



Bruno Špiljak<sup>1</sup>, Vlaho Brailo<sup>2</sup>, Bernard Janković<sup>3</sup>, Dragana Gabrić<sup>4</sup>, Marin Lozić<sup>5</sup>, Vasilije Stambolija<sup>5</sup>, Danica Vidović Juras<sup>2</sup>, Zoran Karlović\*<sup>3</sup>, Željko Verzak<sup>6</sup>

# Satisfaction of Parents and Caregivers with Dental Treatment of Children Under General Anesthesia in a Day Care Surgery Setting

## Zadovoljstvo roditelja i skrbnika stomatološkim liječenjem djece u općoj anesteziji u sustavu jednodnevne kirurgije

<sup>1</sup> 6<sup>th</sup> year student, School of Dental Medicine, University of Zagreb, Zagreb, Croatia  
*Student 6. godine Stomatološkog fakulteta Sveučilišta u Zagrebu, Hrvatska*

<sup>2</sup> Department of Oral Medicine School of Dental Medicine University of Zagreb and University Hospital Centre Zagreb, Croatia  
*Zavod za oralnu medicinu Klinike za stomatologiju Kliničkoga bolničkoga centra Zagreb/Sveučilišta u Zagrebu – Stomatološki fakultet, Zagreb, Hrvatska*

<sup>3</sup> Department of Endodontics and Restorative Dentistry, School of Dental Medicine University of Zagreb and University Hospital Centre Zagreb, Croatia  
*Zavod za endodonciju i restaurativnu stomatologiju Klinike za stomatologiju Kliničkoga bolničkoga centra Zagreb/Sveučilišta u Zagrebu – Stomatološki fakultet, Zagreb, Hrvatska*

<sup>4</sup> Department of Oral Surgery, School of Dental Medicine University of Zagreb and University Hospital Centre Zagreb, Croatia  
*Zavod za oralnu kirurgiju Klinike za stomatologiju Kliničkoga bolničkoga centra Zagreb/Sveučilišta u Zagrebu – Stomatološki fakultet, Zagreb, Hrvatska*

<sup>5</sup> Clinic for Anesthesiology, Reanimatology and Intensive Care, University Hospital Centre Zagreb, Croatia  
*Klinika za anesteziologiju, reanimatologiju i intenzivno liječenje Kliničkoga bolničkoga centra Zagreb, Hrvatska*

<sup>6</sup> Department of Pediatric Dentistry, School of Dental Medicine University of Zagreb and University Hospital Centre Zagreb, Croatia  
*Zavod za dječju i preventivnu stomatologiju Klinike za stomatologiju Kliničkoga bolničkoga centra Zagreb/Sveučilišta u Zagrebu – Stomatološki fakultet, Zagreb, Hrvatska*

### Abstract

**Objective:** The aim of this study was to examine the satisfaction of parents and caregivers of patients who underwent dental treatment in general anesthesia (GA) in a day-care surgery setting. **Material and Methods:** Anonymous questionnaire was sent to parents/caregivers of patients who underwent full mouth restoration in GA. The survey consisted of 4 parts: general data, data about procedure, satisfaction with various aspects of care and the perception of parents/caregivers about the condition of their child in relation to the time before dental treatment in GA. **Results:** 66 parents/caregivers (30.5%) responded to the questionnaire. Overall satisfaction with the treatment was high (4.69). Respondents expressed the highest degree of satisfaction with communication with nurses (4.92), and the lowest with the waiting time for the procedure (3.89). Parents/caregivers of patients who reported difficulty eating expressed significantly lower overall satisfaction than the subjects whose children did not report difficulty eating. Also, the more treatments the patients underwent, the lower was the overall satisfaction than of those subjects whose children were never treated in such a manner before. **Conclusions:** Since patient satisfaction has a beneficial impact on treatment outcome and adherence to preventive recommendations, all health care providers should strive to achieve it.

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### Address for correspondence

Prof Zoran Karlović, PhD  
University of Zagreb, School of Dental  
Medicine  
Department of Endodontics and  
Restorative Dentistry  
Gundulićeva 5,  
10000 Zagreb, Croatia  
Phone: 00 385 1 4802 126 Fax: 00 385  
1 4830 819  
karlovic@sfzg.hr

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B. Špiljak: <https://orcid.org/0000-0003-2545-4474>  
Prof. V. Brailo: <https://orcid.org/0000-0002-8449-871X>  
Prof. B. Janković: <https://orcid.org/0000-0002-8934-4314>  
Prof. D. Gabrić: <https://orcid.org/0000-0003-0213-1170>  
Dr. M. Lozić: <https://orcid.org/0000-0001-5915-626X>

Dr. V. Stambolija: <https://orcid.org/0000-0003-0670-3965>  
Prof. D. Vidović Juras: <https://orcid.org/0000-0001-7391-6114>  
Prof. Ž. Karlović: <https://orcid.org/0000-0002-6927-2413>  
Prof. Ž. Verzak: <https://orcid.org/0000-0002-5875-517X>

## Introduction

Dental treatment under general anesthesia (GA) is typically considered the final option and is to be performed when other behavioral control techniques fail. It is utilized in uncooperative patients either due to insufficient development in mental or emotional aspects, or various relevant impairments. GA is also administered in patients for whom local anesthesia is ineffective due to acute infection, anatomical variations or extremely rare allergy to local anesthetic ingredients. Furthermore, GA may be administered for extremely uncooperative, frightened, anxious, or noncommunicative children and adolescents and for patients who require extensive surgery or immediate extensive oral rehabilitation (1-3). Prior to deciding whether a patient is an eligible candidate for GA, the potential benefits and risks should be considered. On one hand, GA provides complete absence of pain and discomfort during the procedure, eliminates the need for patient's cooperation and ensures that procedures may be done on more teeth at the same time. Furthermore, the hospital environment provides safety for both the patient and the medical team to continuously monitor patient's vital functions and optimal drug titration (4-7) during and immediately after the procedure. Multiple studies have indicated that the life standard of children in whom dental rehabilitation was performed in GA experienced a significant improvement (4, 6, 8, 9). Nevertheless, dental treatment in GA also has its drawbacks. There are papers presenting data on increased morbidity and mortality in these patients (10). Furthermore, injuries to teeth, lips and other soft tissues (11) and trauma to teeth have been reported, although these are rare cases. Despite the high safety for the patient, GA carries an inherent risk - anesthetics can cause cardiac arrhythmias, especially in children with underlying cardiovascular diseases. An accidental dislocation, the endotracheal tube obstruction in the surgical field, edema of the tongue and lips, epistaxis or vegetation in the epipharynx during nasotracheal intubation have been reported to be possible intraoperative complications (12). Taking those circumstances in consideration, it must be stated that GA carries a higher inherent risk during and after surgeries compared to local anesthesia interventions (13, 14). As such, administering GA should be reserved for cases where it is truly necessary after carefully considering the potential drawbacks and upsides (15, 16). Reports of patients' satisfaction are the key criteria for assessing the state of the healthcare system. Given that satisfaction is associated with timely and effective provision of quality health care, it is highly linked with the success of health professionals and institutions (17-19). In pedodontics, patient satisfaction includes the child and its parents or caregivers (20). The literature states that in medical care there is a connection between patient satisfaction and the desire to continue treatment. It is also noted that patient satisfaction affects the desire to participate in preventive public health actions and return visits to certain health care providers (18,21-23). Furthermore, satisfaction is likely to play a role in the physiological as well as functional outcomes of treatment (23). All of the abovementioned leads to the conclusion that patient satisfaction could prove to be essential for

