Knowledge and Attitudes about Dental Trauma Among the Students of the University of Split

Znanje i stajališta medu studentima Sveučilišta u Splitu o zubnoj traumi

Abstract

Objective: Dental trauma among children is a common problem, and everyone who works with them needs to possess appropriate knowledge and skills to provide proper care at the site of the accident. The aim was to evaluate the knowledge of emergency management of dental trauma among students who should be capable of managing such injuries in their future career. Material and Methods: A cross-sectional survey regarding dental trauma emergency management was conducted on 679 students from five different studies using a questionnaire. The obtained data were analyzed by the Student t-test or one-way ANOVA using the Tukey’s post-hoc test and multiple linear regression analysis (p<0.05). Results: The total knowledge score regarding the emergency management of dental trauma among examined student was 4.32±2.25 (max 10). The positive association of the knowledge score was observed with the age of student (β=0.722, p≤0.001). A similar relation was observed depending on whether they received dental injuries training during their academic education (β=2.365, p≤0.001), as well as students’ assessment of the importance of knowledge regarding dental trauma emergency management (β=0.433, p≤0.001). Conclusions: It can be concluded that the surveyed students have limited knowledge regarding dental injuries and their emergency management procedures. The obtained data emphasized the importance of additional education of all professions that may encounter dental trauma injuries to improve the outcomes of dental trauma treatment.

Introduction

Traumatic dental injuries are a significant public health problem that can have various biological, psychosocial, emotional and economic impact on the quality of life of the affected individual (1). Injuries most often occur among preschool children, schoolchildren and young adults (2). Kindergartens, schools, playgrounds, and sports facilities are places with a high probability of the occurrence of dental trauma during children’s physical activity. For these reasons, it is essential that different professional groups, including educational and health professionals, are adequately informed about this subject and, also sufficiently prepared for it (3).

Various studies have observed insufficient knowledge regarding dental injuries and their emergency treatment procedures in different professional groups who work with children (4). The obtained data emphasized the importance of additional education of all professions that may encounter dental trauma injuries to improve the outcomes of dental trauma treatment.

Uvod

Traumatske ozljede zuba velik su javnozdravstveni problem koji može imati biološke, psihosocijalne, emocionalne i ekonomske posljedice na kvalitetu života ozlijeđenog poje- dina (1). Ozljede se najčešće događaju predškolskoj djeci, onoj u školskoj dobi te mladima (2). Mjesta na kojima je ve- lika mogućnost da će se dogoditi trauma zuba jesu dječiji vrtić, škole, igrališta i sportski objekti. U tih je razloga bitno da su osobe različitih zanimanja, uključujući obrazovne i zdravstvene radnike, dovoljno informirane o toj temi i pripremlje- ne da mogu pružiti pomoć (3).

Autori različitih studija uočili su nedovoljno znanje o trau- matskim ozljedama zuba i postupcima hitnog liječenja u različitim profesionalnim grupama koje rade s djecom, kao što su učitelji, nastavnici predškolskog odgoja, nastavnici tjele-
Material and Methods

This cross-sectional study was conducted between May and June in 2019. A questionnaire related to dental trauma knowledge was completed by students in five different academic departments, including two health-related studies (Medicine and Dental Medicine) and three non-health-related studies (Teacher’s Education, Pre-school Education, and Physical Education) at University of Split, Croatia. These students were chosen because they will probably meet children who are currently being educated for these professions. It is necessary to include dental trauma emergency protocols in their college education, thus preparing them to act when such unpredictable situations occur (3).

The objective of this study was to examine and compare the level of knowledge of students (medical and non-medical) from the University of Split regarding emergency dental trauma management. Physicists, preschool, school, and physical education teachers, due to the nature of their work, might be the first to treat dental injuries on many occasions and their reaction could determine the success and the prognosis of further treatment by the dentist. An evaluation of students’ level of knowledge is essential to emphasize the need for additional educational campaigns – training courses regarding the risk of dental trauma and its management campaigns that will strengthen the knowledge of these groups, as well as confidence, and eliminate problems or doubts when handling these types of situations that can be challenging and unpleasant even for the professionals with sufficient knowledge (13-18).

