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MEDICINSKI, SOCIJALNI I EKONOMSKI ZNAČAJ POSTOJANJA ŠKOLSKE STOMATOLOŠKE NEGE

MEDICAL, SOCIAL, AND ECONOMIC SIGNIFICANCE OF SCHOOL DENTAL CARE SERVICE

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Kratak sadržaj

Uvod. Visoka prevalencija karijesa kod dece predstavlja veliki medicinski, socijalni i ekonomski problem. Karijes, kao bolest savremenog načina života, finansijski opterećuje pojedinca i društvo. Školska stomatološka nega (ŠSN) predstavlja najefikasniju i ekonomski najisplatljiviju metodu u sprovođenju oralno-preventivnog programa.

Cilj. Cilj rada je bio da ukaže na pozitivan efekat ŠSN na ukupno oralno zdravlje, kao i na socijalni i ekonomski aspekt života.

Materijal i metod rada. Istraživanje je sprovedeno na 2 grupe isitinika. Jedna grupa ispitanika je bila iz ruralnih sredina opštine Surdulica, koja u školi nije imala stomatološku ambulantu. Druga grupa ispitanika pohađala je osnovnu školu u Nišu i imala je školsku stomatološku ambzlantu.. Kontrolnu grupu su činili ispitanici koji su bili redovni pacijenti klinike za stomatologiju u Nišu . Svi pacijenti su bili uzrasta 9,11 i 13 godina a reprezentativni uzorak za svaku grupu bio je 150 ispitanika. Kod svih ispitanika je urađen sistematski stomatolški pregled i izračunata prevalencija karijesa (KIO-karijes indeks osoba, KIZ- karijes indeks zuba, KIP-karijes indeks prosek) standarnim formulama . Polse sanacije zuba izračunata je prosečna i ukupna cena koštanja stomatoloških usluga prema cenovniku Republičkog Fonda za Zdravstveno Osiguranje Republike Srbije. (RFZZO)

Rezultati. Rezultati dobijeni istraživanjem pokazuju značajnu razliku u zastupljenosti karijesa kod ispitanika koji su imali tj. koji nisu imali stomatološku ambulantu u školi. Sa ekonomskog aspekta iako su naši proračuni predviđali da će tretman dece iz rurlih sredina biti daleko skuplji od dece koja su imala ŠSN , manje je para potrošeno kod ispitanika koji nisu imali školsku stomatološku ambulantu od predviđenih , jer je zbog udaljenosti ambulante izostao redovan stomatološki tretman, a kompletna sanacija usta pacijenata iz ruralnih sredina i nije sprovedena do kraja.

Zaključak. Karijes indeks prosek kod ispitanika od 9, 11 i 13 godina koji su imali školsku stomatološku ambulantu kretao se od 3.6-5.15, dok je kod ispitanika koji nisu imali stomatološku ambulantu bio skoro trostruko veći i kretao se od 9.03-9.37. Sticanje pozitivih navika, edukacija i informisanje deteta započinje u porodici i nastavlja se primenom preventivnih i profilaktičkih mera kroz predškolsko i školsko obrazovanje. Neulaganje u preventivni program i niske cene stomatoloških usluga direktno su povezani sa porastom prevalencije karijesa.

Ključne reči: Školska stomatološka nega, zdravstveno vaspitanje, prevalencija karijesa, cene stomatoloških usluga

Abstract

Introduction. A high prevalence of caries in children is a huge medical, social, and economic problem. Caries, as a disease of the modern way of life, presents a financial burden to both individuals and society. School dental care (SDC) is the most efficient and cost-effective method used in oral prevention programs.

Material and methods. The study was done on 2 groups of examinees; rural inhabitants without school dental clinics in the Surdulica municipality were enrolled in the first, and the second group consisted of elementary school children from Niš with SDC in their school. The patients were aged 9, 11, and 13 years, and each sample consisted of 150 examinees. Systematic dental examination was done in all of them, with the calculation of caries prevalence using the standard formulas (CIP – caries index of persons, CIT – caries index of teeth, CIA – caries index average). After teeth sanation, the average and total costs of dental care were calculated according to the price list of the Republic Health Insurance Fund of Serbia (RHIFS).

Results. The obtainted results demonstrated a significant difference in the presence of caries in our examinees with and without dental clinic in their schools. From the point of view of economics, although we expected higher costs of the treatment of rural children than those with SDC, the costs were lower for those without SDC, because of the inavailability of regular dental treatment due to distance to nearest dental clinics, and complete sanation of their mouth never took place.

Conclusion. CIA of the children aged 9, 11, and 13 years with SDC ranged from 3.6 to 5.15, while in those without SDC it was almost three times higher, ranging from 9.03 to 9.37. Acquirement of healthy habits, education, and information of children begins in the family and continues with pre-school and school education. Lack of investing into prevention programs and low prices of dental care services are directly associated with increased caries prevalence.

Key words: school dental care, health education, caries prevalence, price of dental services

Uvod

Karijes, i druga oralna oboljenja, kao globalni problem čovečanstva , datiraju još od pra-

Introduction

Caries and other oral diseases, as a global problem, date back to the prehistoric times. In

istorije. U novije doba njihovo lečenje i lečenje komplikacija, zbog visokih cena stomatoloških usluga, predstavljaju ne samo zdravstveni već i socijalno-ekonomski problem. Karijes je bolest savremenog načina života, koja finansijski opterećuje i pojedinca i društvo. Adekvatne i na vreme preduzete preventivne i profilaktičke mere predstavljaju najednostavnije i najeftinije postupke u očuvanju kompletnog oralnog zdravlja.

Školska stomatološka nega (ŠSN) predstavlja svuda u svetu jednu od najefikasnijh i ekonmski najisplatljivijih metoda u sprovođenju oralno-preventivnog programa[1-8].

Zbog potrebe da se što veći broj dece uključi i upozna sa veoma važnim načelima i pravilima higijensko-dijetetskog režima života u očuvanju oralnog zdravlja, osnovno školovanje koje je obavezno za celokupno stanovništvo Republike Srbije, pruža velike mogućnosti u edukaciji dece, koja su u tom školskom uzrastu, veoma poverljiva, poslušna, željna znanja i potrebe za lepim izgledom. Takođe, sticanje novih ali dobrih navika, ili podsećanje na već zaboravljene i odbacivanje ili neprihvatanje loših navika u sprečavanju nastanka oralnih bolesti se veoma uspešno može sprovoditi, uz razumevanje i pomoć koju mogu pružiti organi škole.

Nažalost, iako je ŠSN od početka primene u Republici Srbiji imala relativno dobre rezultate, u skorije vreme se ona sve više i više zanemaruje. Nepostojanje školskih ambulanti u ruralnim sredinama, ili gašenje već postojećih, nedovoljno ulaganje u opremu, potrošni materijal, kao i u stručni kadar, rezultira nezadovoljavajućim stanjem usta i zuba kod dece.

Cilj

Cilj rada je bio da ukaže na pozitivan efekat ŠSN na ukpupno oralno zdravlje dece, kao i na pozitivan socijalni i ekonomski aspekt života. Nepostojanje školskih ambulanti ili tendencija gašenja tj. zatvaranja školskih ambulanti koje se smatraju nerentabilnim, ukazuje na moguće katastrofalne posledice po oralno zdravlje i ekonomski status čitavog društva.