## Uvod

Stomatološko liječenje u općoj anesteziji (OA) obično se smatra konačnom opcijom i provodi se kada ne uspiju druge tehnike kontrole ponašanja. Koristi se za pacijente koji ne surađuju, bilo zbog nedovoljnog razvoja mentalnoga ili emocionalnoga aspekta, ili raznih značajnih oštećenja. Opća anestezija također se primjenjuje za pacijente kod kojih je lokalna anestezija neučinkovita zbog akutne infekcije, anatomskih varijacija ili iznimno rijetke alergije na sastojke lokalnih anestetika. Nadalje, opća anestezija može se primijeniti ako su djeca i adolescenti izrazito nekooperativni, uplašeni, anksiozni ili nekomunikativni te ako je potreban opsežan kirurški zahvat ili hitna opsežna oralna rehabilitacija (1 – 3). Prije odluke je li pacijent prihvatljiv kandidat za opću anesteziju potrebno je razmotriti potencijalne koristi i rizike. S jedne strane, opća anestezija omogućuje potpuni izostanak boli i neugode tijekom zahvata, eliminira potrebu za suradnjom pacijenta i osigurava da se zahvati mogu obaviti na više zuba odjedanput. Nadalje, bolničko okruženje pruža sigurnost i pacijentu i medicinskom timu za kontinuirano praćenje vitalnih funkcija pacijenta i optimalnu titraciju lijeka (4 – 7) tijekom zahvata i neposredno poslije njega. U više studija istaknuto je da je standard djece kojoj je obavljena dentalna rehabilitacija u općoj anesteziji značajno poboljšana (4, 6, 8, 9). No takvo liječenje zuba ima i nedostataka. Postoje radovi u kojima se iznose podaci o povećanom morbiditetu i mortalitetu takvih bolesnika. (10). Nadalje, zabilježene su ozljede zuba, usnica i drugih mekih tkiva (11) te traume zuba, iako su to rijetki slučajevi. Unatoč visokoj sigurnosti za pacijenta, opća je anestezija na određeni način rizična – anestetici mogu prouzročiti srčane aritmije, osobito kod djece s postojećim kardiovaskularnim bolestima. Slučajna dislokacija ili opstrukcija endotrahealnog tubusa u kirurškome polju, edem jezika i usana ili epistaksa (ili vegetacija u epifarinksu tijekom nazotrahealne intubacije) prijavljeni su kao moguće intraoperativne komplikacije (12). Uzimajući u obzir te okolnosti, potrebno je reći da je opća anestezija potencijalno rizičnija tijekom operacija i nakon njih u usporedbi s intervencijama u lokalnoj anesteziji (13, 14). Zbog toga bi njezina primjena trebala biti rezervirana za slučajeve za koje se smatra potrebnom nakon pozornog razmatranja mogućih nedostataka i prednosti (15,16). Izvještaji o zadovoljstvu pacijenata ključni su kriteriji za ocjenu stanja u zdravstvenom sustavu. S obzirom na to da je zadovoljstvo povezano s pravodobnim i učinkovitim pružanjem kvalitetne zdravstvene skrbi, ono je usko povezano s uspjehom zdravstvenog osoblja i ustanova (17 – 19). U pedodontici zadovoljstvo pacijenata uključuje dijete i njegove roditelje ili skrbnike (20). U literaturi se navodi da u medicinskoj skrbi postoji povezanost između zadovoljstva pacijenata i želje za nastavkom liječenja. Također se napominje da zadovoljstvo pacijenata utječe na želju za sudjelovanjem u preventivnim javnozdravstvenim akcijama i uzvraćanje posjeta pojedinim zdravstvenim djelatnicima (18, 21 – 23). Nadalje, zadovoljstvo je vjerojatno važno u fiziološkim i funkcionalnim ishodima liječenja (23). Sve navedeno upućuje na zaključak da bi se zadovoljstvo pacijenata moglo pokazati ključnim za razvoj zdravstvenih ustanova (20). Me-

the development of health care institutions (20). However, patient satisfaction in that context is a factor that has not yet been sufficiently investigated (24, 25). Therefore, this study aimed to investigate parents' and caregivers' satisfaction after patients had undergone dental treatment in GA in a day-care surgery setting in order to outline potential problems and revise current practices.

## Material and methods

Respondents in this study were either parents or caregivers of patients treated under GA at the Department of One-Day Surgery, University Hospital Center Zagreb in the period between 1 January 2017 and 31 August 2019. After completion of dental treatment in GA, an online questionnaire designed in survey software (Google Forms<sup>®</sup>) was sent to the subjects' e-mail addresses. It was completely anonymous and participation in the survey was voluntary. Since it was conducted online, the respondents did not give their approval in the form of a signature. However, it was required that they read the text of the informed consent and state that they understand the purpose and agree to participate in the survey after which they were granted access to the questionnaire. Approval for the research was given by the Ethics Committee of the School of Dental Medicine, University of Zagreb and the Ethics Committee of the University Hospital Center Zagreb, taking into consideration the principles of the Helsinki Declaration.