Materijal i metode

Ova presječna studija provedena je tijekom svibnja i lipnja 2019. godine. Upitnik na temelju kojega se procjenjivalo znanje o dentalnim traumatama ispuni su studenti pet različitih studija – dva zdravstvenoga smjera (Medicina i Dental medicina) te tri nezdravstvenoga usmjerenja (Učiteljski studij, Studij za rani i predškolski odgoj i obrazovanje te Kineziološki fakultet) Sveučilišta u Splitu, Hrvatska. Izabrani su studenti s tih fakulteta jer će se oni u svojem budućem radu najvjerojatnije susreti s djecom koja su doživjela ozljedu zuba. Internetski upitnik osmišljen je u obliku Google Formsa, a njegova je poveznica poslana predstavnicima studenata svakog studija koji su ga zatim proslijedili ostalim kološima. U studiju su bili uključeni studenti s tih fakulteta koji su u svojoj radnoj djelatnosti najčešće kamenjali sa situacijama vezanim za dentalne trauma.

The results are disturbing since dental traumas are considered an emergency and have to be treated immediately (10). Except for the time elapsed between the trauma episodes and the moment when the dental treatment was undertaken, first aid at the site of the accident plays a crucial role in the short-term and long-term outcome of those teeth (12). Therefore, immediate and appropriate management is required by the witnesses at the site of the accident. Besides, inadequate knowledge in providing necessary first aid can lead to irreversible damage of the tooth (crown discoloration, mobility, sensitivity, pulp necrosis, root resorption, tooth fracture, tooth loss) (3,13). Following the previously mentioned, adequate knowledge of dental trauma management by these professions and by the general population is considered necessary. Additionally, it is vital to raise awareness of dental trauma emergency protocols among young people who are currently being educated for these professions. It is necessary to include dental trauma emergency protocols in their college education, thus preparing them to act when such unpredictable situations occur (3).

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snog odgoja i liječnici (4 – 9). Slični rezultati dobiveni su i među studentima medicine, kineziologije i dentalne medicinе (3, 8, 19, 11).

Ti rezultati uznemiruju jer su traume zuba hitna stanja koja se moraju zbrinuti odmah nakon što se dogode (10). Osim vremena koje je prošlo otkako se trauma dogodila pa do samog liječenja, prva pomoć na mjestu ozljede presudna je za kratkoročnu i dugoročnu prognozu ozlijeđenog zuba (12). Zato je potreban trenutničan i odgovarajući tretman osoba kojoj se nađu na mjesto nezgode. Neadekvatno znanje o pružanju odgovarajuće prve pomoći može učiniti nepopravljivu štetu (diskoloracija krune, mobilnost zuba, osjetljivost, nekroza pulpe, resorpcija kori, fraktura zuba, gubitak zuba) (3, 13). U skladu s tim potrebno je da te profesije, ali i opća populacija, imaju odgovarajuće znanje o hitnim terapijskim postupcima u slučaju zubnih trauma. Uz to, vitalno je važno povećati svijest o protokolima hitnih slučajeva zubnih trauma kod mladih koji se školjuju za te profesije. Potrebno je uključiti terapijske postupke dentalnih trauma u njihovo fakultetsko obrazovanje i pripremiti ih za djelovanje kada se pojave takve nepredvidive situacije (3).

Cilj ovog istraživanja bio je ispitati i usporediti razinu znanja studenata (medicinske i nemedicinske struke) Sveučilišta u Splitu o hitnom zbrinjavanju dentalnih trauma. Liječnici, nastavnici predškolskog odgoja, učitelji i nastavnici tjelesnog odgoja, zbog prirode svojega posla, mogu biti prvi koji će liječiti dentalnu ozljudu i njihova reakcija može odrediti uspjeh i prognozu daljnje potrebe doktora dentalne medicine. Procjena razine znanja studenata iznimno je važna kako bi se upozorilo na potrebu dodatnih metoda edukacije – tečaja o hitnim terapijskim postupcima trauma zuba kojima bi se poboljšalo njihovo znanje i samopouzdanje te uklonili problemi i nedoumice u takvim situacijama koje su znaši biti izazovne i neugodne, čak i za profesionalce s više znanja (13 – 18).
ed the questionnaire. The exclusion criteria were participants aged <18 years and those who had provided incomplete responses in the questionnaire. The objectives were explained to all the participants at the beginning of the questionnaire. The participation in the survey was voluntary. The study was anonymous and approved by the Ethics Committee of the School of Medicine (No: 2181-198-03-04-19-0055).

The questionnaire was based on different studies relating to the same topic, and it was divided into three sections, with a total of 24 questions (11,14,15). The first section assessed demographic data (age, gender, study program), while the second part included ten questions regarding dental trauma training, experience and attitudes about dental trauma. The third part consisted of 10 closed-ended questions concerning the knowledge of dental traumatic injuries management, including questions covering the following areas: tooth identification, dental fragments reattachment, avulsed tooth replantation, cleaning, storage media and time elapsed between the event and the first aid provided. Each correct answer in the third part was scored one, and incorrect was scored 0; the maximum possible score was 10. The total knowledge score for each respondent was calculated by adding up the number of correct answers, which was considered the primary outcome of the study. The respondents had to answer each question before submitting the form.