Metod

Stomatološki tim koji je učestvovao u istraživanju je činio: stomaloška sestra i doktor

recent times, their treatment and treatment of complications present not only a health problem, but also a socioeconomic issue because of high prices of dental care. Caries is a disease of modern way of life, presenting a financial burden to both individuals and society. Adequate and timely prevention and prophylactic measures are the simplest and cheapest actions in the preservation of oral health.

School dental care (SDC) is worldwide one of the most efficient and cost-effective methods of implementation of oral prevention programs [1-8].

The need that as large as possible number of children should be acquainted with the important principles of hygiene and healthy living in oral health preservation, elementary education, mandatory for the whole population of Serbia, offers great opportunities for the education of children, who are very obedient, trustful, thirsty for knowledge and wishing to look good in that age. Moreover, acquirement of new and good habits, or elimination of bad habits in the prevention of oral diseases, can be successfully supported, with understanding and help of the school management organs.

Regretfully, although SDC has had relatively good results since its introduction in the Republic of Serbia, it has been increasingly neglected recently. The absence of school dental clinics in rural areas, or closing of the present ones, insufficient investments in equipment, consumables, and dental care professionals, all result in insatisfactory health of the oral cavity and teeth in children.

Aim

Our aim in the study was to indicate a beneficial impact of SDC on oral health in children, as well as on the related positive social and economic issues. The absence of school dental clinics or the tendency of closing these clinics (believed to be cost-ineffective) indicate possible catastrophic consequences regarding oral health and economy of the society.

Method

The team involved in the study consisted of a dentistry nurse and a specialist in pediatric

specijalista dečje i preventivne stomatologije. Istraživanje je sprovedeno u dve grupe dece. Za kontrolnu grupu su ispitivanja sprovedena kod redovnih pacijenata Klinike za stomatologiju u Nišu uzrasta 9, 11 i 13 godina.

Prva grupa dece uzrasta 9, 11 i 13 godina, pohađala je osnovnu školu na teritoriji grada Niša, koja ima svoju školsku stomatološku ambulantu i dugu tradiciju primene ŠSN.

Druga grupa dece uzrasta 9, 11 i 13 godina, pohađala je osnovnu školu u ruralnoj sredini na teriroriji opštine Surdulica. Ova grupa dece je jednom godišnje bila obuhvaćena obaveznim sistematskim stomatološkim pregledom, a u svojoj školi nije imala školsku stomatološku ambulantu.

U obe grupe ispitanika je uzet repreznтativni uzorak od 150 dece, kao i u kontrolnoj grupi,i urađen stomatolški sistematski pregled.

Korišćen je Klain-Palmerov sistem da bi se izračunala prevalencija karijesa kod ispitanika. Za obe grupe ispitanika izračunat je KIO (karijes indeks osoba), KIZ (karijes indeks zuba), KIP (karijes indeks prosek), kao i procenat karijesnih zuba, plombiranih i ekstrahiranih u strukturi KEP-a standardnim formulama za izračunavanje ovih indeksa.

Posle sanacije usta i zuba kod obe grupe ispitanika, koja je trajala 18 meseci, izračunata je prosečna i ukupna ekonomska cena koštanja na osnovu cenovnika Fonda za zdravstveno i socijalno osiguranje Republike Srbije, što je omogućilo da se napravi razlika u izdacima, tj. utvrdi značajnost postojanja školske stomatološke ambulante sa socijalnog i ekonomskog aspekta.

Tačnu ekonomsku cenu koštanja sanacije zuba nije bilo moguće utvrditi pre početka sanacije tj. posle urađenog sistematskog pregleda. Glavni razlog je bio nemogućnost predviđanja ponovnog dolaska dece stomatologu, kao i daljeg toka bolesti i eventualnih komplikacija.

Moguća ekonomska cena koštanja sanacije usta i zuba u obe grupe ispitanika, pre stomatološke terapije, izračunata je na osnovu uvida u kartone treće grupe dece 9, 11 i 13 godina (kontrolna grupa), pacijenata odeljenja za Dečju i preventivnu stomatologiju Stomatološke klinike u Nišu, kod kojih je izvršena kompletna stomatološka sanacija, te je na osnovu cenovnika RFZZO izračunta ukupna ekonomska cena sanacije.

and preventive dentistry. The study was performed on two groups of children. Our control group consisted of regular patients of the Dentistry Clinic in Niš, aged 9, 11, and 13 years.

The first group of children aged 9, 11, and 13 years were the pupils of an elementary school in the Municipality of Niš, with its own school dental clinic and long-lasting tradition of SDC.

The second group of children aged 9, 11, and 13 years, attended an elementary school in a rural area in the territory of the Community of Surdulica. This group of children was involved in the mandatory systematic dentistry examinations, and did not have dental clinic in their school.

Both studied groups enrolled 150 children, as well as the control group, and in all of them dental examination was performed.

The Klein-Palmer's system was used to calculate the prevalence of caries in children. For both studied groups the following parameters were calculated: (CIP – caries index of persons, CIT – caries index of teeth, CIA – caries index average), as well as the percentage of decayed, missing, and filled teeth, in the structure of CMP (caries; missing; parodontal disease) using the standard formulas to calculate these indices.

After the sanation of mouth and teeth in both studied groups (lasting 18 months), the average and total costs were calculated based on the price list of the Republic Health Insurance Fund of Serbia, enabling us to establish the socioeconomic significance.

We were unable to establish the precise economic costs of teeth sanation before the sanation started (i.e. after the systematic check-up). We were unable to predict the number of future visits of the children to their dentists, as well as disease course and possible complications.

Possible costs of oral and dental sanation in both groups before the dental treatment was calculated based on the insight into the patient histories of the third group of children aged 9, 11,. and 13 years (controls), patients of the Department of Pediatric and Preventive Dentistry, Dentistry Clinic in Niš, in whom complete oral and dental sanation was accomplished. Based on the price list of the Republic Health Insurance Fund, total costs of the sanation were obtained.

Izračunat je karijes indeks prosek (KIP) u trenutku prvog sistematskog pregleda, a zatim je na osnovu cenovnika fonda za zdravstveno osiguranje Republike Srbije izračunata prosečna i ukupna cena koštanja sanacije za kontrolnu grupu pacijenata.

Korišćen cenovnik je isti na Klinici za stomatologiju u Nišu, kao i u školskoj stomatološkoj ambulanti u Nišu i ambulanti u kojoj su deca iz ruralnih sredina bila zbrinuta.

Određena je proporcija kojom je na osnovu KIP-a izračunata moguća ukupna i moguća prosečna ekonomska cena koštanja sanacije usta i zuba:

G_1KIP : X=KGKIP : A i G_2KIP : Y=KGKIP : A

* G_1KIP- karijes indeks prosek grupe dece u osnovnoj školi u Nišu; X- početna verovatna ekonomska cena koštanja stomatološke sanacije;

*G_2KIP-karijes indeks prosek druge grupe dece iz ruralnih sredina; Y-početna verovatna ekonoska cena stomatološke sanacije;

*KGKIP- karijes indeks prosek kontrolne grupe pacijenata klinike za stomatologiju u Nišu; A-prosečna ekonomska cena stomatološke sanacije.

