijenti s jače resorbiranim grebenima davali su bolje ocjene. Ovaj nalaz je vjerojatno uvjetovan dužim razdobljem potrebnim da se pacijent neuromuskularno prilagodi na DPP te da uskladi funkciju mišića koji okružuju protezu tako da njihova funkcija pomogne u stabilizaciji proteza, a ne da se uslijed kontrakcije okolnih mišića proteza odiže s ležišta.

Između pacijenata **različitih dobnih skupina** nije postojala statistički znatna razlika u ocjenjivanju proteza ($p>0,05$; Tablica 6). Pacijenti su vjerojatno postali bezubi u različitoj dobi, tako da resorpcija i zato lošija retencija nisu bili ovisni o dobnoj skupini.

Znatnost razlike u pacijenata s različitim **brojem godina bezubosti** pokazale su ove varijable: redni broj proteza i starost postojećih proteza (Tablica 7, $p<0,05$). Znači da su pacijenti koji su rano ostali bez zuba imali više puta napravljene potpune proteze i da je starost postojećih proteza bila veća u pacijenata koji su duže vremena bez zuba. U ocjenjivanju proteza nije bilo znatne razlike.

Zaključci

1. Pacijenti su uglavnom zadovoljni svojim protezama (asimetrična distribucija dobivenih rezultata prema najvišim ocjenama). Samo 7,2% pacijenata nije zadovoljno svojim potpunim protezama, a postotak jedinica i dvica bio je 16%.
2. Više od polovice ispitanika ocijenilo je ispitivane varijable najvišom ocjenom (5). Najbolje ocijenjene varijable (najveći postotak izvrsnih ocjena) bile su: retencija GPP sa 78,4%, fonacija sa 79,3%, udobnost (nebolnost ležišta) GPP s 88,7% i estetika sa 72,1% izvrsnih ocjena. Najlošije ocijenjene varijable jesu retencija DPP - 14,4% (ocjena 1) i udobnost (nebolnost ležišta) DPP-11,7% (ocjena 1).
3. Pacijenti višega stupnja naobrazbe imaju više estetske kriterije te su lošije ocijenili estetiku proteza od pacijenata nižega stupnja školovanja, a također su i kasnije ostali bez zuba.

4. Između pacijenata različite dobi nije bilo razlike u ocjenama različitih parametara na potpunim protezama.
5. Što su pacijenti imali više napravljenih proteza, ranije su ostali bez zuba i slabije su ocjenili retenciju GPP. No pacijenti s prvim protezama i najboljim ležištem DPP najlošije su ocjenili retenciju DPP, što upućuje na duže razdoblje privikavanja na donju protezu.

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Patients' Satisfaction with Full Dentures of Varying Age

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Summary

The aim of this study was to evaluate patients' satisfaction with their full dentures of various age and quality and to evaluate patients' satisfaction with denture retention, fonation, chewing ability and the comfort of wearing dentures. Also, the aim was to evaluate the influence of some factors, such as age, sex and the level of education on patients' satisfaction with their full dentures and also to evaluate if the age of the present dentures, the number of previous dentures and the number of years of being edentulous have any influence on patient's satisfaction with complete prosthodontic therapy. A total of 222 patients with complete upper and lower dentures took part in this study. There were 73 males and 149 females, between 39 and 89 years old. Patients graded their dentures, depending on the level of satisfaction with their full prosthodontic appliance. They graded their dentures in total by using an analogue-visual scale from 1 to 5 and they also graded retention of their dentures, fonation, mastication, comfort of wearing dentures, etc. Upon the statistical analysis the following conclusions were made: 1. Patients are mostly satisfied with the quality of their full dentures (the distribution of the scores of the patients' assessments is asymmetrical towards the highest scores in all examined categories). Only 7.2 per cent of the patients are not absolutely satisfied with their dentures (score 1) and the per cent of score 1 + score 2 was only 16 per cent. 2. More than half of the examined patients scored all the examined variables in the best score category (5). The best grades (the biggest percentage of the highest scores) were given to the following variables: retention of the upper full denture 78.4%, fonation 79.3%, comfort of wearing upper full denture 88.7% and aesthetics 72.1%. Variables with