Experts in the dental field (a pediatric dentist, endodontist, and an oral surgeon) approved the content of the prepared questionnaire. As a test of reliability, the questionnaire was pilot-tested on 50 students whose questionnaires were excluded from the primary study sample. Internal consistency for total scores showed a Cronbach's coefficient alpha of 0.710. The minimum required sample size (n=310) was calculated from the full number of students who attended the abovementioned five faculties in the academic years 2018–2019 (N=1595) with a 95% confidence interval, 5% margin of error and a population proportion of 50%.

Data were analyzed by the Statistical Package for the Social Science version 25 (SPSS, IBM Corp, Armonk, New York, USA). The Kolmogorov-Smirnov test evaluated the compliance with normal distribution of the dependent variable. A descriptive analysis was done by calculating the frequency and percentages of categorical data; qualitative data were expressed as a mean ± standard deviation. A statistical analysis was conducted using Student t-test or one - way ANOVA, with Tukey’s post-hoc test. The differences between categorical variables were tested using the χ² test and Fisher’s exact test. The influence of the independent variables (age, gender, dental trauma training, witnessed or experienced dental injuries) onto the dependent variable (knowledge score) was assessed using a general regression model (GRM). The results were expressed in the form of Pareto charts. The level of significance was set at p<0.05.

Results

The study included 679 students, 82.5% female, and 17.5% male; mean age 22.14±1.93, range 19-27. The response rates were 84.4% for dental students (152/180), 25.0% for medical students (135/540), 65.0% for preschool education students (130/200), 56.8% for teacher’s education students and 71.9% for nursing students. Of those who had provided complete responses (N=130), 82.5% female, and 17.5% male; mean age 22.14±1.93, range 19-27. The participation in the survey was voluntary. The study was anonymous and approved by the Ethics Committee of the School of Medicine (No: 2181-198-03-04-19-0055).

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Rezultati

Ukupno 679 studenata sudjelovalo je u istraživanju – 82.5 % žena i 17.5 % muškaraca, srednja dob bila je 22,14 ± 1,93, a raspon od 19 do 27. Upitnik je ispunito 84,4 % studenata studija Dental medicine (152/180), 25,0 % studenata studija Medicine (135/540), 65,0 % studenata studija
The evaluation of attitudes toward dental injuries according to the mean knowledge score of dental trauma emergency management is shown in Table 2. Only 12 (1.8%) of surveyed students rated their knowledge as very good. At the same time, these students also showed the best knowledge compared to the ones who rated their knowledge as very poor, poor, fair and good (8.25±1.28 vs 3.54±1.77, 3.75±1.82, 4.43±2.13, and 6.51±2.52; p<0.001). Approximately 50% (n=376) of respondents considered important and very important the knowledge of dental trauma for their future professional work.

Only 20.9% of all tested students have received some form of dental trauma education during their studies. Those who underwent some education showed better knowledge (6.78±2.23 vs 3.67±1.65; p<0.001). Approximately 27.5% of students witnessed and 22.5% of them experienced traumatic tooth injuries. The students who suffered traumatic

| Characteristic • Obilježje | Total • Ukupno n (%) | Knowledge score • Rezultat znanja mean ± SD • Srednja vrijednost ± SD | p-value* • P - vrijednost |
|---------------------------|---------------------|-------------------------------------------------|--------------------------|
| Gender • Spol             |                     |                                                 |                          |
| Male • Muškarci           | 119 (17.5)          | 4.44±2.18                                       | 0.529                    |
| Female • Žene             | 560 (82.5)          | 4.30±2.26                                       |                          |
| Age group (years) • Dobna skupina (godine) |                     |                                                 |                          |
| 18-24                     | 244 (35.9)          | 3.40±.73                                         | ≤0.001                   |
| 22-24                     | 311 (45.8)          | 4.54±2.25                                       |                          |
| ≥25                       | 124 (18.3)          | 5.61±2.38                                       |                          |
| Studies • Studij          |                     |                                                 | ≤0.001                   |
| Dental Medicine • Dentalna medicina | 152 (22.4)       | 6.75±2.17                                        |                          |
| Medicine • Medicina      | 135 (19.9)          | 4.32±1.67                                        |                          |
| Physical Education • Kineziologija | 134 (19.7)   | 3.69±1.67                                        |                          |
| Preschool Education • Predškolski odgoj | 130 (19.1)      | 3.38±1.76                                        |                          |
| Teachers Education • Učiteljski | 128 (18.9)     | 3.05±1.55                                        |                          |

*Statistical significance was tested by Student t-test or One-way ANOVA. Statistical significance was set to p<0.05. The same superscript lower letter indicated a statistical difference between groups based on Tukey Test (*a,b,c,d,f,g,j,k,l,o,q,r,sp ≤ 0,001, ep = 0,033, h,pp = 0,045, l p =0,003, mp= 0,004, np= 0,002).

