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Utjecaj spola na pacijentovu procjenu nadomjestaka na gornjim prednjim zubima

Influence of Gender on the Patient's Assessment of Restorations on the Upper Anterior Teeth

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Sažetak

Svrha rada: Željelo se istražiti zadovoljstvo pacijenata izgledom nadomjestaka na gornjim prednjim zubima i ustanoviti postoji li razlika u procjeni njihova izgleda s obzirom na spol. **Materijali i metode:** Dvjesto pacijenata ocjenjivalo je boju, anatomske oblike i površinske teksture nadomjestaka (kompozitni ispuni, fasetirane krunice, metalceramičke i potpuno keramičke krunice) uspoređujući ih sa susjednim prirodnim zubima. Podatci su izraženi u prosječnim ocjenama boje, anatomske oblike i površinske teksture nadomjestaka te u ukupnim prosječnim ocjenama pacijenata za svaku vrstu nadomjestka i prosječnim ocjenama boje, anatomske oblike i površinske teksture svih nadomjestaka u cjelini. Pacijenti su također procjenjivali opći dojam nadomjestaka na gornjim prednjim zubima i ocijenili ga zadovoljavajućim ili nezadovoljavajućim. **Rezultati:** Statistički značajna razlika prema spolu bila je u ocjeni boje i površinske teksture kompozitnih ispuna te u ukupnoj prosječnoj ocjeni boje svih nadomjestaka ($p < 0,05$). Naime, žene, dakle pacijentice, bile su nezadovoljnije općim dojmom svojih nadomjestaka na gornjim zubima negoli muškarci ($p > 0,05$). Jedino je ukupna prosječna ocjena kompozitnih ispuna dosegla razinu značajnosti ($p = 0,069$) kad je riječ o općem dojmu pacijenata. **Zaključak:** Boja nadomjestka i kompozitni materijal značajni su čimbenici koji utječu na izgled pacijentovih gornjih prednjih zuba.

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Ključne riječi

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Uvod

Ljepota je fenomen osjećaja ugone kroz percepciju ravnoteže (1). Estetika je postala važna u suvremenom društvu jer definira nečiji karakter (2). Kad se smijemo, naš osmijeh postaje meta promatranja osobe s kojom komuniciramo (3). U prošlosti su funkcionalni zahtjevi bili glavni čimbenik u liječenju zuba, a danas, nakon pada prevalencije karijesa, fokus se pomaknuo prema stomatološkoj estetici (2).

Postići izgled prirodnih zuba postao je važan zadatak u svim granama stomatologije, pogotovo u protetici i restorativnoj stomatologiji (4). Zato kliničari moraju biti spremni na to da trebaju zadovoljiti estetske zahtjeve i očekivanja svojih pacijenata (5).

Pacijenti i stomatolozi mogu imati različita mišljenja o estetski lijepom osmijehu (6). Kad je riječ o oralnom zdravlju stajališta su pod utjecajem spola, stručne spreme i socijalnog podrijetla pacijenta (7,8), što znači da različite skupine bolesnika imaju različita mišljenja o izgledu svojih zuba (9).

Kvaliteta procjene kliničara i pacijenta može varirati (4). Podudaranje u mišljenjima između ispitanika i kliničara o potrebom stomatološkom liječenju vrlo je nisko, što ističe

Introduction

Beauty is the phenomenon of experiencing pleasure through the perception of balance (1). Aesthetics has become an important issue in modern society, as it seems to define one's character (2). When we smile, our smile could often become the target of close scrutiny by the person you are smiling at (3). In the past, functional demands were the main consideration in dental treatment, and today, with decrease in caries prevalence, the focus has shifted toward dental aesthetics (2).

Creation of a natural dental appearance has become an important task in all fields of dentistry, especially in prosthodontics and restorative dentistry (4). That is why clinicians must be prepared to meet the aesthetic demands and high expectations of their patients (5).

Patients and dentists may have conflicting opinions regarding a definition of an aesthetically pleasing smile (6). The attitude towards oral health is influenced by gender, level of education and social background of patients (7, 8), which means that various groups of patients have different attitudes towards the appearance of their teeth (9).

odstupanja u procjeni je li potreban estetski stomatološki zahvat (10). Percepcija pacijenta i njegova očekivanja u vezi s vlastitim izgledom važna su u planiranju terapije (11). Osim glavnih pritužbi, liječnik mora moći procijeniti pacijentove fizičke, biološke i estetske potrebe (12). Ako se postigne zadovoljstvo pacijenta, to potiče njegovo sudjelovanje u projekiranju osmijeha (5).

Estetski stomatološki zahvati velik su izazov liječnicima (12). Stomatološki materijali trebali bi idealno odgovarati karakteristikama prirodnih zuba (13,14). Optička svojstva svake estetske restoracije određuje boja temeljne strukture zuba i boja cementa te debljina i neprozirnost materijala (13).

Kompozitne smole najčešće se upotrebljavaju u restorativnoj stomatologiji. Debljina jednog ili više materijala može značajno promijeniti ishod (15). Kompozitni ispuni dobar su izbor za terapiju oštećenih zuba (16,17), ali njihova je trajnost upitna zbog nakupljanja boje, lomova i habanja.