Ekstrahirani i plombirani zubi su se već tretirali kao sanirani, te će verovatna cena koštanja biti korigovana formulama:

%KG: X=%KG_1 : KG_1 i %KG: Y= %KG_2 :KG_2

*%KG – procenat karijesa u strukturi KEP-a (kontrolna grupa);

* X- početna verovatna ekonomska cena koštanja stomatološke sanacije grupe dece u osnovnoj školi u Nišu;

* %KG_1- procenat karijesa u strukturi KEP-a kod grupe dece u osnovnoj školi u Nišu;

*KG_1 – konačna verovatna ekonomska cena koštanja stomatološke sanacije kod grupe dece u osnovnoj školi u Nišu;

*Y-početna verovatna ekonoska cena stomatološke sanacije druge grupe dece iz ruralnih sredina;

*%KG_2 – procenat karijesa u strukturi KEP-a kod grupe dece iz ruralnih sredina;

*KG_2 – konačna verovatna ekonomska cena koštanja stomaloške sanacije kod grupe dece iz ruralnih sredina.

Zbog različite zastupljenosti karijesa po uzrastu, obe grupe dece su posmatrane po uzrastu i tako upoređivane.

At the time of the first systematic examination, the caries index average (CIA) was calculated; based on the price list of the Republic Health Insurance Fund, average and total cost of the sanation was calculated for the control group of subjects.

The used price list was the same as that used at the Clinic of Dentistry in Niš, at the school dental clinic in Niš, and the clinic managing the children from the rural areas.

The proportion was determined based on which we calculated (based on CIA) the possible total and average costs of oral and dental sanation:

* G_1CIA: X=CGCIA:A and G_2CIA: Y=CgCIA:A (G_1CIA – caries index average of the group of elementary school children in Niš; X – initial probable cost of dental sanation;

* G_2CIA – caries index average of the children from rural area; Y – initial probable cost of dental sanation;

* CgCIA – caries index average in the control group of patients of the Dentistry Clinic in Niš; A – average cost of dental sanation).

Extracted (missing) and filled teeth were treated as already treated, and the probable costs would be corrected by the formulas:

%CG:X=%$CoG_1$and%CG:Y=%CG2:CoG_2 (%CG – percentage of caries in the structure of CMP in control group;

* X – initial probable cost of dental sanation in the group of school children from Niš;

* %CG_1 – percentage of caries in the structure of CMP in the group of school children from Niš;

* CoG_1 – final probable cost of dental sanation in in the group of school children from Niš; Y – initial probable cost of dental sanation of the second group of children from the rural area;

* %CG_2 – percentage of caries in the structure of CMP in the group of school children from the rural area;

* CoG_2 - final probable cost of dental sanation of the second group of children from the rural area.

Due to their different ages, both studied groups of children were observed by the factor of age and comparisons were made accordingly.

Rezultati

U tabeli br. 1. prikazani su dobijeni rezultati:

I *U prvoj grupi dece uzrasta 9.g. KIO=92,15%. Kod njihovih vršnjaka u ruralnoj sredini , KIO je iznosio 96.875%.

* Kod ispitanika uzrast 11 g. KIO je bio 88.23%, dok su u drugoj grupi sva deca iz ruralnih sredina imala barem 1 KEP(KIO=100).

Results

I. In the first group of children from Niš aged 9 years, CIP was 92.15%; in their peers from rural area, CIP was 6.875%. In the children from Niš aged 11 years, CIP was 88.23%, while all the peers from rural area had CIP of 100%. In the children from Niš aged 13 years, CIP was 89.58%, while their peers from rural area had CIP of 100%.

Tabela br.1. Prevalencija karijesa kod ispitanika prve i druge grupe
Table 1. Caries prevalence in the first and second group of examinees

	Prva grupa First group			Druga grupa Second group		
Uzrast Age	9 godina 9 yrs	11 godina 11 yrs	13 godina 13 yrs	9 godina 9 yrs	11 godina 11 yrs	13 godina 13 yrs
KIO CIP	92.15	88.23	89.58	96.875	100	100
KIP CIA	5.15	3.19	3.60	9.031	9.37	9.18
KIZ CIT	21.80	12.78	13.27	37.00	37.52	34.94
%K %C	66.92	52.14	53.17	79.58	83.23	77.72
%E %M	14.44	6.13	4.62	17.99	12.19	8.41
%P %P	31.17	46.62	42.77	2.42	4.57	13.86

*Kod 13- godišnjaka u prvoj grupi, KIO je iznosio 89.58% dok su deca istog uzrasta u drugoj grupi imala KIO 100%.

II *U prvoj grupi svako dete uzrasta 9 godina imali su KIP=5.15, dok su deca u drugoj grupi istog uzrasta imala KIP=9.031.

*Ispitanici uzrasta 11.g. u prvoj grupi su imali KIP=3.19 zuba, dok su njihovi vršnjaci u drugoj grupi imali KIP=9.37.

*Ispitanici uzrasta 13.g. u prvoj grupi su imali KIP=3.6, dok su njihovi vršnjaci u drugoj grupi imali KIP=9.18.

III *Od ukupno 1206 pregledanih zuba kod 9 godišnjaka Niške škole, KIZ=21.8%. Kod njihovih vršnjaka u ruralnoj sredini od ukupno 781 pregledana zuba, KIZ=37%.

* Kod 11- godišnjaka u niškoj školi od 1275 pregledanih zuba, KIZ=12.78%. Ispitanici u ruralnoj sredini istog uzrasta su imali od 874 pregledana zuba KIZ=37.52%.

II.In the first group of children from Niš aged 9 years, CIA was 5.15, while their rural counterparts had CIA of 9.031. The children from Niš aged 11, had CIA of 3.19, while their rural counterparts had CIA of 9.37. The children from Niš aged 13 years had CIA of 3.6, while their rural counterparts had CIA of 9.18.

III. In 1206 examined teeth in total in 9 years old children in Niš, CIT was 21.8%, while in their rural counterparts and 781 examined teeth, CIT was 37%. In 11 years old children and 1275 examined teeth, CIT was 12.78%, and in their rural counterparts and 874 examined teeth, CIT was 37.52%. In 13 years old children and 1303 examined teeth, CIT was 13.27%, and in their rural counterparts and 1156 examined teeth, CIT was 37.52%.

IV. In 9 years old children from Niš, out of the total number of carious, extracted, and filled

*Ispitanici uzrasta 13.g.u niškoj školi od 1303 pregledana zuba su imali KIZ=13.27%, dok su ispitanici u ruralnoj sredini istog uzrasta imali KIZ=34.94%, od 1156 pregledana zuba.

IV * Kod 9- godišnjaka u niškoj školi od ukupnog broja karioznih, ekstrahiranih i plombiranih zuba 66.92% je bilo karioznih, 14.44% je bilo ekstrahiranih, a 31.17% je bilo plombiranih zuba. Struktura KEP-a kod njihovih vršnjaka u ruralnoj sredini je bila sledeća: %K=79.58; %E=17.98; i samo %P=2.42.