Abbreviation: SD, standard deviation. • Statistička značajnost postavljena je na p < 0,05. Isto nadpisano malo slovo upućuje na statističku razliku između grupa temeljem Tukey testa.

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Procjena stajališta o ozljedama zuba prema prosječnom

znanju o hitnim terapijskim postupcima traume zuba prika-

znana je u tablici 2. Samo 12 (1.8 %) ispitanih studenata oci-

jenilo je svoje znanje kao vrlo dobro. Istodobno su ti studen-

ti pokazali i najbolje znanje u usporedbi s onima koji su svoje

znanje ocijenili kao vrlo loše, loše, prosječno i dobro (8.25 ±

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p ≤ 0,001). Otpuštene 50 % (n = 376) ispitanika smatra zna-

anje o dentalnim ozljedama važnim i vrlo važnim za svoj bu-

duć profesionalni rad.

Samo 20.9 % svih ispitanih studenata doživo je neki oblik

edukacije o trauma zuba tijekom studiranja. Oni koji su bili

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Knowledge of Dental Trauma among Students

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Demographic data and respondents’ attitudes toward dental injuries according to different study programs are shown in Table 4. There are differences in the responses between students who have witnessed traumatic tooth injury showed statistically significant better knowledge compared to those who have not (4.63 ± 2.34 vs 4.21 ± 2.20; p = 0.034).

The distribution of correct responses to questions regarding dental trauma management among students of different study programs is shown in Table 3. Dental students provided the highest percentage of correct answers.
students of various studies (p ≤ 0.001) except for the question of whether or not they witnessed traumatic tooth injury. The association of measured overall dental injuries management knowledge score with respondent demographical data and attitudes toward dental trauma injuries as possible predictors are presented in Figure 1. A positive association of knowledge score was observed depending on student age (β = 0.722, p ≤ 0.001). A similar relation was observed according to whether or not the student sustained a training on dental injuries during their academic education (β = 2.365, p ≤ 0.001), and depending on personal assessment of the importance of knowledge regarding dental trauma emergency management (β = 0.433, p ≤ 0.001).

Table 3. Frequency of participants’ answers to the questions regarding dental trauma emergency management according to attend study programs (N = 679)

| Question • Pitanje | Dental medicine • Medicina (n=152) | Medicine • Medicina (n=135) | Physical Education • Kineziologija (n=134) | Preschool Education • Rani i predškolski odgoj (n=130) | Teachers Education • Učiteljski (n=128) |
|--------------------|----------------------------------|-----------------------------|-------------------------------------------|-------------------------------------------------|----------------------------------|
| Identify primary tooth • Identifikacija mliječnog zuba | Incorrect • Netočno (n, %) 5 (3.3) 12 (8.8) 16 (11.9) 12 (9.2) 10 (7.8) | Correct • Točno (n, %) 147 (96.7) 123 (91.1) 118 (88.1) 118 (90.8) 118 (92.2) | | | |
| Identify permanent tooth • Identifikacija trajnog zuba | Incorrect • Netočno (n, %) 12 (7.9) 29 (21.5) 60 (44.8) 53 (40.8) 81 (63.3) | Correct • Točno (n, %) 140 (92.1) 106 (78.5) 74 (55.2) 77 (59.2) 47 (36.7) | | | |
| Tooth fracture procedure • Terapijski postupak frakture zuba | Incorrect • Netočno (n, %) 31 (20.4) 72 (53.3) 91 (67.9) 95 (73.1) 98 (76.6) | Correct • Točno (n, %) 121 (79.6) 63 (46.7) 43 (32.1) 35 (26.9) 35 (23.4) | | | |
| Displacement tooth procedure • Terapijski postupak luksacije zuba | Incorrect • Netočno (n, %) 110 (72.4) 132 (97.8) 129 (96.3) 124 (95.4) 122 (95.3) | Correct • Točno (n, %) 42 (27.6) 3 (2.2) 5 (3.7) 6 (4.6) 6 (4.7) | | | |
| Primary teeth replantation • Replantacija mliječnog zuba | Incorrect • Netočno (n, %) 33 (21.7) 34 (25.2) 55 (41.0) 48 (36.9) 60 (46.9) | Correct • Točno (n, %) 119 (78.3) 101 (74.8) 79 (60.9) 82 (63.1) 68 (53.1) | | | |
| Permanent teeth replantation • Replantacija trajnog zuba | Incorrect • Netočno (n, %) 38 (25.0) 72 (53.3) 86 (64.2) 101 (77.7) 101 (78.9) | Correct • Točno (n, %) 114 (75.0) 63 (46.7) 48 (35.8) 29 (22.3) 27 (21.1) | | | |
| Tooth handling • Držanje izbijenog zuba | Incorrect • Netočno (n, %) 39 (25.7) 81 (60.0) 92 (68.7) 103(79.2) 90 (70.3) | Correct • Točno (n, %) 113 (74.3) 54 (40.0) 42 (31.3) 27 (20.8) 38 (29.7) | | | |
| Tooth cleaning • Čišćenje izbijenog zuba | Incorrect • Netočno (n, %) 71 (46.7) 111(82.2) 117(87.3) 103(79.2) 99 (77.3) | Correct • Točno (n, %) 81 (53.3) 24 (17.8) 17 (12.7) 27 (20.8) 29 (22.7) | | | |
| Storage medium • Medij za pohranu izbijenog zuba | Incorrect • Netočno (n, %) 114 (75.0) 123 (91.1) 116 (86.6) 119 (91.5) 126 (98.4) | Correct • Točno (n, %) 38 (25.0) 12 (8.9) 18 (13.4) 11 (8.5) 2 (1.6) | | | |
| Extra-alveolar period • Ekstraalveolarno vrijeme | Incorrect • Netočno (n, %) 40 (26.3) 100 (74.1) 83 (61.9) 102(78.5) 99 (77.3) | Correct • Točno (n, %) 112 (73.7) 35 (25.9) 51 (38.1) 28 (21.5) 29 (22.7) | | | |