Svojstva dentalne keramike su stabilnost boje, mehanička čvrstoća, klinička dugovječnost, estetski izgled i kompatibilnost s parodontnim tkivima (12). U mnogim studijama dokazano je da su potpuno keramičke krunice nadomjestci koji nude predvidivu i uspješnu estetsku terapiju (18,19,20).

Svrha ovog istraživanja bila je procijeniti zadovoljstvo pacijenta izgledom nadomjestaka na gornjim prednjim zubima uspoređujući ih s prirodnim susjednim zubima i ocjenjujući objektivne estetske parametre – boju, oblik i površinsku teksturu. Svrha ovog istraživanja bila je također utvrditi postoji li razlika u procjeni nadomjestka u odnosu na spol ispitanika.

Ispitanici i postupci

Ispitivani su nadomjestci na gornjim prednjim zubima (kompozitni ispuni, fasetirane akrilatne krunice, metalkeramičke krunice i potpuno keramičke krunice) kod pacijenata koji dolaze u privatnu stomatološku ordinaciju. Svrha istraživanja objašnjena je svim sudionicima i svi su potpisali informativni pristanak. Iz ispitivanja su izostavljeni pacijenti bez restoracija u toj regiji, oboljeli od parodontnih bolesti i oni s pomičnim zubima. Zatim su zabilježeni podaci o spolu, dobi, zanimanju i stupnju obrazovanja svih sudionika.

Ukupno je 200 odraslih ispitanika sudjelovalo u istraživanju (88 muškaraca – prosječna dob 39 godina i 122 žene – prosječna dob 40 godina). Svi su imali nadomjestke na gornjim prednjim zubima i to kompozitne ispune, fasetirane akrilatne krunice te metalkeramičke ili potpuno keramičke krunice.

Pacijenti su ocjenjivali međusobno poklapanje u boji i anatomskom obliku te u površinskoj teksturi između nado-

Quality evaluations may vary with clinical or patient assessments (4). The agreement between perception of subjects and clinical assessment of aesthetic dental treatment need was found to be very low, which highlighted discrepancies between perception of patients and dentists for aesthetic needs (10). Patients' perceptions and expectations regarding their appearance play a significant role in treatment planning (11). Apart from listening carefully to main complaints, clinicians must also be able to evaluate the patient's physical, biological, and aesthetic needs (12). Achieving patient's satisfaction encourages them to make efforts in order to improve their smile (5). Aesthetic treatment represents a great challenge to a dental practitioner (12).

Ideally, dental materials should match the natural teeth (13, 14). Optical behaviour of the final restoration is determined by the colour of the underlying tooth structure, the colour of the luting agent, as well as the thickness and opacity of the material used (13).

Composite resins are most commonly used materials in restorative dentistry, and the thicknesses of one or several composite layers may drastically change the final outcome (15). Resin composite restorations represent a good treatment choice for severely damaged teeth (16, 17), but their durability is questionable due to discoloration, marginal fracture and wear.

Properties of dental ceramic-colour are stability, mechanical strength, clinical longevity, aesthetic appearance and compatibility with periodontal tissues (12). Many studies have proven that all-ceramic restorations offer a predictable and successful restoration (18, 19, 20).

The aim of this study was to assess the level of patients' satisfaction with appearance of maxillary anterior teeth restorations when comparing them with the adjacent natural teeth and assessing objective aesthetic parameters - colour, shape and surface texture restorations, as well as their general impression of the restorations. The aim of this study was also to determine if there is a difference in patients' assessment of restoration appearance with regard to gender.

Materials and methods

Maxillary anterior teeth restorations (composite fillings, different types of fixed conventional prosthodontic appliances) in patients attending private dental medicine practice were examined. The purpose of the research was presented to all participants and they gave their written consent. The patients with no restorations in this region, and those with periodontal and serious tooth mobility problems in maxillary anterior region were excluded. The participants were surveyed by means of a questionnaire containing questions about gender, age, and education level. The age of patients was recorded.

A total of 200 adult Caucasian subjects participated in the study (88 men, mean age 39 years; 122 women, mean age 40 years). All participants had composite filling restorations, acrylic faceted metal crowns, porcelain-fused-to-metal crowns or all-ceramic crowns on maxillary anterior teeth.

Patients evaluated the colour, anatomical shape and surface texture of maxillary anterior teeth restorations in com-

mjestaka na gornjim prednjim zubima i susjednih prirodnih zuba, i to ocjenama od jedan do tri. Ocjena jedan (1) značila je potpuno zadovoljstvo ispitanika s ispitivanom karakteristikom, pa je njegova ocjena bila *dobar*. Ocjena dva (2) značila je da je umjereno zadovoljan ispitivanom karakteristikom i zato je dao ocjenu *zadovoljava*. Ocjena tri (3) značila je potpuno nepodudaranje ispitivane karakteristike u usporedbi s ispitivanim prirodnim zubom, pa je ispitanik dao ocjenu *loše*. Na kraju su pacijenti procijenili opće stanje nadomjestaka na gornjim prednjim zubima i ocijenili ga *zadovoljavajućim* (1) ili *nezadovoljavajućim* (2).