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the worst grades were retention of full lower denture- 14.4% (grade 1) and the comfort of wearing the lower full denture (no pain in the mucosa of the lower denture bearing area) - 11.7% of grades 1. 3. Patients of a higher level of education have higher criteria for the aesthetic appearance than patients with a lower level of education and they assessed their denture aesthetics with lower grades. They also became edentulous at an older age than the patients with a lower level of education. 4. There was no significant difference in patients' assessments of the quality of their complete dentures between the different age groups 5. A greater number of previous dentures, earlier the patients became edentulous and lowly graded retention of the upper full denture. On the contrary, patients with the first full dentures assessed retention of the lower full denture with the worst grades, which point to the longer period necessary for neuromuscular adaptation to the lower full denture than to the upper one.

Key words: *patients' satisfaction, full dentures, different age and quality, analogue-visual scale from 1 to 5.*

Introduction

In spite of the increasing use of dental implants, the commonest way to treat edentulousness is still by means of a conventional full denture.

According to Berg (1) construction of good complete dentures depends on technical, biological and physiological interactions between the patient and the dentist.

Apart from the dentist's skill, many other factors which depend entirely on the patient, are also very important to achieve optimum retention and stability of full dentures. These factors include adhesion and cohesion, viscosity and the flow of saliva, shape and the degree of resorption of alveolar ridges, quality and quantity of alveolar bone, resiliency of soft tissue, relationship between the upper and the lower alveolar ridges, neuromuscular co-ordination, state of oral mucosa, the depth of vestibular sulcus or hypertrophy of the tongue (2-7).

The great majority of patients are satisfied with their complete dentures (1). However, even if the dentures are constructed to all accepted criteria, some patients will still be dissatisfied with their prosthodontic treatment and their new dentures.

In a number of studies over the past thirty years the proportion of full denture patients who are dissatisfied with new and well made prosthesis, are found to range between 10 and 15 per cent (8-12).

The degree of satisfaction appears to decrease rapidly during the first couple of years after insertion (13). In epidemiological studies on patients' satisfaction with their dentures of varying ages and qualities, the proportion of dissatisfied patients is reported to range between 20 and 35 per cent (4-18).

However, many patients are satisfied and overadapted to their inadequate complete dentures (15, 19,20).

Evaluation of patients' acceptance and satisfaction with their complete denture therapy is limited by various methods of collecting and grading of all the factors which might have an influence (8), such as: number of corrections after insertion, mental characteristics of the patient, demographic and socioeconomic factors (age, gender, level of education, social state, etc.), patient's expectancy regarding the dentures, quality of denture construction (quality of denture material, retention, stability, proper vertical relation, aesthetics, fonation, occlusion etc.), factors which are connected with anatomic and physiolo-

gic characteristics of the patient (degree of alveolar ridge resorption, quality of saliva, tongue hypertrophy, state of oral mucosa and the denture bearing area etc.).

According to Berg (1) and Van der Waas (21) seven factors are the most important in assessing the patient's satisfaction with complete denture therapy, such as: quality of the denture, oral condition (state of the denture bearing area, alveolar ridges, oral mucosa), relationship between the patient and therapist, attitude toward dentures, patient personality and socio-economical and demographic factors, as well as previous complete denture experience.

Aim of the study

The aim of this study was to evaluate patients' satisfaction with removable prosthodontic therapy with full dentures of various age and quality. The aim was to evaluate the patient's satisfaction with denture retention, fonation, chewing ability and the comfort of wearing dentures, i.e. no pain from the denture bearing area.

The aim was also, to evaluate the influence of some factors, such as age, sex and the level of education on patients' satisfaction with their full dentures and also to evaluate if the age of the present dentures, the number of previous dentures and the number of years of being edentulous have any influence on the patient's satisfaction with complete prosthodontic therapy.