Data are presented as whole numbers and percentages. • Vrijednosti su prikazane kao cijeli broj i postotak.
The objective of this cross-sectional study was to examine the level of knowledge and experience of dental trauma among the students from different fields of study, future educational and health professionals. We compared the knowl-

| Characteristic • Obilježje | Dental medicine • Medicina (n=152) | Medicine • Medicina (n=135) | Physical Education • Kineziologija (n=134) | Preschool Education • Rani i predškolski odgoj (n=130) | Teachers Education • Učiteljski (n=128) |
|----------------------------|----------------------------------|-----------------------------|---------------------------------|---------------------------------|----------------------------------|
| Gender • Spol              | Male • Muškarci 25 (16.4)        | 31 (22.9)                   | 60 (44.8)                       | 1 (0.8)                         | 2 (1.6)                          |
|                            | Female • Žene 127 (83.6)         | 104 (77.1)                  | 74 (55.2)                       | 129 (99.2)                      | 126 (98.4)                       |
| Age group (years) • Dobna skupina (godine) | 18-21 36 (23.7) 29 (21.5) 48 (35.8) 74 (56.9) 57 (44.5) | 75 (49.3) 56 (41.5) 78 (58.2) 45 (34.6) 57 (44.5) | >=25 41 (27.0) 30 (22.1) 8 (6.0) 11 (8.5) 14 (10.9) | 127 (83.6) 104 (77.1) 74 (55.2) 129 (99.2) 126 (98.4) |
| Informed about dental injuries • Informirani o traumatskim ozljedama zuba | Not informed • Neinformirani 20 (13.2) 84 (62.2) 81 (60.4) 60 (46.2) 60 (46.9) | Partially informed • Djelomično informirani 77 (50.7) 51 (37.8) 53 (39.6) 67 (51.5) 67 (52.3) | Completely informed • Potpuno informirani 55 (36.2) 0 (0.0) 0 (0.0) 3 (2.3) 1 (0.8) | 127 (83.6) 104 (77.1) 74 (55.2) 129 (99.2) 126 (98.4) |
| Self-assessed knowledge about dental injuries • Samoprocijena znanja o traumatskim ozljedama zuba | Very poor • Vrlo loše 17 (11.2) 43 (31.9) 28 (20.9) 23 (17.7) 13 (10.2) | Poor • Loše 33 (21.7) 62 (45.9) 55 (41.4) 47 (36.2) 58 (45.3) | Fair • Prosječno 44 (28.9) 25 (18.5) 43 (32.1) 49 (37.7) 46 (35.9) | Good • Dobro 46 (30.3) 5 (3.7) 8 (6.0) 11 (8.5) 11 (8.6) | Very good • Vrlo dobro 12 (7.9) 0 (0.0) 0 (0.0) 0 (0.0) 0 (0.0) |
| Importance of knowledge of the management of traumatic dental injuries for future work • Važnost znanja o hitnim terapijskim postupcima ozljeda zubi u svrhu budućeg rada | Not Important • Potpuno nevažno 1 (0.7) 4 (3.0) 3 (2.2) 0 (0.0) 2 (1.6) | Slightly important • Neznačajno 0 (0.0) 7 (5.2) 7 (5.2) 2 (1.5) 5 (3.9) | Fairly important • Umjereno važno 7 (4.6) 86 (63.7) 64 (47.8) 62 (47.7) 53 (41.4) | Important • Vrlo važno 33 (21.7) 29 (21.5) 50 (37.3) 52 (40.2) 52 (40.6) | Very important • Iznimno važno 111 (73.0) 9 (6.7) 10 (7.5) 14 (10.8) 16 (12.5) |
| Received dental injuries and first aid training during academic education • Tijekom obrazovanja slušali predavanja/seminare o traumatskim ozljedama zuba | No • Ne 46 (30.3) 122 (90.4) 123 (91.8) 124 (95.4) 122 (95.3) | Yes • Da 106 (69.7) 13 (9.6) 11 (8.2) 6 (4.6) 6 (4.7) | 0.010 | 0.010 |
| Interested in future education about dental injuries • Zainteresirani za edukaciju o traumatskim ozljedama zuba u budućnosti | No • Ne 15 (9.9) 82 (60.7) 54 (40.3) 49 (37.7) 51(39.8) | Yes • Da 137 (90.1) 53 (39.3) 80 (60.0) 81 (62.3) 77 (60.2) | 0.0001 | 0.0001 |
| Witnessed dental injuries • Sviđaće se dentalnom traumi | No • Ne 105 (69.1) 94 (69.6) 100 (74.6) 98 (75.4) 95 (74.2) | Yes • Da 47 (30.9) 41 (30.4) 34 (25.4) 32 (24.6) 33 (25.8) | 0.040 | 0.084 |
| Experienced dental injuries • Doživjeli dentalnu traumu | No • Ne 118 (77.6) 102 (75.6) 95 (70.9) 102 (78.5) 111 (86.7) | Yes • Da 34 (22.4) 33 (24.4) 39 (29.1) 28 (21.5) 17 (13.3) | 0.0001 | 0.0001 |