Dobiveni podaci izraženi su u prosječnim ocjenama boje, anatomskog oblika i površinske teksture (kompozitni ispuni, fasetirane, metalkeramičke i potpuno keramičke krunice), u ukupnim prosječnim ocjenama svih nadomjestaka (kompozitni ispuni, fasetirane akrilatne krunice, metalkeramičke krunice i potpuno keramičke krunice) te u ukupnoj pacijentovoj prosječnoj procjeni svih nadomjestaka na gornjim prednjim zubima. Pacijenti su također procjenjivali svoj ukupni dojam o nadomjescima na gornjim prednjim zubima.

Statistička analiza provjere podataka obavljena je statističkim paketom SPSS 10,0. Korišteni su t-test za nezavisne uzorke, χ^2 test i logistička regresijska analiza.

Ovo istraživanje odobrilo je Etičko povjerenstvo Stomatološkog fakulteta.

Rezultati

U istraživanju je sudjelovalo ukupno 200 ispitanika – 88 muškaraca (44 %; prosječna dob 39 godina) i 122 žene (56 %; prosječna dob 40 godina). Ukupna dob pacijenata bila je između 18 i 72 godine.

Kliničkim pregledom ustanovljeno je da pacijenti na gornjim prednjim zubima (središnji i lateralni sjekutići te očnjaci) imaju ukupno 260 kompozitnih ispuna i 113 krunica – od toga je 51 bila fasetirana, 34 metalkeramičke i 28 potpuno keramičkih.

Sve ocjene pacijenata distribuirane su prema spolu. Srednje vrijednosti (\bar{x}) i standardne devijacije (SD) srednjih ocjena boje, anatomskog oblika i površinske teksture kompozitnih ispuna, fasetiranih krunica, metalkeramičkih i potpuno keramičkih krunica pacijenata i pacijentica nalaze se na slikama od 1 do 4. Razlike u srednjim vrijednostima (\bar{x}) i standardnim devijacijama (SD) ukupnih ocjena o boji i anatomskom obliku svih restoracija s obzirom na spol pacijenata nalaze se na slici 5.

Statistička analiza t-testom za nezavisne uzorke pokazala je da između pacijenata i pacijentica postoji statistički značajna razlika u procjeni boje i površinske teksture kompozitnih ispuna te u ukupnoj prosječnoj ocjeni boje svih nadomjestaka ($p < 0,05$) (tablica 1.).

Na slici 6 je raspodjela pacijentova općeg dojma ovisno o spolu. Rezultati su pokazali da su žene u ovom istraživanju češće bile nezadovoljne općim dojmom svojih nadomjestaka na gornjim zubima negoli muškarci. X^2 test pokazao je kako je ova razlika na granici značajnosti ($p < 0,05$) (tablica 2.).

parison to adjacent natural teeth on Visual Analogue Scale from 1 to 3. Score 1 meant that the patient was completely satisfied with the characteristics thus giving a good grade. Score 2 meant that the patient was moderately satisfied with the characteristics and evaluated it as satisfying. Score 3 meant that the patient was completely dissatisfied with assessed restoration characteristic in relation to the natural tooth and evaluated it as bad. Finally, patients assessed general impression of their maxillary anterior teeth restorations and rated it as satisfactory (score 1) or non-satisfactory (score 2). The data were expressed in patients' average assessment scores for colour, anatomical shape and surface texture as well as overall patients' average assessment scores for every type of restoration and the overall patients' average assessment scores for colour, anatomical shape and surface texture of all the restorations in general. The patients also assessed their general impression of restorations. The statistical analysis was made by using the statistical software SPSS 10.0 for Windows. T-test for independent samples, χ^2 test and Logistic regression analysis were performed.

The Ethics Committee of the School of Dental Medicine approved this study.

Results

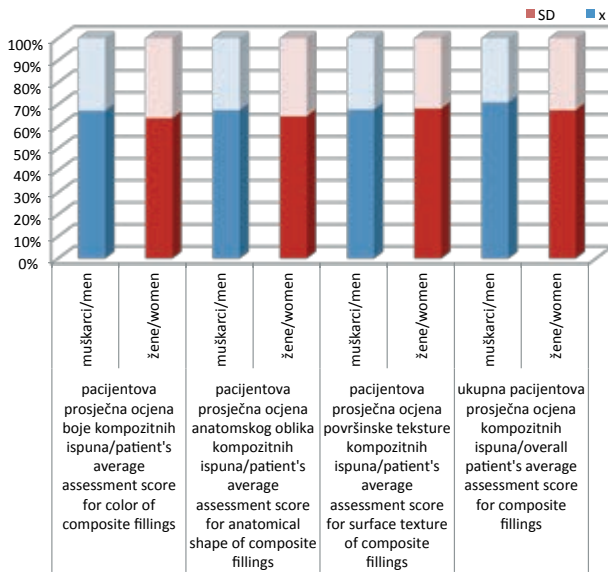
200 patients, 88 males (44 %, average age 39 years) and 122 females (56%, average age 40 years) participated in this study. The total age of the patients ranged from 18-72 years.

Clinical examination revealed that patients had a total of 260 composite fillings and 113 crowns, of which 51 were acrylic faceted metal crowns, 34 porcelain-fused-to-metal ceramic and 28 all-ceramic crowns on maxillary anterior teeth.