The survey comprised 4 parts. In the first part, there were general data on patients such as age, reason for procedure under GA, time of treatment, waiting time for the procedure and the number of dental remediations in GA so far. The following segment of the survey consisted of data about the procedure itself (extraction and/or treatment of teeth, antibiotic therapy, use of analgesics and obtaining instructions for treatment after the procedure) for which YES/NO answers were offered. The third part of the questionnaire investigated satisfaction with various aspects of care (procedure for getting a GA appointment, waiting time, hospital admission on the day of the procedure, accommodation and conditions in the one-day surgery department, communication with doctors, communication with nurses, information about patient's condition and procedure, clarity of postoperative instructions, overall satisfaction). In this part of the questionnaire, a five-point Likert scale was used (1 - extremely dissatisfied, 5 - extremely satisfied), YES/NO questions and open-ended questions. The fourth part examined the perception of parents/caregivers about the condition of their child (presence of toothache, possibility of feeding, sleep, general condition) in relation to the time before the dental rehabilitation in GA. Questions with answers YES/NO/I CAN'T EVALUATE were used. The data were organized in tabular files (Microsoft Excel<sup>®</sup>, Microsoft Inc., USA) and coded appropriately for statistical analysis performed using SPSS<sup>®</sup> 11.0 (IBM Inc., USA) software. The Kolmogorov's Smirnov test was employed to test the normality of the distribution. The Kruskal Wallis test for independent samples was used to establish the differences between the continuous variables, while the chi-

đutim, zadovoljstvo pacijenata u tom je kontekstu čimbenik koji još nije dovoljno istražen (24, 25). Zato je cilj ove studija bio ispitati koliko su bili zadovoljni roditelji i skrbnici pacijenata koji su bili podvrgnuti stomatološkom liječenju u općoj anesteziji u sustavu jednodnevne kirurgije kako bi se opisali potencijalni problemi i revidirala trenutačna praksa.

## Ispitanici i postupci

Ispitanici u ovom istraživanju bili su roditelji ili skrbnici pacijenata liječenih u općoj anesteziji u Klinici za jednodnevnu kirurgiju Kliničkoga bolničkoga centra Zagreb od 1. siječnja 2017. do 31. kolovoza 2019. Nakon završetka stomatološkog liječenja u općoj anesteziji na e-adrese ispitanika poslan je online upitnik sastavljen u anketnome softveru (Google Forms<sup>®</sup>). Bio je potpuno anonim, a sudjelovanje je bilo dobrovoljno. Budući da se provodio na daljinu, ispitanici nisu dali suglasnost u obliku potpisa. Međutim, bilo je potrebno pročitati tekst informiranog pristanka i izjaviti da razumiju svrhu te pristaju na sudjelovanje u anketi nakon čega im je omogućen pristup upitniku. Odobrenje za istraživanje dalo je Etičko povjerenstvo Stomatološkog fakulteta Sveučilišta u Zagrebu i Etičko povjerenstvo Kliničkoga bolničkoga centra Zagreb, vodeći računa o načelima Helsinške deklaracije.

Anketa se sastojala od četiriju dijelova. U prvom dijelu prikupljali su se opći podaci o pacijentima (dob, razlog zahvata u OA-i, vrijeme liječenja, vrijeme čekanja na zahvat i broj dosadašnjih sanacija zuba u OA-i). Sljedeći segment ankete činili su podaci o samom zahvatu (vađenje i/ili liječenje zuba, antibiotska terapija, primjena analgetika i dobivanje uputa za liječenje poslije zahvata) za koje su ponuđeni odgovori DA/NE. U trećem dijelu ispitano je zadovoljstvo različitim aspektima skrbi (procedura dobivanja termina za liječenje u OA-i, vrijeme čekanja, prijam u bolnicu na dan zahvata, smještaj i uvjeti na odjelu jednodnevne kirurgije, komunikacija s liječnicima, komunikacija s medicinskim sestrama, informacije o stanju pacijenta i samom postupku, jasnoća postoperativnih uputa, opće zadovoljstvo). U tom dijelu upitnika korištena je Likertova ljestvica od pet stupnjeva (1 – izrazito nezadovoljan, 5 – izrazito zadovoljan), pitanja DA/NE i pitanja otvorenog tipa. U četvrtom dijelu ispitana je percepcija roditelja/skrbnika o stanju djeteta (prisutnost zubobolje, mogućnost hranjenja, spavanje, opće stanje) u odnosu prema razdoblju prije dentalne rehabilitacije u općoj anesteziji. Korištena su pitanja s odgovorima DA/NE/NE MOGU PROCIJENITI. Podatci su organizirani u tabličnim datotekama (Microsoft Excel<sup>®</sup>, Microsoft Inc., SAD) i prikladno kodirani za statističku analizu provedenu u softveru SPSS<sup>®</sup> 11.0 (IBM Inc., SAD). Za testiranje normalnosti distribucije korišten je Kolmogorov-Smirnovljev test. Za utvrđivanje razlika između kontinuiranih varijabli korišten je Kruskal-Wallisov test za neovisne uzorke, a za ispitivanje razlika između kategoričkih varijabli hi-kvadrat test. Statistički značajnima smatrane su p-vrijednosti manje od 0,05 ( $p < 0,05$ ).

square test was used to examine the differences between the categorical variables, while p values below 0.05 ( $p < 0.05$ ) were considered statistically significant.

## Results

Response rate was (30.5%) with 66 parents/caregivers responding to the survey. General patient data (4-37 years, median = 10) were reported earlier in our previous papers (26, 27). Autism was the most prevalent factor for administering GA, with the second being cerebral paralysis. 21 patients (31.8%) had never been treated with GA before, while 45 (68.2%) had more than one dental treatment performed in GA. In GA interventions, dental extractions predominated and were performed in 53 (80.3%) patients with median of 2 (0-18) extractions per patient. The results of user satisfaction provided services as well as their overall satisfaction are shown in Table 1. Respondents expressed the highest level of satisfaction with communication with nurses (4.92), and the lowest level of satisfaction with the waiting time for the procedure (3.89). The overall rating of satisfaction with the procedures under GA in the day-care surgery system was 4.69. No significant differences were found in the expressed satisfaction with regard to the diagnosis, the year of the procedure, tooth extractions (YES/NO), the number of extractions, the consumption of analgesics and the occurrence of complications. The only exception were the parents of patients who reported difficulty eating, who expressed statistically significantly lower overall satisfaction than the subjects whose children did not report difficulty eating (4.5 vs. 4.78;  $p = 0.034$ ). Likewise, the more treatments the patients un-