*Kod 11- godišnjaka u niškoj školi od ukupnog broja karioznih, ekstrahiranih i plombiranih zuba 52.14% je bilo karioznih; 6.13% je bilo ekstrahirano; 46.62% je bilo plombiranih zuba. Kod njihovih vršnjaka u ruralnoj sredini struktura KEP- a je bila sledeća: %K=83.23; %E=12.19 i %P=4.57.

*Kod 13- godišnjaka u niškoj školi struktura KEP-a je bila sledeća: %K=53.17%,%E=4.62, i %P=42.77. Kod njihovih vršnjaka u ruralnoj sredini struktura KEP- a je bila sledeća: %K=77.72; %E=8.41 i %P=13.86.

U trećoj grupi dece (*kontrolna grupa*) dobijeni su sledeći rezultati:

* Kod 9-godišnjaka u trenutku prvog sistematskog pregleda, KIP= 6.87. Za njihovu kompletnu sanaciju ukupno je utrošeno 323 499.4 dinara, a prosečno po pacijentu je potrošeno 6 469.4 dinara. Procenat kariesa u strukturi KEP-a kod ove dece bio je %K= 72.

*Kod 11- godišnjaka u trenutku prvog sistematskog pregleda, KIP je iznosio 4.2. Za njihovu kompletnu sanaciju ukupno je utrošeno 169 095.6 dinara, a prosečno po pacijentu je potrošeno 3 381.6 dinara. Procenat kariesa u strukturi KEP-a kod ove dece bio je %K=54.

* Kod 13- godišnjaka u trenutku prvog sistematskog pregleda KIP je iznosio 4.65. Za njihovu kompletnu sanaciju ukupno je utrošeno 186 941.4 dinara, a prosečno po pacijentu je potrošeno 3 738.5 dinara. Procenat kariesa u strukturi KEP-a kod ove dece bio je %K=53.

Ako se uzmu u obzir cene koštanja koje su dobijene ispitivanjem treće grupe pacijenata , njihov KIP i %karijesa u strukturi KEP-a, bilo je moguće napraviti proračun na osnovu formula:

G_1KIP : X=KGKIP : A
G_2KIP : Y=KGKIP : A
%KG: X=%KG_1 : CG_1
%KG: Y= %KG_2 :CG_2

*Dobijena je verovatna cena koštanja stomatološke sanacije grupe ispitanika u osnovnoj školi u Nišu kod 9- godišnjaka, koji su u proseku imali 5.15 defektnih zuba; %K=66,92,

teeth, there were 66.92% carious teeth, 14.44% extracted, and 31.17% filled teeth. The structure of CEF for their rural counterparts was as follows: %C=79.58, %E=17.98, and only %F=2.42. In 11 years old children from Niš, out of the total number of carious, extracted, and filled teeth, there were 52.14% carious teeth, 6.13% extracted, and 46.62% filled teeth. The structure of CEF for their rural counterparts was as follows: %C=83.23; %E=12.19; and %F=4.57. In 13 years old children from Niš the structure of CEF was as follows: %C=53.17, %E=4.62, and %F=42.77. In their rural counterparts, the structure of CEF was as follows: %C=77.72, %E=8.41, and %F=13.86.

In the third group of children (controls), the following results were obtained:

- In 9 years old children, at the time of their first systematic check-up, CIA was 6.87. Their complete curing required 323.499,4 dinars (with 6.469,4 dinars on the average per patient). The percentage of caries in the CEF structure was %C=72.

- In 11 years old children, at the time of their first systematic check-up, CIA was 4.2. Their complete curing required 169.095,6 dinars (with 3.381,6 dinars on the average per patient). The percentage of caries in the CEF structure was here %C=54.

- In 13 years old children, at the time of their first systematic check-up, CIA was 4.65. Their complete curing required 186.941,4 dinars (with 3.738,5 dinars on the average per patient). The percentage of caries in the CEF structure was %C=53 in these.

When the costs obtained by the study of the third group of patients (controls), as well as their CIA and percentage of caries in the CEF structure, were taken into account, the following calculation was performed based on the formulas

(G_1CIA: X=CGCIA:A;
G_2CIA: Y=CGCIA:A; and
%CG:X=%CG_1:CoG_1;%CG:Y=%CG_2:CoG_2).

We obtained the probable cost of dental sanation for 9 years old children from Niš with averagely 5.15 defective teeth and %C=66.92. The cost would amount to 225.396,64 dinars

je iznosila ukupno 225 396.64 dinara. Za kompletnu sanaciju svakog ispitanika u grupi treba izdvojiti 4 507.54 dinara.

Verovatna cena koštanja stomatolške sanacije njihovih vršnjaka u rurlnoj sredini, bez školske stomatološke ambulante, koji su u proseku imali 9.031 defektna zuba i %K=79. 58, ukupno bi iznosila 470 028.36 din., dok bi za svako ispitivano dete u ruralnoj sredini u proseku trebalo izdvojiti 9 399.76 dinara.

*Kod 11- godišnjaka u osnovnoj školi u Nišu je bilo prosečno 3.19 defektnih zuba i %K=52.14, ukupno za celu grupu dece bi trebalo izdvojiti 124 008.32 dinara, a za svako dete u proseku bi trebalo izdvojiti 2479.95 dinara.

Verovatna cena koštanja stomatolške sanacije 11- godišnjaka u rurlnoj sredini, bez školske stomatološke ambulante,koji su imali KIP= 9.37, i %K=83.23, ukupno treba izdvojiti 581 444.97 dinara; dok bi za svako ispitivano dete u ruralnoj sredini u proseku trebalo izdvojiti 11 627.91 dinara.

*Kod 13- godišnjaka u osnovnoj školi u Nišu gde je KIP=3.60 i %K=53.17, ukupno za celu grupu dece bi trebalo izdvojiti 145 193.06 dinara, a za svako dete, prosečno bi trebalo izdvojiti 2 903.61 dinara.

Verovatna cena koštanja stomatolške sanacije 13- godišnjaka u rurlnoj sredini, bez školske stomatološke ambulante, koji su imali KIP= 9.18 i %K=77.72, iznosila bi 541 193.02 dinara, dok bi za svako ispitivano dete u ruralnoj sredini u proseku trebalo izdvojiti 10 822.94 dinara.

Polse godinu dana intenzivnog zdravstveno vaspitnog rada (držano je barem jednom mesečno zdravstveno predavnje o važnosti očuvanja oralnog zdravlja, preventivnim merama za suzbijanje karijesa, pravilnim tehnikma pranja zuba itd.) i rada provedenog u ambulanti na sanaciji karijesnih zuba dobijeni su sledeći rezultati (tabela br.2):

Kod samo 14% ispitanika uzrasta 9 godina u ruralnoj sredini izvršena je kompletna sanacija usta i zuba, 32% dece uzrasta 9 godina iz ruralne sredine imala su do 3 stomatološke intervencije ali im nije izvršena kompletna sanacija, dok 54% dece uzrasta 9 godina, i pored intenzivnog zdravstveno prosvetnog rada sa njima i njihovim roditeljima, nije uopšte posetilo stomatološku ambulantu. Ukupna sredstava koja su potrošena za ovu grupu pacijenata iznosila su 111631.7 dinara, a bilo je predviđeno 470028.36.