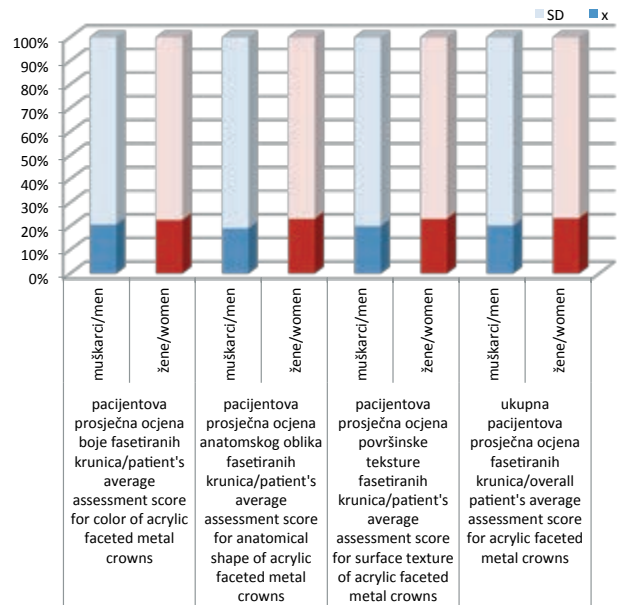
In this study, patients compared the appearance of different dental restorations (restorative and prosthetic) on the maxillary anterior teeth with the appearance of the adjacent natural teeth.

Assessment scores of all patients were distributed by gender. The differences in mean values (\bar{x}) and standard deviations (SD) for patients' average assessment scores for colour, anatomical shape and surface texture of composite fillings, acrylic faceted metal crowns, ceramic-fused-to-metal crowns and all-ceramic crowns as well as overall patients' average assessment scores for every type of restoration between genders are shown in Figures 1-4. The differences in mean values (\bar{x}) and standard deviations (SD) for overall patients' average assessment scores for the colour; anatomical shape and surface texture of all restorations in general between genders are shown in Figure 5.

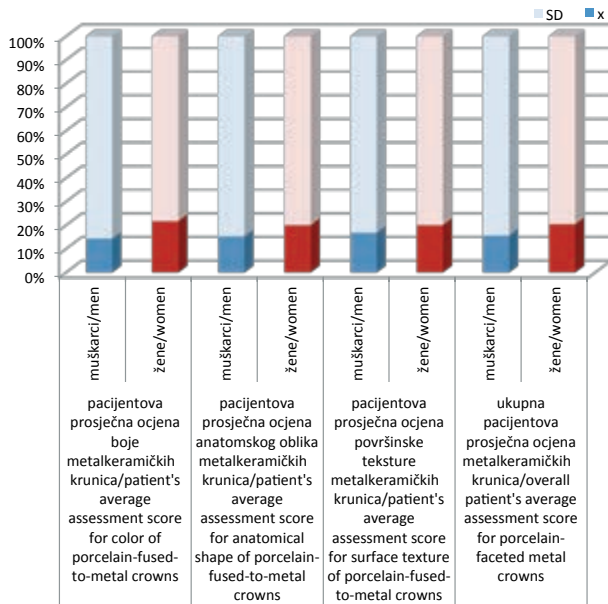
T-test for independent samples showed that there was a statistically significant gender difference in patients' assessment of colour and surface texture for composite fillings and overall patients' average assessment score for colour of all assessments ($p < 0.05$) (Table 1).



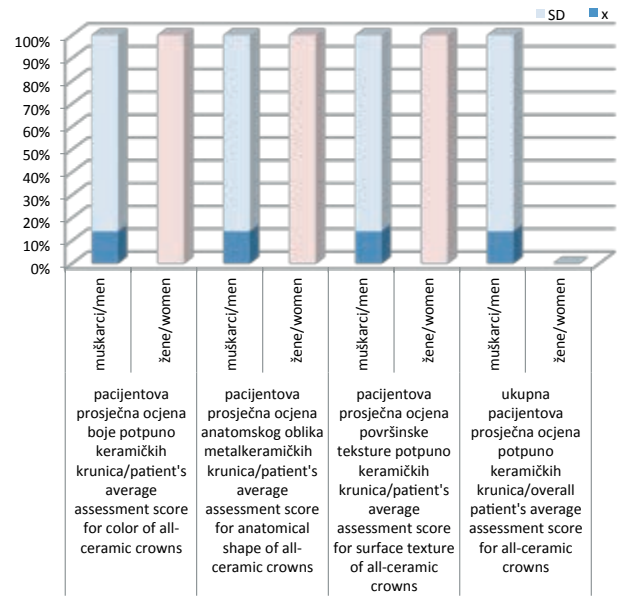
Slika 1. Srednje vrijednosti (x) i standardne devijacije (SD) prosječnih pacijentovih ocjena boje, anatomskog oblika i površinske teksture kompozitnih ispuna te njegova ukupna prosječna ocjena kompozitnih ispuna
Figure 1 Mean values (x) and standard deviations (SD) of patient's average assessment scores for color, anatomical shape and surface texture of composite fillings and overall patient's average assessment for composite fillings