## Rezultati

Stopa odgovora bila je 30,5 % – na anketu je odgovorilo 66 roditelja/skrbnika. Opći podatci o pacijentima (4 – 37 godina, medijan = 10) navedeni su u našim dosadašnjim radovima (26, 27). Autizam je bio najčešći čimbenik za primjenu opće anestezije, a drugi je bila cerebralna paraliza. Nikad prije u općoj anesteziji nije bio liječen 21 pacijent (31,8 %), a njih 45 (68,2 %) bilo je na više od jednoga stomatološkog tretmana u općoj anesteziji. Među intervencijama u općoj anesteziji prevladavale su ekstrakcije zuba i to kod 53 pacijenta (80,3 %) s medijanom od dvije (0 – 18) ekstrakcije po pacijentu. Rezultati koji pokazuju zadovoljstvo korisnika pruženim uslugama i njihovo ukupno zadovoljstvo nalaze se u tablici 1. Ispitanici su istaknuli najveću razinu zadovoljstva komunikacijom s medicinskim sestrama (4,92), a najnižu duljinom čekanja na zahvat (3,89). Ukupna ocjena zadovoljstva postupcima u općoj anesteziji u sustavu jednodnevne kirurgije bila je 4,69. Nisu utvrđene značajne razlike u izraženom zadovoljstvu s obzirom na dijagnozu, godinu zahvata, vađenje zuba (DA/NE), broj vađenja, potrošnju analgetika i pojavu komplikacija. Jedina iznimka bili su roditelji pacijenata koji su prijavili poteškoće s prehranom. Oni su iskazali statistički znatno niže ukupno zadovoljstvo od ispitanika čija djeca nisu prijavila takve probleme (4,5 prema 4,78;  $p = 0,034$ ). Također, što su pacijenti bili podvrgnuti većem broju tretmana, to je sveukupno zadovoljstvo bilo niže nego kod ispitanika čiji

**Table 1** Parent/caregiver satisfaction with provided services and general level of satisfaction with dental treatment in GA  
**Tablica 1.** Zadovoljstvo roditelja/skrbnika pruženim uslugama i opća razina zadovoljstva stomatološkim tretmanom u OA-i

Statement (Aspect of care) • Tvrdnja (aspekt skrbi)	Extremely dissatisfied • Izrazito nezadovoljan/a N (%)	Dissatisfied • Nezadovoljan/a N (%)	Neither dissatisfied nor satisfied • Ni nezadovoljan/a ni zadovoljan/a N (%)	Satisfied • Zadovoljan/a N (%)	Extremely satisfied • Izrazito zadovoljan/a N (%)
Procedure for obtaining an appointment • Procedura pri dobivanju termina za zahvat	3 (4.6)	1 (1.5)	10 (15.4)	15 (23.1)	36 (55.4)
Time to wait for the procedure • Vrijeme čekanja na zahvat	6 (9.1)	3 (4.5)	12 (18.2)	16 (24.2)	29 (43.9)
Admission to the hospital on the day of the procedure • Prijam u bolnici na dan zahvata	0 (0)	0 (0)	5 (7.7)	7 (10.8)	53 (81.5)
Accommodation and conditions in the one-day surgery department • Smještaj i uvjeti na odjelu jednodnevne kirurgije	0 (0)	0 (0)	2 (3)	11 (16.7)	53 (80.3)
Communication with doctors • Komunikacija s liječnicima	0 (0)	0 (0)	3 (4.6)	12 (18.5)	50 (76.9)
Communication with nurses • Komunikacija sa sestrama	0 (0)	0 (0)	0 (0)	5 (7.7)	60 (92.3)
Information about your child's condition and procedures performed • Informacije o stanju vašeg djeteta i obavljenim zahvatima	0 (0)	1 (1.5)	3 (4.6)	10 (15.4)	51 (78.5)
Instructions for treatment after the procedure • Upute za postupanje nakon zahvata	0 (0)	0 (0)	3 (4.6)	10 (15.4)	52 (80)
Overall satisfaction with the dental treatment system in GA • Ukupno zadovoljstvo sustavom stomatološkog liječenja u OA-i	0 (0)	0 (0)	2 (3.1)	16 (24.6)	47 (72.3)

**Table 2** Perception and assessment of parents/caregivers about their child's oral health in relation to the period before the dental treatment in GA.**Tablica 2.** Percepcija i procjena roditelja/skrbnika o oralnom zdravlju djeteta u odnosu prema razdoblju prije stomatološkog tretmana u OA-i

Compared to the period before dental treatment under general anesthesia my child: • U odnosu prema razdoblju prije stomatološkog liječenja u općoj anesteziji moje djetete:	Yes • Da N (%)	No • Ne N (%)	I can't evaluate • Ne mogu procijeniti N (%)
Does not have toothache • Nema zubobolju	31 (47)	24 (36.4)	11 (16.7)
Eats without difficulty • Jede bez poteškoća	58 (87.9)	2 (3)	6 (9.1)
Sleeps better • Bolje spava	31 (47)	8 (12.1)	27 (40.9)
Has better general condition • Boljeg je općeg stanja	43 (65.2)	9 (13.6)	14 (21.2)

derwent, the lower was the overall satisfaction compared to subjects whose children had never been treated in such way before (4.57 vs. 4.83,  $p = 0.04$ ). Table 2 shows the results of parents' perception of their child's condition in relation to the time before the dental treatment in GA.

## Discussion

Today's standard of dental care in GA requires a multidisciplinary approach for each patient, especially those who are by nature most vulnerable due to underlying diseases or whose acute conditions call for a more complex approach. Detailed and comprehensive preoperative evaluation, standardization of equipment, supervision of sedation and GA, optimization of the operational team, clear division of roles and high competence of the operating team are necessary prerequisites for maintaining a high level of care. Defining and understanding the role that patient satisfaction plays in health care has become an important topic in the last 20 years. Hulka and Zyzanski (23) found that service providers are becoming increasingly aware of the importance of patient satisfaction as an important outcome of health services. Satisfaction is known to influence health decisions and behavior, from the decision to seek care until the end of the treatment process (18). Furthermore, a study by Newsome and Wright (18) indicates that patient satisfaction is associated with long-term adherence to medical recommendations including a proper use of medication. In general, the health care standard is determined by patient satisfaction as well as the treatment outcome. Therefore, it is vital to consider a patients' input in order to improve the standards and elevate the level of services. To consistently raise the standard, it is necessary to work regularly on improving services (28). However, objectively evaluating the treatment is challenging due to the notions of quality being typically different between the patients and dentists (29). Quality of health care is considered to be the combination of patient satisfaction and positive outcome of the treatment (18), with the foundation being a patient satisfaction (30). It is also affected by the way in which services are provided, not only due to technological progress, but also due to the appropriate behavior and performance of the medical staff (31). Satisfaction of parents/caregivers today plays a leading role in children's oral hygiene, with their satisfaction playing a major role in assessing the effectiveness of medical services provided (32). Among the examined aspects of care, the waiting time for the procedure in GA was rated the worst, although more than two thirds of parents/caregivers (68.1%)

ja djeca nikada prije nisu bila tretirana na takav način (4,57 prema 4,83,  $p = 0,04$ ). U tablici 2. su rezultati percepcije roditelja o stanju njihova djeteta u odnosu prema razdoblju prije stomatološkog tretmana u općoj anesteziji.