Ispitanici istog uzrasta iz osnovne škole u Nišu, za razliku od prve grupe ispitanika, odazvali su se u velikom broju. Dolazi se do podatka

(4.507,54 dinars on the average per child). The probable cost for their rural counterparts, with averagely 9.031 defective teeth and %C=79.58, amounted to 470.028,36 dinars (9.399,76 dinars on the average per child).

In 11 years old children from the elementary school in Niš, there were 3.19 defective teeth on the average and %C=52.14. For the whole group the cost would amount to 124.008,32 dinars (2.479,95 dinars on the average per child). In the studied rural environment, the probable cost of dental sanation of 11 year olds with CIA=9.37 and %C=83.23 would amount to 581.444,97 dinars (11.627,91 dinars on the average per child).

In 13 years old children from the elementary school in Niš, with CIA=3.60 and %C=53.17, the sanation cost would amount to 145.193,06 dinars (2.903,61 dinars on the average per child). Probable dental sanation cost of 13 years old children in the rural environment without school dental clinic, with CIA=9.18 and %C=77.72, would amount to 541.193,02 dinars (10.822,94 dinars on the average per child).

After a year of diligent health education (with health education lectures about the preservation of dental health, prevention measures to fight caries, proper techniques of teeth washing, etc. held at least once a month) and dental clinic work to cure the decayed teeth, the folowing results were obtained (Table 2).

Complete sanation of oral cavity and teeth was performed in only 14% of children in the studied rural area; 32% of these children aged 9 years had up to three interventions, but without complete sanation, while 54% of 9 years old children never visited the dental clinic, in spite of intense health education work both with them and their parents. The expenditure for this group of patients was 111.631,7 dinars (with 470.028,36 dinars predicted).

Their counterparts from Niš responded much better to health education. Complete sanation was accomplished in 78% of these children, 14% of 9 years old children visited dental clinic up to 3 times, while 8% never visited their school dental clinic. The expenditure for

Tabela br. 2. Karijes prevalencija nakon stomatološkog tretmana i potrošena sredstva
Table 2. Caries prevalence after dental treatment and invested resoures

Grupa dece Group of children	% dece kod kojih je izvršena kompletna sanacija zuba % of children with complete dental sanation	% dece koja su imala do 3 posete stomatologu ali im nije urađena kompletna sanacija % of children with up to 3 visits to dental clinic, without complete sanation	% dece koja uopšte nisu došla kod stomatologa % of children who never visited dental clinic	Potrošena sredstva Expenditure	Sredstva koja su predviđena za kompletnu sanaciju Costs required for complete sanation
9 godišnjaci u ruralnoj sredini 9 yrs old from rural area	14	32	54	111631.7*	470028.36
9 godišnjaci u Niškoj osnovnoj školi 9 yrs old, elem. school from Niš	78	14	8	179163	225396.4
11 godišnjaci u ruralnoj sredini 11 yrs old from rural area	8	20	72	123731.5*	581444.9
11 godišnjaci u Niškoj osnovnoj školi 11 yrs old, elem. school from Niš	82	6	12	101905	124008.32
13 godišnjaci u ruralnoj sredini 13 yrs old from rural area	10	28	62	81828.3*	541193.02
13 godišnjaci u Niškoj osnovnoj školi 13 yrs old, elem. school from Niš	74	14	12	145193.06	114853.5

*U obzir nisu uzeta sredstva koja su potrošena za prevoz zdravstvenih radnika prilikom održavanja zdravstvenih predavanja u ruralnoj sredini

* The costs made for the transportation of health care professionals to the rural area in order to give health education lectures were excluded.

da je kod 78% dece u Niškoj osnovnoj školi izvršena kompletna sanacija usta i zuba, 14% dece uzrasta 9 godina iz osnovne škole u Nišu je došlo do 3 puta kod stomatologa, dok 8% dece uzrasta 9 godina Niške osnovne škole uopšte nije posetilo školsku stomatološku ambulantu. Za ovu grupu pacijenata ukupno je potrošeno 179163 dinara, a bilo je prdviđeno 225396.4

Kod 8% ispitanika uzrasta 11 godina u ruralnoj sredini izvršena je kompletna sanacija usta i zuba. 20% ispitanika iz ruralne sredine imalo je do 3 posete stomatologu, ali im nije izvršena kompletna sanacija. 72% ispitanika uopšte nisu posetila stomatološku ambulantu. Za ovu grupu ispitanika ukupno je potrošeno 123731.5 dinara, a bilo je predviđeno 581444.9 dinara.

Kod 82% ispitanika uzrasta 11 godina Niške osnovne škole je izvršena kompletna sanacija usta i zuba. 6% ispitanika je imalo do 3 posete školskoj stomatološkoj ambulanti, ali im nije izvršena kompletna sanacija usta i zuba. 12% ispitanika nije posetilo školsku stomatološku ambulantu. Za ovu grupu ispitanika potrošeno je 101 905 dinara, a ukupno je bilo predviđeno 124008.32 dinara.

Kod 10% ispitanika uzrasta 13 godina iz ruralne sredine izvršena je kompletna sanacija usta i zuba. 28% ispitanika imalo je do 3 posete stomatologu ali im nije izvršena kompletna sanacija. 62% ispitanika nisu posetila stomatološku ambulantu. Za ovu grupu ispitanika ukupno je potrošeno 81828.3 dinara, a bilo je predviđeno 541193.02 dinara.

Kod 74% ispitanika uzrasta 13 godina Niške osnovne škole je izvršena kompletna sanacija usta i zuba. 14% ispitanika je imalo do 3 posete školskoj stomatološkoj ambulanti ali im nije izvršena kompletna sanacija usta i zuba. 12% ispitanika nije posetilo školsku stomatološku ambulantu. Za ovu grupu ispitanika potrošeno je 145193.06 dinara, a ukupno je bilo predviđeno 114853.5 dinara

Diskusija

Dobijeni rezultati ukazuju na visoku prevalenciju oboljenja usta i zuba kod ispitanika u obe grupe, uključujući i kontrolnu grupu. Međutim, razlike u oboljenju su itekako velike kod ispitanika koji su imali školsku ambulantu i ispitanika koji su iz ruralnih sredina i koji nisu u školi imali stomatološku ambulantu. Karijes indeks osoba kod ispitanika od 9, 11 i 13.g., koji su imali stomatološku ordinaciju u školi se

this group of patients was 179.163,0 dinars (with 225.396,4 dinars predicted).

In 8% of children aged 11 years in the rural area complete sanation of oral cavity and teeth was accomplished. Up to three visits to dental clinic had 20% of rural area children, however without complete sanation. Seventy two percent of rural area children never visited the dental clinic. The expenditure for this group of patients was 123.731,5 dinars (with 581.444,9 dinars predicted).