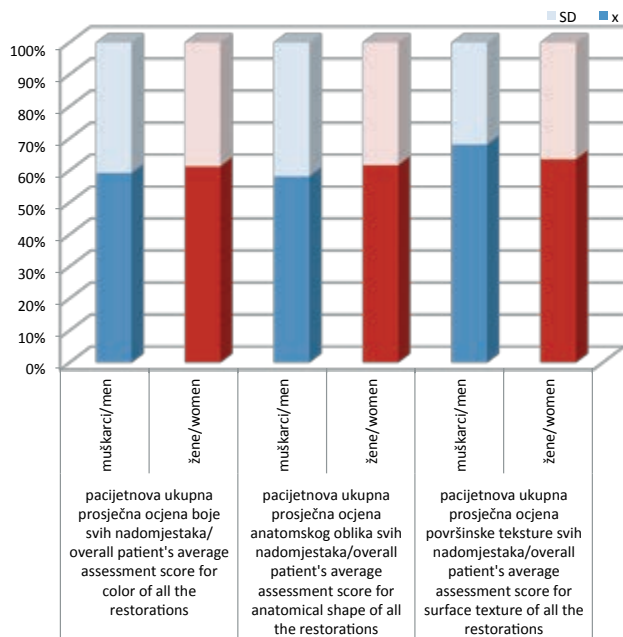
Slika 2. Srednje vrijednosti (x) i standardne devijacije (SD) pacijentovih prosječnih ocjena boje, anatomskog oblika i površinske teksture fasetiranih akrilatnih krunica te njegove ukupne prosječne ocjene fasetiranih akrilatnih krunica
Figure 2 Mean values (x) and standard deviations (SD) of patient's average assessment scores for color, anatomical shape and surface texture of acrylic faceted metal crowns



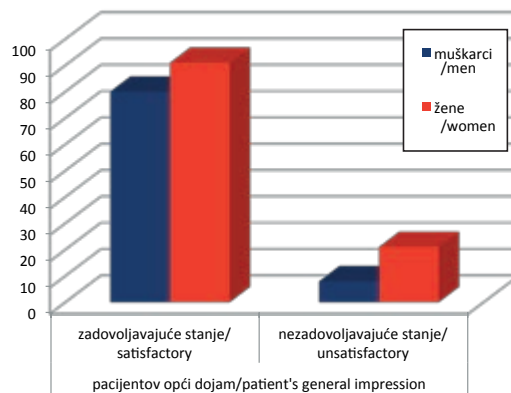
Slika 3. Srednje vrijednosti (x) i standardne devijacije (SD) prosječnih pacijentovih ocjena boje, anatomskog oblika i površinske teksture metalkeramičkih krunica i njegova ukupna prosječna ocjena metalkeramičkih krunica
Figure 3 Mean values (x) and standard deviations (SD) of patient's average assessment scores for color, anatomical shape and surface texture of porcelain-fused-to-metal crowns and overall patient's average assessment for porcelain-fused-to-metal crowns



Slika 4. Srednje vrijednosti (x) i standardne devijacije (SD) prosječnih pacijentovih ocjena boje, anatomskog oblika i površinske teksture potpuno keramičkih krunica te njegova ukupna prosječna ocjena potpuno keramičkih krunica
Figure 4 Mean values (x) and standard deviations (SD) of patient's average assessment scores for color, anatomical shape and surface texture of all-ceramic crowns and overall patient's average assessment for all-ceramic crowns



Slika 5. Srednje vrijednosti (x) i standardne devijacije (SD) pacijentovih ukupnih prosječnih ocjena boje, anatomskog oblika i površinske teksture svih nadomjestaka
Figure 5 Mean values (X) and standard deviations (SD) of overall patient's average assesment scores for color, anatomical shape and surface texture of all the restorations



Slika 6. Raspodjela pacijentova općeg dojma ovisno o spolu
Figure 6 Gender differences in the patient's general impression

Tablica 1. Testiranje značajnosti razlike pacijentovih procjena s obzirom na spol
Table 1 Significance of the gender differences in patient's assessment scores

	t vrijednost • t value	Stupnjevi slobode • Degree of freedom	p-vrijednost • p value
Prosječna ocjena boje kompozitnih ispuna • Patient's average assessment score for color of composite fillings	-3.026	148	0.003
Prosječna ocjena površinske teksture kompozitnih ispuna • Patient's average assessment score for surface texture of composite fillings	-2.399	148	0.018
Pacijentova ukupna prosječna ocjena boje svih nadomjestaka • Overall patient's average assessment score for color of all restorations	-1.994	148	0.048

Tablica 2. Testiranje značajnosti razlike u procjeni pacijentova općeg dojma izgleda nadomjestaka s obzirom na spol
Table 2 Significance of the gender differences in the patient's general impression of their restorations

	X2 vrijednost • X ² value	Stupnjevi slobode • Degree of freedom	p-vrijednost • p value
Spol / Gender	3.709	1	0.054

Tablica 3. Značajni prediktori pacijentova općeg zadovoljstva nadomjestcima
Table 3 Significant predictors on the patient's general impression of their restorations

	B koeficijent • B coefficient	Standardna pogreška • Standard error	Stupnjevi slobode • Degree of freedom	Razina značajnosti • Level of signficancy	Eksponecijalni B koeficijent • Exponential B coefficient
Prosječna pacijentova ocjena kompozitnih ispuna • Overall patient's average assessment score for composite fillings	0.851	0.468	1	0.069	2.343

U sljedećem koraku željelo se doznati koji su čimbenici utjecali na pacijentovu odluku o zadovoljavajućem ili nezadovoljavajućem općem dojmu izgleda restorativnih i protetskih nadomjestaka na gornjim prednjim zubima. Za to je korištena logistička regresijska analiza. Naime, radi se o obliku regresije koji služi za predviđanje i objašnjavanje binarne kategoričke varijable, u ovom slučaju općeg dojma s kategorijama *zadovoljavajuće* i *nezadovoljavajuće stanje*.