## Rasprava

Današnji standard stomatološke skrbi u oćoj anesteziji zahtijeva multidisciplinarni pristup za svakog pacijenta, posebno za one koji su po prirodi najosjetljiviji zbog postojećih bolesti ili čije akutno stanje zahtijeva složeniji pristup. Detaljna i sveobuhvatna prijeoperacijska evaluacija, standardizacija opreme, nadzor sedacije i opća anestezija, optimizacija i visoka kompetentnost operacijskoga tima te jasna podjela zadatka nužni su preduvjeti za održavanje visoke razine skrbi. Definiranje i razumijevanje uloge koju zadovoljstvo pacijenata ima u zdravstvenoj skrbi postalo je važna tema u posljednjih 20 godina. Hulka i Zyzanski (22) otkrili su da pružatelji usluga postaju sve svjesniji važnosti zadovoljstva pacijenata kao važnog ishoda zdravstvenih usluga. Poznato je da zadovoljstvo utječe na zdravstvene odluke i ponašanje – od odluke o traženju skrbi pa do kraja procesa liječenja (18). Nadalje, studija koju su proveli Newsome i Wright (18) pokazala je da je zadovoljstvo pacijenata povezano s dugotrajnim pridržavanjem medicinskih preporuka, uključujući pravilnu upotrebu lijekova. Općenito, zadovoljstvo pacijenata i uspješnost liječenja određuju standard zdravstvene zaštite. Zato je ključno uzeti u obzir doprinos pacijenata uz poboljšanje standarda i podizanje razine usluga. Za dosljedno podizanje standarda potrebno je redovito poboljšavati usluge (28). Međutim, objektivna procjena liječenja izazovna je zbog toga što se predodžbe o kvaliteti obično razlikuju između pacijenata i stomatologa (29). Kvalitetom zdravstvene skrbi smatra se kombinacija zadovoljstva pacijenta i pozitivnog ishoda liječenja (18), pri čemu je temelj zadovoljstvo pacijenta (30). Ono također utječe na način pružanja usluga ne samo zbog tehnološkog napretka, nego i zbog primjerenog ponašanja i rada medicinskog osoblja (31). Zadovoljstvo roditelja/skrbnika danas je itekako važno u oralnoj higijeni djece, a njihovo zadovoljstvo glavno je u procjeni učinkovitosti pruženih medicinskih usluga (32). Među ispitivanim aspektima skrbi najlošije je ocijenjeno čekanje na zahvat u općoj anesteziji, iako je više od dvije trećine roditelja/skrbnika (68,1 %) reklo da je njime zadovoljno ili vrlo zadovoljno. U literaturi su već opisani nedostaci koji se mogu pojaviti tijekom duljeg čekanja na operaciju općoj anesteziji kao što su bol, problemi sa spa-

said they were satisfied or very satisfied with it. The literature has previously described the drawbacks that can occur during prolonged waiting time for GA surgery such as pain, trouble sleeping, and school absence (33). Waiting times vary among hospitals, which may be due to several reasons such as hospitals with a large number of referrals, a reduced number of child clinics and hospitals that have systemic issues resulting in staff shortages. Services such as these are stuck in a situation of frequent referral to a service without the proper capacity to address the waiting list (33). The next of the examined aspects of care was accommodation and conditions in the ward. As many as 97% of parents / caregivers said they were satisfied or very satisfied with these aspects of care. Comparable data was reported in the study by Ohtawa et al. (34), where 81.7% of respondents answered that the conditions and accommodation in the ward were good. Those who answered the opposite added that the accommodation was not comfortable and that the conditions in the department were not sufficiently comfortable. Furthermore, communication with medical staff while receiving care is largely considered to be a crucial element of satisfaction. This statement is supported by the fact that the provision of sufficient data regarding the GA procedure does not only improve parental satisfaction, but also increases the likelihood that patients will cooperate after the procedure (32). According to Newsome and Wright (18), there are five factors that have an effect on patient satisfaction, and these are technical competence, interpersonal factors, convenience, cost, and benefits. One of the most frequently cited factors is the perceived technical competence of dentists (18). It has been found that patients usually expect their dentist to be an expert in providing dental care. However, most patients find it difficult to assess whether a dentist is truly technically competent. Therefore, the patient uses other means to assess the quality of the service (35). These other means are usually intangible factors such as the behavior of the dentist and his/hers supporting staff (36). It is important to note that the completion of complicated treatment and its good performance does not in itself convince the patient that the quality of service was excellent. The dentist should also pay attention to the listed interpersonal and intangible factors that are used (37). A dentist's good communication skills are one of the most frequently cited traits that patients would like their dentist to possess (18). Holt and McHugh (36) found that 90% of respondents sought a caring and attentive dentist. The same study also states that 73% of respondents felt that pain control, a dentist who relaxes them, and safety awareness are also important attributes of a dentist (36). These are all intangible characteristics that indicate that the ability to provide quality care is not sufficient; the dentist must have good communication skills to convey the message to the patient. In our study, 95.4% of parents/caregivers were satisfied or very satisfied with the communication with doctors while all respondents were satisfied or very satisfied with the communication that nurses established with them. These are significantly higher levels of satisfaction compared to most studies found in the available literature (32, 38, 39). Data from Bahramian et al. (32) and Eshghi et al. (38), 54.7% and 49% of respondents,