Data are presented as whole numbers and percentages. *Vrijednosti su prikazane kao cijeli broj i postotak. *Statistical significance was tested by Chi square or Fisher’s exact test. Statistical significance was set to p<0.05. *Statistička značajnost bila je testirana Hi-kvadrat ili Fisherovim egzaktnim testom. Statistička značajnost je postavljena na p < 0.05.

Discussion

Rasprava

Cilj ovog presječnog istraživanja bio je procijeniti razinu znanja i iskustvo o traumatskim ozljedama zuba među studentima pet različitih studija, budućih stručnjaka iz područja obrazovanja i medicinskih područja. Usporedili smo znanje o
Znanje studenata o dentalnim traumama

Ivkošić i sur.

Edukačija

Znanje studenata o dentalnim traumama

Ivkošić i sur.

Slika 1. Višestruka linearna regresija analiza. Značajna ovisnost izmjereno ukupnog rezultata znanja o liječenju traumatskih ozljeda zuba s demografskim podacima i stajalištima ispitanika o traumatskim ozljedama zuba.

Figure 1 Multiple linear regression analysis. Significant dependence of measured overall dental injuries management knowledge score with participant demographic data and attitudes toward dental trauma injuries as possible predictors.

Slika 1. Višestruka linearna regresija analiza. Značajna ovisnost izmjereno ukupnog rezultata znanja o liječenju traumatskih ozljeda zuba s demografskim podacima i stajalištima ispitanika o traumatskim ozljedama zuba.