U testiranje su unesene nezavisne varijable prosječnih pacijentovih ocjena svih restorativnih i protetskih nadomjestaka. Rezultati su pokazali da se jedino nezavisna kontinuirana varijabla prosječne pacijentove ocjene kompozitnih ispuna nalazila na granici značajnosti ($p=0,069$) kao prediktor utjecaja od pet posto (koeficijent determinacije $R^2=0,05$) na opći pacijentov dojam, uz eksponencijalni koeficijent od 2,343 i interval pouzdanosti od 0,936 do 5,865 (tablica 3.). Ovaj rezultat upućuje na to da je 2,3 puta veća vjerojatnost da će opći dojam pacijenta biti zadovoljavajući ako je on bolje ocijenio podudaranje kompozitnog ispuna i prirodnog zuba u gornjoj čeljusti. Također je vidljivo da prosječna pacijentova ocjena kompozitnih ispuna opisuje zavisnu varijablu općeg dojma unutar pet posto.

Rasprava

Mnogobrojni čimbenici, kao što su boja i oblik zuba te oblik zubnog luka, povezani su sa stomatološkom estetikom (21 – 29). Oni su pod utjecajem osobnog doživljaja pojedinca (30,31) te kulturnih (30) i socijalno-demografskih čimbenika (32,33). Izgled zuba može biti pod utjecajem spola (3, 4, 9, 34, 35), dobi (3, 9, 32, 33, 34, 35) i stupnja obrazovanja (9, 34, 36, 37). Stomatološki zahvati na gornjim prednjim zubima utječu također na dentalnu estetiku (9, 12, 38, 39).

Prema rezultatima ovog istraživanja sudionici su imali na gornjim prednjim zubima ukupno 260 kompozitnih ispuna i 113 krunica (51 fasetirana akrilatna krunica, 34 metalkeramičke i 28 potpuno keramičkih). Pacijent je procijenio različite zubne nadomjestke (konzervativne i protetske) na gornjim prednjim zubima s izgledom susjednih prirodnih zuba i to u odnosu na boju, oblik i površinsku teksturu. Ti kriteriji osmišljeni su kao klinički važni jer odražavaju, kao i Beierova studija o istovjetnom istraživanju (20), estetske kvalitete i funkcionalno stanje nadomjestaka izrađenih od različitih stomatoloških materijala (40),

Percepcija boje zuba složeni je fenomen jer je pod utjecajem mnogobrojnih čimbenika, uključujući osvjetljenje, optička svojstva zuba (prosvjetljenje, neprozirnost, disperzija svjetla, sjaj površine) i vizualni doživljaj promatrača (41).

T-test za nezavisne uzorke pokazao je da postoji statistički značajna razlika u procjeni boje i teksture površine kom-

Figure 6 shows the distribution of the patients' general impression with the restorations depending on gender. The results showed that in this study women were more dissatisfied with the general impression of their restorations on the upper teeth than men. χ^2 test showed that this difference almost reached the level of significance ($p > 0.05$) (Table 2).

The next step was to identify the factors that influenced the patient's decision to give satisfactory or non-satisfactory general score for maxillary anterior teeth restorations appearance. For this purpose, logistic regression analysis was used. Specifically, it is a form of regression used for predicting and explaining binary categorical variables, in this case the overall impression with categories - satisfactory condition or non-satisfactory condition.

Independent variables expressing overall patients' average assessment scores for all tested types of restorations were included in testing. The results showed that only the independent variable for overall patients' average assessment score for composite restorations almost reached the level of significance ($p = 0.069$) as the impact predictor of 5% (coefficient of determination $R^2 = 0.05$) on the patients' general impression (exponential coefficient of 2.343 and a confidence interval 0.936 to 5.865) (Table 3.). This result reveals that it is 2.3 times more likely that the patient's general impression is to be satisfactory if the patient evaluates the matching composite restorations and the natural maxillary teeth as satisfactory as well. It also shows that the general patients' impression is described by the average patients' score for composite restorations as a dependent variable within 5%.

Discussion

Numerous factors are related with dental aesthetics, such as the colour and the shape of the teeth as well as the shape of the dental arch (21-29). These factors are affected by individual preferences (30, 31), cultural factors (30) and sociodemographic factors (32, 33). The appearance of the teeth could be influenced by gender (3,4,9,34,35), age (3,9,32,33,34,35) and education level (9,34,36,37). Perceived dental treatments on anterior teeth also have an impact on dental aesthetics (9,12,38,39).