vanjem i izostanak iz škole (33). Duljina čekanja razlikuje se od bolnice do bolnice za što može biti nekoliko razloga, poput bolnice s velikim brojem uputnica, smanjenoga broja dječjih klinika i bolnica sa sustavnim problemima koji rezultiraju smanjenim kapacitetom osoblja. Službe poput tih u situaciji su smanjivanja lista čekanja (33). Sljedeći od ispitivanih aspekata skrbi bio je smještaj i uvjeti na odjelu. Čak 97 % roditelja/skrbnika reklo je da je zadovoljno ili vrlo zadovoljno tim aspektima skrbi. Usporedne podatke objavili su Ohtawa i suradnici (34) kojima je 81,7 % ispitanika odgovorilo da su uvjeti i smještaj na odjelu dobri. Oni koji su odgovorili suprotno dodali su da smještaj nije bio udoban te da uvjeti na odjelu nisu dovoljno ugodni. Nadalje, komunikacija s medicinskim osobljem tijekom pružanja skrbi uvelike se smatra ključnim elementom zadovoljstva. To potvrđuje i činjenica da pružanje dovoljno podataka o postupku u općoj anesteziji ne samo da poboljšava zadovoljstvo roditelja, nego i povećava vjerojatnost da će pacijenti surađivati poslije postupka (32). Prema stajalištu Newsomeu i Wrightu (18) pet je čimbenika koji utječu na zadovoljstvo pacijenata, a to su tehnička kompetencija, interpersonalni čimbenici, pogodnost, cijena i koristi. Jedan od najčešće navođenih čimbenika jest percipirana tehnička osposobljenost stomatologa (18). Ustanovljeno je da pacijenti obično očekuju da njihov stomatolog bude stručnjak u pružanju dentalne skrbi. No većini teško je procijeniti je li stomatolog uistinu tehnički kompetentan. Zato se pacijent koristi drugim načinima za procjenu kvalitete usluge (35). Ta druga sredstva obično su nematerijalni čimbenici kao što je ponašanje stomatologa i njegova/njezina pomoćnog osoblja (36). Važno je napomenuti da završetak kompliciranog tretmana i to što je dobro obavljen ne uvjerava pacijenta da je kvaliteta usluge bila izvrsna. Stomatolog također treba obratiti pozornost na navedene interpersonalne i nematerijalne čimbenike kojima se koristi (37). Dobra komunikacijska vještina stomatologa jedna je od najčešće navođenih osobina koje bi pacijenti željeli da posjeduje njihov liječnik dentalne medicine (18). Holt i McHugh (36) otkrili su da je 90 % ispitanika tražilo brižnog i pažljivog stomatologa. U istoj studiji također se navodi da 73 % ispitanika smatra da su kontrola boli, stomatolog koji ih opušta i svijest o sigurnosti drugi važni atributi stomatologa (36). Sve su to nematerijalne karakteristike koje upućuju na to da sposobnost pružanja kvalitetne skrbi nije dovoljna – stomatolog mora imati dobru komunikacijsku vještinu kako bi prenio poruku pacijentu. U našem istraživanju 95,4 % roditelja/skrbnika bilo je zadovoljno ili vrlo zadovoljno komunikacijom s liječnicima, a svi su ispitanici bili zadovoljni ili vrlo zadovoljni komunikacijom koju su s njima uspostavile medicinske sestre. To su značajno više razine zadovoljstva u usporedbi s većinom studija koje se nalaze u dostupnoj literaturi (32, 38, 39). Prema podacima iz studija Bahramiana i suradnika (32) te Eshghija i suradnika (38), 54,7 % odnosno 49 % ispitanika reklo je da je zadovoljno ponašanjem stomatologa. Također se u radu Shokrija i suradnika (39) navodi da je 61 % pacijenata izjavio da su zadovoljni načinom na koji bolničko osoblje postupa s njima. Drugi aspekt skrbi koji je ispitan bile su informacije o stanju djeteta i postupcima. Čak 93,9 % roditelja/skrbnika bilo je zadovoljno ili vrlo zadovoljno količinom dobivenih informa-

respectively, said they were satisfied with the dentist's behavior. Also, a paper by Shokri et al. (39) stated that 61% of patients said they were satisfied with the way hospital staff treated them. Another aspect of dental care that was examined was information on the child's condition and procedures. As many as 93.9% of parents/caregivers were satisfied or very satisfied with the amount of information they received. Similar results were obtained in the studies of Savanheimo et al. (40) and Anderson et al. (41) where 88% and 94.7% of parents/caregivers, respectively, stated that they have been sufficiently informed about provided dental care under GA. On the other hand, in the research of Jankauskiene et al. (6) roughly two in three parents/caregivers (66.4%) believed that they had been sufficiently informed before treatment. Despite being content with the treatment itself, one in three parents felt that they were not provided adequate information beforehand (6). Overall satisfaction of parents/caregivers with the dental treatment system in GA in a day-care surgery setting was high (4.69) with great majority (96.9%) of parents/caregivers stating they were satisfied or very satisfied with the treatment. This result is similar to the results of numerous studies found in the available literature (20, 34, 40, 42-52). Likewise, the more treatments the patients underwent, the lower was their overall satisfaction compared to subjects whose children had never been treated in such a manner before (4.57 vs. 4.83,  $p = 0.04$ ). Based on these results, numerous parents believe that GA seems to be a well-accepted treatment modality. Furthermore, dental treatment in GA improves the quality of life of dental and oral patients and is primarily manifested by reduced pain, easier eating, more comfortable sleep and ultimately better general condition (53). In our study, all four examined parameters representing the perception and assessment of parents / caregivers about their child's oral health showed an improvement over the period before dental treatment in GA (Table 3). One of the main reasons why parents / caregivers take their children to the dentist is to seek relief for the child's signs and symptoms of discomfort associated with toothache. For most dentists, relieving pain and improving a child's standard of life is a major goal of treatment (54).

Most parents reported an improvement in various aspects of quality of life (diet, sleep, general condition) after the procedure compared to the period before the procedure. Thus, 58 (87.9%) parents / caregivers stated that their child eats better without difficulty compared to the period before the procedure. Eating without difficulty is an important parameter in improving the quality of life. The need to prepare a different type of food or a child refusing to eat altogether due to a toothache disrupts the family routine while reducing the quality of life of the whole family. Furthermore, 37 (47%) parents/caregivers stated that they noticed that their child sleeps better after the procedure. Toothache often leads to sleep disorders because the child wakes up during the night due to pain and this can affect the standard of life of the whole household over time. The majority of parents/caregivers (43/65.2%) also stated that their child is in better general condition after treatment compared to the period before rehabilitation, which confirms the fact that dental

cija. Slični rezultati dobiveni su u studijama Savanheima i suradnika (40) te Andersona i suradnika (41) pri čemu je 88 %, odnosno 94,7 % roditelja/skrbnika izjavilo da je dovoljno informirano o pruženoj stomatološkoj skrbi u općoj anesteziji. S druge strane, u istraživanju Jankauskiene i suradnika (6) otprilike dvoje od troje roditelja/skrbnika (66,4 %) vjeruje da su bili dovoljno informirani prije liječenja. Unatoč zadovoljstvu samim tretmanom, svaki treći roditelj smatra da prije zahvata nije dobio odgovarajuće informacije (6). Sveukupno zadovoljstvo roditelja/skrbnika sustavom stomatološkog liječenja u općoj anesteziji u sustavu jednodnevne kirurgije bilo je visoko (4,69) s velikom većinom (96,9 %) roditelja/skrbnika koji su izjavili da su zadovoljni ili vrlo zadovoljni liječenjem. Taj rezultat sličan je rezultatima u mnogobrojnim studijama koji se nalaze u dostupnoj literaturi (20, 34, 40, 42 – 52). Isto tako, što su pacijenti bili podvrgnuti većem broju tretmana, to je sveukupno zadovoljstvo bilo niže nego kod ispitanika čija djeca nikada prije nisu bila liječena na takav način (4,57 prema 4,83,  $p = 0,04$ ). Na temelju svih tih rezultata čini se da je korištenje opće anestezije uglavnom dobro prihvaćeni tretman u očima mnogih roditelja. Nadalje, stomatološki tretman u općoj anesteziji povećava kvalitetu života pacijenata kad je riječ o oralnome zdravlju, što se ponajprije očituje u smanjenju boli, lakšem hranjenju, ugodnijem spavanju i u konačnici boljim općim stanjem (53). U našem istraživanju sva četiri ispitivana parametra koja predstavljaju percepciju i procjenu roditelja/skrbnika o oralnome zdravlju djeteta pokazala su poboljšanje u odnosu prema razdoblju prije stomatološke sanacije u općoj anesteziji (tablica 3.). Jedan od glavnih razloga zašto roditelji/skrbnici vode svoju djecu stomatologu jest traženje olakšanja za djetetove znakove i simptome nelagode povezane sa zuboboljom. Za većinu stomatologa ublažavanje boli i poboljšanje životnog standarda djeteta glavni je cilj liječenja (54).