The lack of knowledge amongst the tested groups may be due to inadequacy or complete lack of training for the management of traumatic dental injuries. Only 59 (8.7%) of the total of 679 respondents stated that they were fully informed about traumatic tooth injuries, and only 12 (1.8%) of them reported that their knowledge was very good. These results are supported by the fact that only 142 (20.9%) respondents received dental trauma training during their university education. Most of dental students are well informed about dental injuries. In contrast, students from the other four studies are partially informed or not informed at all. Self-assessed knowledge about dental injuries among tested students is mostly inadequate (very poor, poor and fair). These results are in correspondence with previously published studies on health and educational professionals (3,5,10,11,20,24). A small number of previously published studies compared the knowledge and the attitude before and after dental health education. Health education intervention (posters, lectures, hitnim terapijskim postupcima u slučaju trauma zuba među studenatima dental medicine, medicine, predškolskog odgoja i obrazovanja, kineziologije i budućih učitelja. Ukupna ocjena znanja o hitnim postupcima nakon traumatske ozljede zuba iznosila je 4,32 ± 2,25, s maksimalnom mogućom ocjenom 10. Očekivano su najbolje rezultate postigli studenti dental medicine, u usporedbi sa studentima drugih studija (p ≤ 0,001). Među ispitanim studentima oni s medicinom imali su drugi najbolji rezultat, ali još na nedovoljnoj razini. Iako će se budući liječnici sigurno susretati s traumatskim ozljedama zuba, većina ispitanih studenata medicine (63,7 %) smatra la je da je znanje o toj temi umjereno važno za njihov budući profesionalni rad. Istaknimo da većina nije bila zainteresirana za dodatnu izobrazbu o toj temi (60,7 %). Istaknimo da je u mnogobrojnim studijama zabilježeno nedovoljno znanje stu denata medicine i liječnika (10, 14, 19 – 22).

U ovom istraživanju prikazano je i nedovoljno znanje stu denata studija Ranog i predškolskog odgoja i obrazovanja te Učiteljskog studija. U mnogobrojnim istraživanjima autori su isticali nisku razinu znanja o traumama zuba među odgojiteljima/studentima predškolskog odgoja i obrazovanja te učiteljima/studentima učiteljskih fakulteta u Hrvatskoj i drugim zemljama (5 – 7, 23).

Nedostatno znanje ispitivanih skupina može biti posljedi ca neodgovarajućeg ili potpunog nedostatka edukacije o hitnim terapijskim protokolima u slučaju traumatskih ozljeda zuba. samo 59 (8,7 %) od ukupno 679 ispitanika izjavilo je da su cjelovito informirani o traumatskim ozljedama zuba, a samo 12 (1,8 %) istaknulo je da je njihovo znanje o toj temi vrlo dobro. Ti rezultati pokrtepljeni su činjenicom da su samo 142 (20,9 %) ispitanika pohadala neku vrstu edukacije o traumama zuba tijekom sveučilišnog obrazovanja. Većina studenata dental medicine dobro je informirana o zubnim traumama. Za razliku od njih studenti ostalih četiri studija djelomično su informirani ili uopće nisu informirani. Samoprocijenjeno znanje o traumatskim ozljedama zuba kod ispitanih studenata uglavnom je neadekvatno (vrlo loše, loše i prosječno). Ti su rezultati u skladu s već objavljenim istraživanjima provedenima među zdravstvenim i obrazovnim stručnjacima (3, 5, 10, 11, 20, 24). U nekoliko dosadaš-
Most of dental students, (94.7%), considered the knowledge of emergency dental management significant for their professional life and were interested in further education on this subject (90.1%). Similar results were reported in a study conducted in Saudi Arabia, where 95.7% of dental students considered education on dental injuries extremely important (11). A small number of medical students shared the same opinion. Only 28.2% of them considered the knowledge of emergency dental trauma treatment crucial for their future work, whereas 39.3% of them were interested in additional education. Conversely, a study conducted on medical students from the University of Rijeka (Croatia) showed that the majority of students were willing to gain further knowledge regarding this subject (10).

Furthermore, a previously published study conducted on a sample of pediatricians from Croatia showed that they are aware about the importance of timely treatment and a desire for continuous education on dental trauma management (17). Among the tested students of physical education, teachers’ education and preschool education, approximately 60% of them showed interest in future education and nearly 50% of them have considered awareness of dental trauma management important for their future work. Bakarčić et al. (5) in their survey conducted on Croatian teachers, showed that 93% of students did not receive any formal training on this subject, yet over 87.0% of them were willing to participate in the training on such a subject. Similar results regarding the teacher population were obtained in other countries (28,29).

Dental students showed the best knowledge about dental trauma emergency management, according to their responses. Approximately 90% of the students from all studies answered correctly the question regarding the identification of deciduous tooth. In contrast, the results regarding the question of identifying a permanent tooth were not so positive. Teachers’ education students showed the lowest scores; only 36.7% of them correctly identified a permanent tooth, which points to inadequate general knowledge of study groups regarding the time of eruption of a permanent tooth. A differentiation between the two types of dentitions is important for the selection of proper therapeutic procedure in certain traumatic tooth injuries. Most of the students from all tested study programs knew that deciduous avulsed tooth should not be replanted. Nevertheless, only 46.7% of medical, 35.8% of physical education, 22.3% of preschool education, and 21.1% of teachers’ education students knew that a permanent tooth can be replanted after avulsion. Previously published studies also reported poor knowledge on this subject for teachers (30,31).