In 82% of children from Niš aged 11 years, complete sanation was achieved, 6% visited their clinic up to three times (without complete sanation), and 12% never visited their school dental clinic. The expenditure for this group of patients was 101.905 dinars (with 124.008,32 dinars predicted).

In 10% of children aged 13 years from the rural area complete sanation was achieved, 28% had up to three visits to dental clinic (without complete sanation), and 62% never visited dental clinic. The expenditure for this group of patients was 81.828,3 dinars (with 541.193,02 dinars predicted).

In 74% of children aged 13 years from Niš, complete sanation was achived, 14% had up to three visits to their dental clinic (without complete sanation), and 12% never visited their school dental clinic. The expenditure for this group of patients was 145.193,06 dinars (with 114.853,5 dinars predicted).

Discussion

The obtained results indicated a high prevalence of mouth and teeth diseases in both studied groups and control group as well. However, great differences were observed between those who had their school dental clinic and those from the rural area without dental clinic in their school. Caries index in children aged 9, 11, and 13 with dental clinic in their school ranged from 88.29% to 92.15%, while the percentage ranged from 96.87% to 100% in their age-matched peers from the studied rural area.

kretao od 88,29%-92,15%, dok je kod ispitanika istog uzrasta iz ruralnih sredina iznosio od 96, 87%-100%.

Karijes indeks prosek se kod ispitanika uzrasta od 9,11 i 13.g. koja su imala stomatološku ordinaciju u školi, kretao od 3,6-5,15, dok je kod dece istog uzrasta iz ruralnih sredina, ali koja nisu imala školsku stomatološku ordinaciju, on bio skoro trosruko veći i kretao se od 9,03-9,37.

U strukturi KEP-a, plombiranih tj. saniranih zuba je kod ispitanika od 9, 11 i 13.g. koji su imali u školi stomatološku ambulantu bilo čak 46,62%, dok je procenat saniranih zuba kod ispitanika istog uzrasta u ruralnim sredinama drastično manji i iznosi od 2,42%-13,86%.

Sticanje pozitivnih navika, edukacija i informisanje deteta o očuvanju oralnog zdravlja započinje u porodici[9]. Stečeno znanje pojedinca i zdravstvena prosvećenost omogućavaju da se čuva oralno zdravlje od brojnih faktora rizika koji bi ga narušili i doveli do brojnih komplikacija[10]. Neznanje ili neprihvatanje pojedinca ili populacije o potvrđenim pozitivnim stavovima i osnovnim principima ponašanja u cilju očuvanja oralnog zdravlja, rezultira nastanku bolesti. Promene ponašanja imaju za cilj da ukažu i potvrde značaj brojnih faktora koji će doprineti očuvanju oralnog zdravlja. Pravilan režim ishrane-izbalansirani obroci, redovna i pravilna oralna higijena, upotreba fluorida, motivacije i remotivacije, kao i redovni kontrolni stomatološki pregledi su primarni elementi, koje pojedinac treba da zna, u cilju očuvanja zdravlja usta i zuba. Sa edukacijom i primenom zdravstveno vaspitnih mera i postupaka treba nastaviti kroz predškolsko i iškolsko obrazovanje. U tom smislu, postojanje školske stomatološke ambulante i dostupnost školskog pedontologa je sledeća karika u nastavku procesa učenja[11].

Pedontolog u školskoj stomatološkoj ambulanti je u mogućnosti da pruži deci ne samo neophodne stomatološke intervencije, već da ih kroz razne vidove zdravstvenog vaspitanja edukuje, informiše i upozori na sve negativno što bi ugrozilo njihovo oralno zdravlje. Istovremeno, on je nosilac unapređenja oralnog zdravlja, pri čemu utiče na prenošenje pozitivnih navika u sistemu: ishrana-oralna higijena-fluor profilaksa.[12]

Istraživanje sprovedeno o prevalenciji karijesa kod dece koja su u školi imala stomatološku ambulantu i kod dece koja nisu

CIA in children aged 9, 11, and 13 with dental clinic in their school ranged from 3.6 to 5.15, with the values ranging from 9.03 to 9.37 in their age-matched peers (without dental clinic in the school) from the studied rural area.

In the structure of CEF, there were as high as 46.62% of filled teeth in children aged 9, 11, and 13 with dental clinic in their school, while the percentage of cured teeth in their age-matched peers was drastically lower – 2.42% to 13.86%.

Acquirement of positive habits, education, and information of children regarding their oral health begins in their families.[9] That knowledge and health literacy enable the preservation of oral health and avoidance of numerous risks that could produce deleterious effects upon health.[10] Ignorance and unresponsiveness of individuals and populations to confirmed, positive principles aiming at preservation of oral health could result in disease. Behavioral changes confirm the significance of a multitude of factors contributing to oral health. Balanced diet, regular and properly exercised oral hygiene, use of fluorides, motivation and re-motivation, as well as regular dental check-ups, are the principal elements an individual should be fully aware of regarding dental and oral health preservation. Health education should be an integral element of both pre-school and school education. Dental clinics and availability of a school pediatric odontologist is the next step in continued education in that regard.[11]

A pedontologist in the school dental clinic is able to offer not only the necessary dental care interventions, but to educate and offer appropriate information about the factors that could improve or endanger oral health. At the same time, he is the main factor in the system of dental care, of an enormous impact regarding the transfer of positive values (in the interrelated areas of nourishment, oral hygiene, and fluor-prophylaxis). [8]

The study of the caries prevalence in children with and without a dental clinic in their school confirmed the importance of dental clinics. The results demonstrated very significant differences in oral health in children, i.e.

imala u školi stomatološku ambulantu, je potvrdilo značaj postojanja školske stomatološke ambulante. Rezultati pokazuju veliku razliku u pogledu oralnog zdravlja kod dece tj. ustanovljeno je bolje stanje zuba i veći broj saniranih zuba kod dece koja su svakodnevno imala mogućnost da u školi posete stomatologa. Takođe, kontinuirana edukacija kroz razne vidove zdravstvenog vaspitanja je rezultirala boljim stanjem zuba kod ove dece, za razliku od dece iz ruralnih sredina koja su bila uskraćena svih ovih pogodnosti.

Koristeći Klein-Palmerov (KEP) sistem, dobijeni su podaci o prevalenciji karijesa kod dece istog uzrasta (9, 11 i 13.g.) koja su u školi imala stomatološku ambulantu, i kod dece iz ruralnih sredina istog uzrasta, koja nisu ima stomatološku ambulantu u školi. Dobijeni rezultati ukazuju na izuzetno loše oralno zdravlje kod dece iz ruralnih sredina koja nisu imala stomatologa u školi. Sanacija obolelih zuba je kod ove dece bila nedovoljna, tj. rađena je samo kada je dete sa roditeljem odlazilo stomatologu pri Domu zdravlja. Udaljenost stomatološke ambulante, nedovoljna prosvećenost tj. neznanje o važnosti oralnog zdravlja bitni su činioci u nađenom stanju usta i zuba kod dece iz ruralnih sredina. Treba naglasiti da su deca iz ovih sredina prihvatila navike tj. ishranu urbanih sredina. Rafinirana, prerađena hrana koju deca najčešće koriste, ostavlja posledice na oralno stanje. Razlozi za nepovoljan tj. štetan uticaj ishrane na zube se nalaze u neupražnjavanju oralne higijene, bilo zbog neznanja, nemotivisanosti ili nebrige [13,14,15,16,17,18].