Većina roditelja izvijestila je o poboljšanju različitih aspekata kvalitete života (prehrana, spavanje, opće stanje) poslije zahvata u odnosu prema razdoblju prije zahvata. Tako je 58 (87,9 %) roditelja/skrbnika izjavilo da njihovo dijete bolje jede i bez poteškoća u odnosu prema razdoblju prije zahvata. Jedenje bez poteškoća važan je parametar u poboljšanju kvalitete života. Potreba za pripremanjem druge vrste jela ili potpuno odbijanje zbog zubobolje remeti obiteljsku rutinu i smanjuje kvalitetu života cijele obitelji. Nadalje, 37 (47 %) roditelja/skrbnika izjavilo je kako su primijetili da im dijete nakon zahvata bolje spava. Zubobolja često remeti san jer se dijete budi tijekom noći zbog boli, a to s vremenom može utjecati na sve članove kućanstva. Većina roditelja/skrbnika (43/65,2 %) također navodi da je njihovo dijete nakon liječenja u boljem općem stanju u odnosu prema razdoblju prije rehabilitacije, što potvrđuje činjenicu da stomatološki tretman u općoj anesteziji pozitivno utječe na kvalitetu života. Za tvrdnju o zubobolji ('U usporedbi s razdobljem prije stomatološkog tretmana u općoj anesteziji, moje dijete nema zubobolju') sličan postotak je odgovorio DA i NE (31/47 % prema 24/36,4%). Nismo uvjereni da je zubobolja bila prisutna kod gotovo polovine pacijenata tijekom stomatološkog zahvata u općoj anesteziji i poslije njega jer bi to utjecalo na druge aspekte kvalitete života koji su se nedvojbeno promi-

**Table 3** Studies dealing with the perception and assessment of parents/caregivers about their child's oral health after dental treatment in GA.  
**Tablica 3.** Studije koje se bave percepcijom i procjenom roditelja/skrbnika o oralnom zdravlju njihova djeteta poslije stomatološkog tretmana u OA-i

Author (year) • Autor (godina)	Respondents • Ispitanici (N)	Cessation of toothache • Prestanak zubobolje (%)	Easier eating • Lakše jedenje (%)	Better sleeping • Bolje spavanje (%)	Better general condition • Bolje opće stanje (%)
Acs et al. (2001.) Pediatr Dent. (50)	228 parents • roditelja	86.0	69.0	41.0	72.0
Anderson et al. (2004.) Int J Paediatr Dent. (41)	95 parents/caregivers • roditelja/skrbnika	Pain on hot-cold (94.12) Pain on sweet (100.0)	100.0	100.0	Not examined • Nije ispitivano
Boukhobza et al. (2021.) Clin Oral Investig. (56)	80 caregivers • skrbnika	Pain in the area of teeth, lips and jaw (67.80)	53.85	44.0	Not examined • Nije ispitivano
El Batawi et al. (2014.) J Int Soc Prev Community Dent. (20)	352 parents • roditelja	100.0	100.0	95.31	Not examined • Nije ispitivano
Fatma et al. (2020.) Tanta Dental Journal (52)	150 parents • roditelja	98.90	96.80	100.0	100.0
White et al. (2003.) Anesth Prog. (57)	45 parents • roditelja	Yes • Da (84.0) No • Ne (5.0) I can't evaluate • Ne mogu procijeniti (12.0)	Yes • Da (69.0) No • Ne (27.0) I can't evaluate • Ne mogu procijeniti (4.0)	Yes • Da (51.0) No • Ne (42.0) I can't evaluate • Ne mogu procijeniti (7.0)	Yes • Da (60.0) No • Ne (24.0) I can't evaluate • Ne mogu procijeniti (16.0)

treatment in GA has a positive impact on quality of life. Regarding the claim of toothache ('Compared to the period before dental treatment under general anesthesia, my child has no toothache') a similar percentage responded YES and NO (31;47% vs. 24;36.4%). We are not convinced that toothache was present in almost half of the patients during and after the dental procedure in GA because it would reflect on other aspects of quality of life that have undoubtedly changed for the better. We believe that this result is primarily due to the awkward and confusing construction of the answer (Yes, no toothache vs. No, no toothache) since in Croatian the meaning of the statement with double negation is affirmative because two negations cancel each other out (55). This is supported by the fact that none of the parents contacted us due to persistent toothache after the procedure. Furthermore, we are not sure that parents and caregivers would have expressed a high level of satisfaction regarding the procedures in our institution if their children's problems continued to persist even after the procedure. Table 3 shows the results of research found in the available literature as a comparison of factors improving quality of life after GA (cessation of toothache, less difficulty when eating, better sleep and better general condition) with the results obtained in our study. Our results are consistent with the results of other authors. Our research has limitations that have to be taken into consideration. It is structured around reviewing previous data and as such it is reliant on recollection of parents/caregivers that may have changed over time. Nevertheless, we think that be-

jenili nabolje. Mišljenja smo da je takav rezultat ponajprije posljedica nezgrapne i zbunjujuće konstrukcije odgovora (Da, ne boli zub, vs. Ne, ne boli zub) zato što je u hrvatskome jeziku značenje tvrdnje s dvostrukom negacijom potvrđeno jer se dvije negacije uzajamno poništavaju (55). Tomu u prilog govori i činjenica da nam se nitko od roditelja nije javio zbog uporne zubobolje poslije zahvata. Nadalje, nismo sigurni da bi roditelji i skrbnici iskazali visoku razinu zadovoljstva postupcima u našoj ustanovi da su se problemi njihove djece nastavili i poslije zahvata. U tablici 3. nalaze se rezultati istraživanja pronađeni u dostupnoj literaturi kao usporedba čimbenika koji poboljšavaju kvalitetu života poslije opće anestezije (prestanak zubobolje, manje poteškoće pri jelu, bolji san i bolje opće stanje) s rezultatima dobivenima u našem istraživanju. Naši rezultati u skladu su s rezultatima drugih autora. Ovo istraživanje ima ograničenja koja se moraju uzeti u obzir. Naime, strukturirano je oko pregleda prošlih podataka i kao takvo oslanja se na sjećanje roditelja/skrbnika koje se tijekom vremena može promijeniti. Ipak, smatramo da je liječenje u općoj anesteziji snažno iskustvo za pacijente i roditelje/skrbnike, te da su zadovoljstvo različitim aspektima skrbi i povećanje standarda parametri koji se lako identificiraju i lako pamte. Drugo je ograničenje razmjerno mali broj ispitanika. Iako je broj ispitanika skroman, ipak je riječ o gotovo pozamašnom broju (30,5 %) te se može zaključiti da dobiveni podaci mogu značajno, na temelju ispitivanih čimbenika, upozoravati na sklonosti pacijenata poslije liječenja.