Subjects and methods

A total of 222 patients with complete upper and lower dentures took part in this study 98 patients were examined in the dental surgery "Prelog" at the Health Centre Čakovec and 124 patients were examined in the Department of removable prosthodontics, School of Dental medicine, Zagreb. There were 73 males and 149 females. Patients were between 39 and 89 years old. A questionnaire was devised for the purpose of the study and was completed by the patients. They were required to answer questions on gender, age, level of education, number of previous denture experiences and the period of being edentulous. On a separate sheet of paper, patients graded their dentures, depending on the level of satisfaction with their full prosthodontic appliance. They first graded their dentures in total and then they graded separately retention of their dentures, fonation, mastication, comfort of wearing dentures etc. Initially patients graded their dentures by using Lamb and Ellis (22,23) analogue-visual scale from 1 to 10, but as they experienced difficulties using this scale and it was therefore decided to use an analogue-visual scale from 1 to 5, because patients in our society are familiar with grades from 1 to 5, as it is a scale that is common and used in all schools and Universities. For those patients (twenty) who completed the questionnaire by using the scale from 1 to 10, the scale was transformed linearly to the scale from 1 to 5 according to the instructions they had been given while assessing their dentures. Namely, - if they had been dissatisfied, they graded the dentures less than 5. So all the scores less than 5 were transformed to 1. Scores from 5.1 to 6.4 were transformed to 2, scores from 6.5 to 7.5 were transformed to 3, scores from 7.6 to 9.4 were transformed to 4, and all scores higher than 9,5 were transformed to 5.

Statistical analysis was made by using the statistical software SPSS 3.0 for Windows (mean, standard deviation, median, mode, frequencies, testing the normality of distribution by Kolmogorov-Smirnov test, testing the differences between males and females, differences between different level of education, different number of years being edentulous and different number of previous dentures by the Kruskal-Wallis test).

Results

The results of the completed questionnaire are shown in Table 1.

More than half of the patients graded all the parameters on the full denture in the best category (score 5). The parameters with the best grades (the highest percent of the best grades) were as follows: retention of upper full denture -78.4%, fonation - 79.3%, comfort of wearing upper full denture - 88.7% and aesthetics - 72.1% of the highest grades. The parameters with the highest percent of the lowest grades were: retention of the lower full denture - 14.4% (score 1) and the comfort of wearing the lower full denture - 11.7% (score 1).

The normality of the distribution of the scores for the assessed variables on the analogue-visual scale from 1 to 5 was tested by Kolmogorov-Smirnov test, and the results are shown in Table 2. All p values were < 0.01, which means that all the distributions were different from the normal distribution, due to the fact that most evaluations from the patients were listed in the best category (quality, aesthetics, retention etc.) and therefore the results of their assessments were not distributed normally, but were asymmetrical towards the highest categories.

The significance of the difference between males and females in assessment of satisfaction with complete dentures, tested by the non-parametric Kruskal-Wallis test is shown in Table 3. Females had a significantly lower number of previous dentures and lower level of education than males ($p<0.01$), and there was no significant difference in assessment of their dentures ($p>0.05$).

The significance of the difference between patients with different levels of education in assessment of their satisfaction with complete dentures, tested by the non-parametric Kruskal-Wallis test is shown in Table 4. Patients with a higher level of education gave significantly lower scores for aesthetics, and patients with a higher level of education had a significantly smaller number of previous dentures and older existing dentures ($p<0.05$).

The significance of the difference between patients with a different number of previous dentures in assessment of their satisfaction with complete dentures, tested by the non-parametric Kruskal-Wallis test is shown in Table 5. Patients with a greater number of previous dentures gave lower scores for the retention of upper full dentures and patients with the first full lower dentures gave the lowest grades for retention of the lower full denture ($p<0.01$). There was no statistically significant difference between the other parameters.

The significance of the difference between patients of different age in assessment of their satisfaction with complete dentures, tested by the non-parametric Kruskal-Wallis test is shown in Table 6. There was no significant difference between assessments of patients of different age.

The significance of the difference between patients with different periods of being edentulous in assessment of their satisfaction with complete dentures, tested by the non-parametric Kruskal-Wallis test is shown in Table 7. The grades were not significantly different, but patients with longer periods of being edentulous had on average older existing dentures and/or a greater number of previous dentures ($p<0.01$).