Određivanje tačne ekonomske cene koštanja stomatološke sanacije bilo je nemoguće tačno utvrditi, jer se nije moglo predvideti da li će i u kom stadijumu bolesti pacijent zatražiti lekarsku pomoć, kao i da li će do kraja ispoštovati terapijsku proceduru. Takođe, nije bilo moguće predvideti sam tok lečenja, tj. u kom pravcu će krenuti i kakav će biti krajnji ishod. Ali, izračunavanje približne ekonomske cene koštanja stomatoloških usluga za bilo koju grupu ispitanika, bilo bi od velike koristi kako bi se materijalna sredstva za stomatološku profilaksu i terapiju što ravnomernije rasporedila.

Metoda koja je ovom prilikom prezentovana može biti od izuzente praktične koristi svakom Domu zdravlja u Republici Srbiji, s obzirom da su korišćeni statistički podaci dobijeni redovnim sistematskim pregledom, a istovremeno omogućuva približno predviđanje eko-

a better dental status and higher number of treated (cured) teeth in children with everyday availability of dental care at school. Moreover, continued education through various forms of health education resulted also in a better dental status in these children, in contrast to the children from rural areas.

Using the Klein-Palmer system (CEF – carious, extracted, filled teeth; or DMF – decayed, missing, fillet teeth) in children of the same age (9, 11, and 13 years) with a dental clinic in their school vs children from a rural area without dental clinic in their school, the data on the caries prevalence were obtained. The results indicated very poor dental health in children from the rural environment. Teeth sanation was insufficient in these children (done only when a child and his parent visited the dentist in the Health Center. Distance of dental clinics, insufficient health literacy, especially regarding oral health, were the essential factors determining the observed status of teeth and mouth cavity in children from the rural area. It should be emphasized that these children adopted the nutrition habits characteristic for urban areas. Highly refined and processed foods commonly consumed by children, certainly have consequences upon oral health. The reasons for the deleterious impact of food can be found in the absence of oral hygiene due to ignorance, neglect, or lack of motivation. [13,14,15,16,17,18]

The precise costs of dental sanation could not be determined, since we were unable to predict if or when (in which disease stage) a patient would seek dental care, or whether he would fully comply with the suggested treatment. Moreover, we were unable to predict the treatment course and its final outcome. However, the calculation of approximative costs of dental care services would be of much use, so that material resources for dental prophylaxis could be evenly distributed.

The method here presented can be of much use to any Health Center in the Republic of Serbia, since we used the statistical data obtained via regular systematic check-ups, which at the same time enabled approximative prediction of the costs needed for dental sanation.

nomskog koštanja stomatološke sanacije pacijenata kod kojih je urađen sistematski pregled.

Rezultati do kojih se došlo ispitivanjem različitih grupa pacijenata, ukazuju na ogroman značaj školske stomatološke nege, kako na ekonsmki tako i na socijalni i zdravstveni aspekt života.

Iako su dobijeni rezultati iz škola u kojima je sprovođen preventivni program, bili ispod očekivanja i ne baš zadovoljavajući, rezultati dobijeni u sredinama u kojima nije bilo nikakvnog preventivnog programa, ukazuju da je bilo kakav preventivni program daleko bolji nego nikakav. Redovna zdravstveno vaspitna predavanja su dovela do povećanja zainteresovanosti kod dece za sopstveno oralno zdravlje, a samim tim i povećanja broja poseta stomatologu. Zbog nepostojanja stomatološke ambulante pri školi, preventivni program se nije mogao sprovesti u potpunosti. Vremenom je broj poseta stomatologu i zainteresovanost dece za oralno zdravlje opao .

Visok procenat odaziva pacijenata u Niškoj osnovnoj školi upravo ukazuje na to da stomatolog deci mora biti uvek lako dostupan. Stomatolog svojim radom, čak i svojim prisustvom, neposredno utiče na motivaciju dece u očuvanju oralnog zdravlja (deca koja svakog dana prolaze pored stomatološke ambulante će pre svratiti kod stomatologa nego ona koja moraju da putuju do njega).

Razlika u predviđenoj ceni ekonomskog koštanja stomatoloških usluga u obe grupe ispitanika nije toliko velika (kada se uzme u obzir broj pacijenata), kolko je poražavajuć njihov odnos. Razlog za to, prevashodno, leži u izuzetno niskim cenama stomatoloških usluga Republičkog fonda za zdravstveno osiguranje Republike Srbije.

Da bi se što bolje objasnila prethodna tvrdnja u tabeli br.3 prikazane su neke od cena koštanja stomatoloških usluga po Republičkom fondu zdravstveno osiguranje (RFZZO) Republike Srbije, i u istoj tabeli su one uporedjene sa cenama stomatoloških usluga u Sjednjenim Američkim Državama, Velikoj Britaniji i Sloveniji.

U tabeli nije naveden celokupan cenovnik usluga , već samo neke od usluga koje pacijenti češće koriste. Očegledna je razlika u ceni stomatoloških usluga u Sloveniji (koja je u Evropskoj Uniji poznata po niskim cenama stomatoloških usluga i dentalnom turizmu) i cenama RFZZO Republike Srbije. Razlke u cenama stomatoloških usluga u zapadnim zem-

The results obtained here with different groups of subjects indicate a huge economic, social, and health care relevance and importance of school dental care.

Although the results in the schools with implemented dental care programs were not very satisfactory, the results in areas without any prevention programs indicated that any program of prevention was far better than none. Regular health education lectures increased interest in children for their own oral health, and increased the number of visits to dental clinics too. The absence of school dental clinics in rural areas made impossible the full implementation of any prevention program. The number of visits to dental clinics elsewhere and level of interest of children decreased with time.

A high percentage of response of the patients from the Niš elementary school indicate that a dentist should be always readily available. The work, and even the presence alone of a dentist immediately influences the motivation of children in oral health preservation (children passing by a dental clinic are more likely to visit their dentist than those who have to travel for the same purpose.

The difference in the predicted cost of dental services in both studied groups was not so conspicuous (in view of the number of patients), but their observed relationship was discouraging. The reason for that could be found primarily in extremely low prices of dental services of the Republic Health Insurance Fund of the Republic of Serbia. In order to better describe this assertion, Table 3 presents some of the prices from the price list of the Republic Fund, comparing them with the prices in the U.S.A., Great Britain, and Slovenia.

Table 3 does not present the whole of the price lists, but only some of the common dental care services. The difference in the price of dental services in Slovenia (a member of the EU known to have low prices of dental care and dental care tourism) and the prices of the Republic Health Insurance Fund of Serbia. The differences of the prices of the Republic Fund and those in the countries of the West are quite apparent.