In this study, participating patients had a total of 260 composite fillings and 113 crowns on maxillary anterior teeth, with 51 acrylic faceted metal crowns, 34 porcelain-fused-to-metal ceramic crowns and 28 all-ceramic crowns. The patients compared maxillary anterior teeth dental restorations with the appearance of the adjacent natural teeth for colour, shape and surface texture and evaluated their matching. These criteria defined rating scales for judgement of clinically important characteristics for dental restorations, and they were designed to reflect aesthetic qualities and functional performance of restorations fabricated from a variety of dental restorative materials (40) as in a study by Beier who did the same research (20).

Perception of tooth colour is a complex phenomenon that is influenced by many factors including lighting conditions, the optical properties of teeth (translucency, opacity, scattering of light, surface gloss), and the viewer's visual experience (41).

pozitnih ispuna ($p < 0,05$) (tablica 1.). Prije svega, čini se da je pacijentima boja nadomjestka u odnosu na boju prirodnog susjednog zuba vrlo važna u procjeni izgleda gornjih prednjih zuba, što je u skladu s prijašnjim istraživanjima u kojima se ističe da je boja zuba jedan od najvažnijih čimbenika koji određuju zadovoljstvo izgledom zuba (42). Općenito, ljudi žele biserno bijele zube (42, 43). Samorodnitzky i Naveh sa suradnicima dokazali su da laici procjenjuju svoje zube tamnijima negoli stomatolozi, a žene procjenjuju nijanse preciznije negoli muškarci (43). Dentalna estetika važna je u određivanju privlačnosti lica, pa tako ima ključnu ulogu u međuljudskim odnosima i društvu. Mediji i ostala sredstva masovne komunikacije daju sve više informacija o različitim estetskim dentalnim materijalima. Danas pacijenti više nisu zadovoljni nadomjescima koji omogućuju idealnu funkciju, no bez lijepih, prirodnih restoracija na prednjim zubima/ali pritom restoracije na prednjim zubima nisu prirodne i lijepe. U obzir tijekom planiranja terapije i liječenja treba uzeti pacijentovu sklonost prema svjetlijim nijansama, te obratiti pozornost na to što očekuje jer će se tako povećati njegovo zadovoljstvo ishodom liječenja (43).

Nadalje, rezultati ove studije pokazuju da spol utječe i na procjenu izgleda maksilarnih prednjih zuba i izgleda restoracija – s tim da je zadovoljstvo kod žena daleko manje negoli kod muškaraca ($p < 0,05$) (slike 1 – 5).

I u drugim studijama dobiveni su isti rezultati (9, 35, 42). U nekima se ističe da su žene osjetljivije od muškaraca kad je riječ o izgledu zuba te da se važnost za postizanjem dentalne estetike smanjuje s dobi (35) i višom razinom obrazovanja (7). Također je poznato da su žene jedan od glavnih čimbenika u potrazi za estetskim stomatološkim zahvatom (3). Naime, one imaju manje samopouzdanja kad je riječ o fizičkom izgledu negoli muškarci (7). No, unatoč mnogobrojnim dokazima da su žene sve zahtjevnije kad je riječ o stomatološkoj estetici, postoje i studije u kojima nije pronađena statistički značajna razlika prema spolovima (38).

Rezultati su pokazali da se jedino nezavisna kontinuirana varijabla prosječne pacijentove ocjene kompozitnih ispuna nalazila na granici značajnosti ($p = 0,069$) kao prediktor utjecaja od pet posto (koeficijent determinacije $R^2 = 0,05$) na opći pacijentov dojam, uz eksponencijalni koeficijent od 2,343 i interval pouzdanosti od 0,936 do 5,865 (tablica 3.). To znači da je vrsta nadomjestka vrlo važan prediktor u pacijentovoj procjeni restoracija na gornjim prednjim zubima i u cjelokupnom zadovoljstvu njegovom dentalnom estetikom.

Kompozitni ispuni mogu estetski biti uspješni (15, 17) ako je postavljena ispravna indikacija. S druge strane, u usporedbi s kompozitnim materijalima, svojstva dentalne keramike su stabilnost boje, mehanička čvrstoća, klinička dugovječnost, estetski izgled i kompatibilnost s parodontnim tkivima (12). Potpuno keramički nadomjestci omogućuju predvidive rezultate i uspješnu sanaciju s kliničkim uspjehom od 98 posto tijekom pet godina (19) i 93,5 posto tijekom više od 10 godina (20).

T-test for independent samples in this study showed that there was a statistically significant gender difference in the assessment of colour and surface texture of composite fillings as well as in overall average assessment grade for colour with women being less satisfied ($p < 0,05$) (Table 1). First of all, it seems that the colour of the natural teeth and restorations in this study plays an important role in the assessment of the patient's appearance of maxillary anterior teeth and this is in accordance with recent studies which show that the tooth colour is one of the most important factors determining satisfaction with dental appearance (42). In general, people wish to have pearly white teeth (42,43). Samorodnitzky-Naveh et al. have proven that lay people evaluate their teeth darker than professionals, and women assessed tooth shades more accurately than men (43). Dental appearance is an important feature in determining the attractiveness of the face, and thus plays a key role in human social interactions. The media and mass communication have provided an opportunity for educational awareness of alternative aesthetic materials. Today, patients are no longer satisfied with restorative solutions that provide ideal function without displaying restorations of beautiful, natural-looking teeth. A patient's preference toward a lighter shade should be addressed during treatment planning to match the patient's expectations for aesthetics and increase patient satisfaction of treatment outcome (43).