ing treated under GA is a powerful experience for patients as well as the parents/caregivers, and that satisfaction with various aspects of care as well as the increase in standard of life are parameters that are easily identifiable and easy to remember. The second limitation is a relatively small sample size, that is a relatively small number of respondents. Although the number of respondents is modest, it is still almost a sizeable amount (30.5%). Therefore, it can be concluded that the resulting data can significantly point to the need to examine more thoroughly the factors of post-treatment.

## Conclusion

With increased patient awareness as well as easier access to information on dental procedures, patient satisfaction is progressively playing an increasingly important role in health care. For those health professionals who care for children, parental satisfaction is likely to become an increasingly important parameter over time. Understanding parent/caregiver satisfaction and its effect on a child's life standard adds an important dimension to providing effective and proper dental care. Namely, if parents are content with the way their children are treated, they are more likely to attend to their child's dental care, thus ensuring the implementation of oral hygiene. In order to improve the treatment of patients undergoing intervention in GA, additional efforts are needed to solve institutional problems (lack of staff, especially anesthesiologists). Also, it is of utmost importance to communicate the principle of treatment with parents before the procedure itself. In conclusion, patient satisfaction has a positive impact on treatment outcome since satisfied patients are more likely to maintain a positive relationship with healthcare providers and adhere to their preventive recommendations. Therefore a competent health care system can help improve health outcomes and quality of care, thus contributing to overall patient satisfaction.

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## Conflict of interest

The authors report no conflict of interest.

**Author's contribution:** B. Š. - design, literature searches, interpretation of data, manuscript writing, reference list writing according to the instructions, reference adjustment; V. B. - design, literature searches, interpretation of data, manuscript writing; B. J., D. G., M. L., V. S., D. V. J., Z. K., Ž. V. - design, interpretation of data. All authors approved the final version.

## Zaključak

Uz povećanu svijest pacijenata te lakši pristup informacijama o stomatološkim zahvatima, zadovoljstvo pacijenata progresivno ima sve važniju ulogu u zdravstvenoj skrbi. Za one liječnike koji se skrbe o djeci, zadovoljstvo roditelja vjerojatno će s vremenom postati sve važniji parametar. Razumijevanje zadovoljstva roditelja/skrbnika i njegova učinka na životni standard djeteta dodaje važnu dimenziju pružanju učinkovite i pravilne stomatološke skrbi. Naime, ako su roditelji zadovoljni ponašanjem prema njihovoj djeci, veća je vjerojatnost da će se pobrinuti za njegu zuba i oralnu higijenu djeteta. Kako bi se poboljšao tretman pacijenata koji se podvrgavaju intervencijama u općoj anesteziji, potrebno je uložiti dodatni napor u rješavanju institucionalnih problema (nedostatak osoblja, posebice anesteziologa) i u komuniciranje o principu liječenja s roditeljima prije samog zahvata. Zaključno, zadovoljstvo pacijenata pozitivno utječe na ishod liječenja i poštovanje preventivnih preporuka, pa bi njegovo postizanje trebalo biti u interesu svih zdravstvenih djelatnika.

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## Sukob interesa

Autori nisu bili u sukobu interesa.

**Doprinos autora:** B. Š. – dizajn, pretraživanje literature, interpretacija podataka, pisanje rada, slaganje referencija prema uputama, podešavanje referencija; V. B. – dizajn, pretraživanje literature, interpretacija podataka, pisanje rada; B. J., D. G., M. L., V. S., D. V. J., Z. K., Ž. V. – dizajn, interpretacija podataka Svi su autori potvrdili konačnu verziju rada.

**Sažetak**

**Cilj:** Svrha ovoga istraživanja bila je ispitati zadovoljstvo roditelja i skrbnika pacijenata podvrgnutih stomatološkom liječenju u općoj anesteziji (OA) u sustavu jednodnevne kirurgije. **Materijal i metode:** Anonimni upitnik poslan je roditeljima/skrbnicima pacijenata podvrgnutih potpunoj oralnoj rehabilitaciji u općoj anesteziji. Anкета se sastojala od četiriju dijelova: općih podataka, podataka o zahvatu, zadovoljstva različitim aspektima skrbi i percepcije roditelja/skrbnika o stanju njihova djeteta u odnosu prema razdoblju prije stomatološkog tretmana u općoj anesteziji. **Rezultati:** Na upitnik je odgovorilo 66 roditelja/skrbnika (30,5 %). Sveukupno zadovoljstvo liječenjem bilo je visoko (4,69). Ispitanici su bili najzadovoljniji komunikacijom s medicinskim sestrama (4,92), a najmanje dugim čekanjem na zahvat (3,89). Roditelji/skrbnici pacijenata koji su prijavili poteškoće s prehranom izrazili su znatno niže ukupno zadovoljstvo od onih čija djeca nisu prijavila takve probleme. Također, što su više tretmana pacijenti prošli, to je sveukupno zadovoljstvo bilo niže nego kod ispitanika čija djeca nikada prije nisu bila liječena na takav način. **Zaključci:** Budući da zadovoljstvo pacijenata povoljno utječe na ishod liječenja i pridržavanje preventivnih preporuka, svi pružatelji zdravstvenih usluga trebaju težiti da se to i postigne.

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**Adresa za dopisivanje**

prof. dr. sc. Zoran Karlović  
Sveučilište u Zagrebu, Stomatološki  
fakultet  
Zavod za endodonciju i restaurativnu  
stomatologiju  
Gundulićeva 5, 10 000 Zagreb  
Hrvatska  
tel: 00 385 1 4802 126 faks: 00 385 1  
4830 819  
karlovic@sfgz.hr

**MeSH pojmovi:** stomatološka skrb;  
dnevna bolnica; dijete; zadovoljstvo  
bolesnika; odnosi zdravstveno osoblje-  
bolesnik

**Autorske ključne riječi:** dnevna medi-  
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