Tabela br. 3. Cene stomatoloških usluga
Table 3. Prices of dental services

Naziv usluge Service	**Cena RFZZO Republike Srbije Republic Health Insurance Fund, Serbia**	**Cena u SAD U.S.A.**	**Cena u UK U.K.**	**Cena u Sloveniji Slovenia**
Kontrolni pregled +UMN kod dece **Control check-up plus UMN in children**	757.81	7678.64	12633.55	7580.13
Zalivanje fisura po zubu **Fissure filling per tooth**	473.6	5308.26	/	/
Amalgamski ispun 1 površina **Amalgam filling, 1 surface**	473.6	10312.87	/	/
Amalgamski ispun 2 površine **Amalgam filling, 2 surfaces**	592	11366.53	/	/
Kompozitni ispun na bočnim zubima **Composite filling of lateral teeth**	1278.7	18479.28	18950.325	12633.55
Kompozitni ispun na prednjim zubima **Composite filling of frontal teeth**	710,4	11893.37	15160.26	7580.13
Endodontski tretaman na prednjim zubima **Endodontic treatment of frontal teeth**	/	81040.23	25267.1	12633.55
Endodontski tretman na premolarima Endodontic treatment of premolars	/	95527.23	37900.65	18950.325
Endodontski tretman zuba na Molarima **Endodontic treatment of molars**	/	119235.79	50534.2	25267.1
Endodontska terapija neinficirane pulpe po kanalu **Endodontic treatment of uninfected pulp per canal**	710,4	/	/	/
Endodontska terapija inficirane pulpe po kanalu **Endodontic treatment of infected pulp per canal**	1065,6	/	/	/
Ekstrakcija zuba **Tooth extraction**	284,2	17820.13	12001.87	5811.433
Ekstrakcija zuba (komplikovana) **Tooth extraction (complicated)**	518	27040.24	/	/

***cene prikazane u tabeli su iskazane u dinarima po srednjem kursu komercijalne banke A.D. Beograd za dolar i evro dana 26.7.2010.**

***** the prices here presented are in dinars, with the middle exchange rate of the Commercial Bank Ltd. for the U.S. dollar and Euro on 26 July 2010.

ljama i cenama RFZZO Republike Srbije su očigledne.

Prikazane cene stomatoloških usluga u zemljama EU i Sjedinjenim Američkim Državama pokazuju stvarno ekonomsko koštanje kada se uzmu u obzir svi troškovi vezani za pružanje stomatoloških usluga (materijal, struja, voda, cena zakupa prostorija, razni porezi, doprinosi, troškovi nabavke nove i popravke stare opreme itd.) kao i same zarade za lekara i osoblje[19,20].

U momentu kada se u najveće govori o uvođenju tržišne ekonomije u poslovanju stomatoloških službi domova zdavlja širom Republike Srbije, sa postojećim cenama RFZZO, jako je teško osigurati i samu zaradu stomatološkog osoblja, tako da se često zanemaruju ostali troškovi vezani za uspešan rad jedne stomatološke ambulante. Školske ambulante zbog nedostatka sredstava često nemaju osnovni stomatološki materijal. Stomatološki aparati i instrumenti se često kvare zbog dotrajalosti, a dok se poprave obično je potrebno mnogo vremena i novca. Troškovi stručnog usavršavanja samog stomatološkog osoblja su zbog nedostatka sredstava najčešće prepuštena samom osoblju, koje zbog niske cene stomatoloških usluga često ne može da obezbedi ni osnovna primanja. Dalje praćenje ovakvog trenda polako ali sigurno bi dovelo do gašenja najboljeg i ekonomski najisplatljivijeg programa u prevenciji oralnih oboljenja.

Zaključak

1. Dokazana je visoka prevalencija oboljenja usta i zuba kod ispitanika u obe grupe, uključujući i kontrolnu grupu.
2. Razlike u oboljenju postoje kod ispitanika koji su imali školsku ambulantu i ispitanika koji su iz ruralnih sredina i koji nisu u školi imali stomatološku ambulantu.
3. Karijes indeks prosek se kod ispitanika uzrasta od 9,11 i 13.g. koji su imali stomatološku ordinaciju u školi, kretao se od 3.6-5.15, dok je kod ispitanika istog uzrasta iz ruralnih sredina, ali koji nisu imali školsku stomatološku ordinaciju, on bio skoro trosruko veći i kretao se od 9.03-9.37.
4. Sticanje pozitivnih navika, edukacija i informisanje deteta o očuvanju oralnog zdravlja započinje u porodici.
5. Sa edukacijom i primenom zdravstveno vaspitnih mera i postupaka treba nas-

The prices of dental care services in the EU countries and the U.S.A. indicate the real economic costs, including all the service inputs (electricity, water, lease of facilities, various taxes, purchase of new and repair of old equipment, etc.) and payments to the doctors and staff.[19,20]

In the time when everyone speaks of market economy introduction in the dental care departments of health care centers of the Republic of Serbia, with the current prices of the Republic Health Insurance Fund it is very complicated to ensure payments alone to the staff, so that other costs necessary for a successful dental department are often neglected. School dental clinics often do not have even the basic dental care materials. Dentistry machines and instruments are often out of operation due to dilapidation, and repairs often require a lot of time and money. The professional advancement of dental care professionals is often relegated to themselves (and they can hardly afford anything beyond simple survival due to low prices of dental care). The observed tendency will produce the extinction of the most cost-effective program in the prevention of oral diseases.

Conclusion

1. A high degree of prevalence of oral and dental diseases was demonstrated in both studied groups and in controls as well.
2. There were significant differences between the children with a dental clinic in their school and those from rural areas, without a dental clinic in the school.
3. CIA was 3.6-5.15 in children aged 9, 11, and 13 years with a dental clinic in their school, while it was three times higher (9.03-9.37) in age-matched children from rural areas, without a dental clinic in the school.
4. Acquirement of positive habits, education, and information of children about oral health preservation starts in the family.
5. Health education and related measures and procedures should be exercised in both pre-

taviti kroz predškolsko i školsko obrazovanje (stomatološke školske ambulante).

6. Neulaganje u preventivni stomatološki program i niske cene stomatoloških usluga RFZZO direktno su povezani sa porastom prevalence karijesa.

7. Cene stomatoloških usluga i sanacija usta i zuba u početnom stadijumu bolesti je niža i prihvatljiva za veći broj pacijenata/roditelja, samim tim i za celokupnu društvenu zajednicu.

8. Prevencija same bolesti je svakako najjeftinija.

9. Škole su mesta gde je najlakše i najefikasnije sprovesti preventivni program

10. Školska stomatološka nega predestavlja, svuda u svetu pa i u Republici Srbiji, ne samo najbolju nego i ekonomski najisplatljiviju metodu u prevenciji i borbi protiv karijesa i oralnih oboljenja

school and school education (via school dental clinics).

6. Lack of investment in dental prevention and low prices of dental care services of the Republic Health Insurance Fund are directly associated with rising prevalence of caries.

7. The prices of dental care services and sanation of oral and dental problems in their initial stages are lower and more acceptable to most of the patients and parents, and for general population/community as well.

8. Disease prevention is the cheapest measure possible.

9. Schools are the places where prevention measures are most easily implemented and where these are highly cost-effective.

10. School dental care is worldwide and in Serbia the best and most cost-effective method of prevention and fight against caries and dental diseases.

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