Furthermore, the results of this study also showed that gender had an impact on the assessment of maxillary teeth and restorations – it showed that women were less satisfied with it than men ($p < 0,05$) (Figures 1-5).

Many other studies showed the same results (9, 35, 42). Some of them showed that women were reported to be more sensitive to the appearance of the teeth than men, and the importance of teeth decreased with ageing (35) and higher education levels (7) and these two additional factors are going to be discussed in our next study. It is also known that female gender is the main predictor for seeking dental therapy (3). Their self-esteem could be affected by physical injuries more than in males (7). However, despite numerous proofs that women are more demanding in terms of dental aesthetics, there are studies that did not find a statistically significant difference (38).

The results of this study also showed that only the average patients' rating of composite restorations is the predictor of the patients' general impression of the appearance of their maxillary anterior teeth with the impact of 5% (coefficient of determination $R^2 = 0.05$) and the level of significance of 0.069 (Table 3). According to this result, it seems that the type of restoration is important in patient's self-assessment of maxillary anterior teeth restoration appearance, and overall satisfaction with dental aesthetics.

Composite restorations could lead to successful aesthetic outcomes (15,17) if adequate techniques are applied. On the other hand, properties of dental ceramic are better colour stability, mechanical strength, clinical longevity, aesthetic appearance and compatibility with periodontal tissues in comparison with composite materials (12). All-ceramic restorations offer the best predicted and successful restoration with an estimated survival probability of 98% over 5 years (19) and 93.5% over 10 years (20).

Zaključak

U ovoj studiji žene su bile nezadovoljnije bojom i površinskom teksturom kompozitnih ispuna i općenito procjenom boje svih nadomjestaka ($p < 0,05$). Također su bile nezadovoljnije općim dojmom svih nadomjestaka na gornjim prednjim zubima ($p = 0,069$).

Jedino se nezavisna kontinuirana varijabla prosječne ocjene kompozitnih ispuna nalazila na granici značajnosti ($p = 0,069$) kao prediktor utjecaja od pet posto (koeficijent determinacije $R^2 = 0,05$) na opći pacijentov dojam (eksponencijalni koeficijent 2,343 i interval pouzdanosti 0,936 – 5,865) (tablica 3.).

Spoznaja o dosadašnjem nezadovoljstvu estetikom usne šupljine i stomatološkim zahvatima, prevalencija estetskih karakteristika s kojima pacijenti nisu zadovoljni, te razumijevanje želja o budućim estetskim dentalnim tretmanima i poboljšanju estetike, mogu biti vodič za razvoj strategija u novim intervencijama za poboljšanje dentalne estetike.

Conclusion

Women in this study were less satisfied with the colour and surface texture of their composite fillings and all colour assessments ($p < 0.05$). Their general impression of the maxillary anterior teeth restorations was lower as well ($p = 0.054$).

Logistic regression analysis showed that the independent variable for overall patients' average assessment score for composite restorations almost reached the level of significance ($p = 0.069$) as the impact predictor of 5% (coefficient of determination $R^2 = 0.05$) on the patients' general impression (exponential coefficient of 2.343 and a confidence interval 0.936 to 5.865).

Comprehension of past dissatisfaction with aesthetics of oral cavity and dental procedures and prevalence of aesthetic characteristics of dissatisfied patients as well as understanding the wishes for future dental treatments and improving aesthetics can be a guide to develop strategies of new procedures designed to improve dental aesthetics.

Abstract

Objective: The aim of this study was to assess the level of patients' satisfaction with appearance of maxillary anterior teeth restorations and to determine if there is a significant difference in patients' assessment of restoration appearance with regard to gender. **Materials and methods:** Two hundred subjects evaluated the colour, anatomical shape and surface texture of maxillary anterior teeth restorations (composite fillings, acrylic faceted metal crowns, porcelain-fused-to-metal crowns and all-ceramic crowns) in comparison with adjacent natural teeth. The data were expressed in patients' average assessment scores for colour, anatomical shape and surface texture as well as overall patients' average assessment scores for every type of restoration and overall patients' average assessment scores for colour, anatomical shape and surface texture of all the restorations in general. Patients also assessed the general impression of their maxillary anterior teeth restorations and rated it as satisfactory or unsatisfactory. **Results:** There was a statistically significant gender difference in patient assessment of colour and surface texture for composite fillings and the overall patient average assessment score for colour of all assessments ($p < 0.05$). Women were more dissatisfied with the general impression of their restorations on the upper teeth than men ($p > 0.05$). Only overall patients' average assessment score for composite restorations almost reached the level of significance ($p = 0.069$) on patients' general impression. **Conclusion:** Colour of the restorations and the composite material are significant factors which affect dental appearance of maxillary anterior teeth in patients.

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Key words

Patient Satisfaction; Dental Restoration, Permanent; Crowns; Dental Esthetics

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