Discussion

The proportion of full denture patients who dissatisfied with new and well made prosthesis, has been found range between 10 and 15 per cent (8-12) and this proportion increases several years after denture insertion (13). In epidemiological studies on patients' satisfaction with their dentures of varying ages and qualities, the proportion of dissatisfied patients is reported to range between 20 and 35 per cent (4-18). However, many patients are satisfied and overadapted to their inadequate complete dentures.15,19,20

A total of 222 patients with complete upper and lower dentures took part in this study, in order to determine patients' satisfaction with their full dentures of different age. Patients filled in the questionnaire and by using the analogue-visual scale from 1 to 5, assessed their satisfaction with their full dentures in general, and also assessed different parameters, such as denture retention, aesthetics, fonation, mastication and the comfort of wearing the dentures. Patients were anonymous to assure objectivity of their assessments. Patients started their assessments with the analogue-visual scale from 1 to 10 by Lamb and Ellis (22,23), but as they experienced difficulties in assessment with the range from 1 to 10, it was decided to use a scale from 1 to 5 as people in this country are used to assessments from 1 to 5, which is the scale used in schools and universities. For twenty patients who had already finished their assessments using the scale from 1 to 10, this was linearly transformed to the scale from 1 to 5.

The grades of the patients' assessments were surprisingly high. More than half of the patients graded all the parameters on the full denture in the best category (score 5). The parameters with the best grades (the highest percent of the best grades) were as follows: retention of upper full denture - 78.4%, fonation - 79.3%, comfort of wearing upper full denture - 88.7% and aesthetics - 72.1% of the highest grades. The parameters with the highest percent of

the lowest grades are: retention of the lower full denture - 14.4% (score 1) and the comfort of wearing the lower full denture - 11.7% (score 1).

According to this study the number of completely dissatisfied patients, was only 7.2% (grade 1). Even if grade 2 is considered unsatisfactory, then together with grade 1, only 16% of complete denture patients remain dissatisfied in general with their dentures. This is a better result than the result of similar studies in other countries, where it was concluded that the number of patients dissatisfied with their complete dentures of different age varies between 20-35% (4-6), although the results are not completely comparable, as the scales of assessments were not the same.

The results which are most similar to ours are the results of Van der Waas (24,25) . According to his results, 55% of patients are completely satisfied, 26% of patients are reasonably satisfied, and 15% of patients are dissatisfied with their full dentures.

According to this study, the lowest per cent of grades 1 and 2 were given to fonation and aesthetics and the same categories, together with the retention of the upper full denture, received the highest grades too. The highest per cent of grades 1 and 2 were given to retention and comfort of wearing the lower full denture, followed by mastication and general assessment for both dentures. Retention of the lower full dentures, also had the lowest number of the best grades.

Distribution of the grades of patients' assessments for all the examined categories was significantly different from the normal distribution, as tested by the one sample Kolmogorov-Smirnov test ($p<0.01$, Table 2), because the distribution was completely asymmetrical towards the highest grades (Table 1). Lamb and Ellis (22,23), who tested their patients by the analogue-visual scale from 1 to 10, also had distribution of results different from the normal distribution. However, their distribution was of a bimodal type, with groupation of the results around 2.5 and 7.5, which matched to satisfied and dissatisfied patients. In this study, the distribution was not of a bimodal type, but was asymmetrical towards the highest scores. This could mean that the patients in this study are more satisfied with their dentures, or that their expectations from the complete denture therapy are not unrealistic, or that the scale from 1 to 5 is different from the scale from 1 to 10 in patients' assessments. Even in patients who assessed the dentures using the scale from 1 to 10 (which was later transformed to the scale from 1 to 5), the distribution was not bimodal, but was asymmetrical towards the highest grades.

With the aim of determining whether some socio-demographic factors have any influence on patients' satisfaction and their assessments of full dentures, the difference between different genders was tested, as well as the difference between different levels of education, different age groups, different number of previous dentures and different period of being edentulous. Therefore, the non-parametric Kruskal-Wallis test for independent samples was used, as the distributions of the obtained data were different from the normal distribution.

As assessed by the Kruskal-Wallis test, females had a significantly lower number of previous dentures and the lower level of education than males ($p<0.01$; Table 3), although satisfaction with dentures was not different between sexes. The lower number of previous dentures in females could be attributed to the fact that women care about their appearance more than men, including care of the teeth, so they become edentulous later than men.With regard to education, it is well known that in our society he men of older age have better education than women of older age.

Significant differences between patients with different levels of education ($p<0.05$, Table 4) were calculated for the following variables: different number of previous dentures, age of existing dentures, overall assessment for both dentures and the scores for aesthetics. Patients of a higher level of education gave lower scores to aesthetics than the patients of a lower level of education (only primary school or primary school + 3 years) who gave higher grades to aesthetics, probably for the different criteria used in the assessment. Patients with the highest level of education had the lowest number of previous dentures, although the existing dentures were older than the average age of dentures in our patients, as they were the first dentures. Only two patients were included in this group of the highest level of education with complete dentures, which is too small a sample for relevant conclusion. Patients of a lower level of education had a greater number of previous dentures, probably because they became edentulous younger than the patients with a higher level

of education. Patients with a lower level of education also had a longer period of being edentulous ($p<0.01$; Table 4).

The difference was significant between the patients with a different number of previous dentures in assessments of retention of the upper and lower complete dentures ($p<0.05$, Table 5).

In assessment of retention of the upper full denture, the significant difference is due to patients with a fifth upper complete denture, who assessed their retention as the worst, which is probably due to the resorption of the upper denture bearing area after a long period of being edentulous and consequent lower retention.

An interesting result was connected with the retention of the lower full denture. Patients with the lowest number of previous dentures (first full dentures) assessed retention of their complete lower dentures as the worst. In order words the patients with the best residual alveolar ridges in the lower jaw and with the best denture bearing area gave the worst scores for retention of the lower full denture. This could be due to the long period of neuromuscular adaptation to the lower complete denture and the long period which is neccessary to adapt the function of the muscles of lips and cheek and the tongue which surround the lower denture to the denture flange.

There was no significant difference between patients of different age groups in assessment of their dentures (Table 6, $p>0.05$). Patients lost their teeth probably at different ages, so the resorption of alveolar ridges was not dependent upon age.

In patients with different years of being edentulous the difference was significant between the following variables: number of previous dentures and age of the existing dentures (Table 7, $p<0.05$). This means that the patients who became edentulous in younger age had a greater number of previous dentures and/or existing dentures were older. There was no other significant differences in assessments between patients with different years of being edentulous.

Conclusions

1. Patients are generally satisfied with the quality of their full dentures (distribution of the scores of patients' assessments is asymmetrical towards the highest scores in all examined categories). Only 7.2 per cent of the patients were not absolutely satisfied with their dentures (score 1) and the per cent of score 1 + score 2 was only 16 per cent.
2. More than half of the examined patients scored all the examined variables in the best score category (5). The best grades (the highest percentage of the highest scores) were given to the following variables: retention of the upper full denture 78.4%, fonation 79.3%, comfort of wearing upper full denture 88.7% and aesthetics 72.1%. Variables with the worst grades were retention of full lower denture 14.4% (grade 1) and comfort of wearing the lower full denture (no pain in the mucosa of the lower denture bearing area) - 11.7% of grade 1.
3. Patients of a higher level of education have higher criteria for the aesthetic appearance than patients with a lower level of education and they assessed their denture aesthetics with lower grades. They also became edentulous at an older age than the patients with a lower level of education.
4. There was no significant difference in patients' assessments of the quality of their complete dentures between the different age groups.
5. A greater number of previous dentures, earlier the patients became edentulous and lowly graded the retention of the upper full denture. On the contrary, patients with first full dentures assessed the retention of the lower full denture with the worst grades, which point to the longer period necessary for neuromuscular adaptation to the lower full denture than to the upper one.