If replantation is not possible at the site of the accident, the tooth should be immediately placed in a suitable medium (milk, patient’s mouth/saliva, and special storage media) that will allow PDL cells to survive until the moment of re-plantation (5). The present study did not find a satisfactory response rate regarding the storage medium. Only 25.0% of dental students provided all correct answers. Likewise, only 13.4% of physical education students, 8.9% of medical students, and 28.2% students chose milk as storage medium (milk, patient’s mouth/saliva, and special storage media) which is considered as inadequate by American Academy for Pediatric Dentistry (5). If replantation is not possible at the site of the accident, the tooth should be immediately placed in a suitable medium (milk, patient’s mouth/saliva, and special storage media)

Većina ispitanih studenata dentalne medicine (94,7 %) smatrала je znanje o hitnim terapijskim postupcima iznimno važnim za svoj profesionalni rad te su zainteresirani za daljnje obrazovanje kad je riječ o toj temi (90,1 %). Slični rezultati zabilježeni su u studiji provedenoj u Saudijskoj Arabiji gdje je 95,7 % studenata dentalne medicine edukaciju o traumatskim ozljedama zuba smatrao iznimno važnom (11). Mali broj studenata medicine dijeljelo je isto mišljenje. Samo njih 28,2 % smatra da je znanje o hitnom liječenju trauma zuba presudno za njihov budući rad, a 39,3 % bilo je zainteresirano za dodatnu izobrazbu. Suprotno tomu, studija provedena na studentima medicine Sveučilišta u Rijeci (Hrvatska) pokazala je da je većina studenata voljna stjeci daljnje spoznaje o ovoj tematici (10).

Nadalje, studija provedena na uzorku pedijatarata iz Hrvatske pokazala je njihovu svijest o važnosti pravodobnog liječenja i želju za kontinuiranom izobrazbom o traumama zuba (17). Među ispitanim studentima Kineziološkog fakulteta, Učiteljskog studija te studija Ranog i predškolskog odgoja i obrazovanja, otprilike njih 60 % pokazalo je zanimanje za buduću izobrazbu, a otprilike 50 % smatrao je znanje o traumama zuba važnim za njihov budući rad. Bakarčić i suradnici (5) u svojoj studiji ispitivanja provedenom na hrvatskim učiteljima pokazali su da njih 93 % nema nikakvu formalnu izobrazbu o toj temi, a ipak ih je više od 87,0 % spremno sudjelovati u nekom obliku edukacije. Slični rezultati za učiteljsku populaciju dobiveni su i u drugim zemljama (28, 29).

Studenti dentalne medicine pokazali su najbolje znanje u svim pitanjima vezanim za hitne terapijske postupke traumatskih ozljeda zuba. Oko 90 % studenata sa svih pet studija odgovorilo je točno na pitanje o identifikaciji mliječnog zuba. Suprotno tomu, odgovori na pitanje o identifikaciji trajnog zuba nisu bili tako uspješni. Studenti Učiteljskog studija imali su najbolje rezultate – samo njih 36,7 % uspješno je identificiralo trajni zub. To upozorava da je neadekvatno opće znanje ispitanih skupina o vremenu erupcije trajnog zuba. Razlika između dviju vrsta denticija važna je za odažiravanje pravilnoga terapijskog postupka kod općenitih traumatskih ozljeda zuba. Većina studenata svih ispitivanih studijskih programa zna da se izbijeni mliječni zub ne smije replantirati. Suprotno tomu, samo 46,7 % studenata Medicinskog studija, 35,8 % Kineziološkog fakulteta, 22,3 % studija Ranog i predškolskog odgoja te 21,1 % Učiteljskog studija zna da se trajni zub nakon avulzije može replantirati. Prije objavljene studije u kojima su ispitanici bili učitelji također su pokazali loše poznavanje te teme (30, 31).

Ako replantacija nije moguća na mjestu ozljede, zub se treba odmah smjestiti u odgovarajući medij (mliječno, usta / slina ozlijedene osobe, posebni mediji za čuvanje zuba) kojiji će omogućiti stanicama parodontnog ligamenta da prežive do trenutka replantacije (5). U ovom istraživanju nije postignuta zadovoljavajuća stopa točnih odgovora u vezi s medicijem za čuvanje izbijenog zuba. Sve točne odgovore ponudilo.
Ivkošić i sur.

Znanje studenata o dentalnim traumama

Studenti, 8.5% of preschool and 1.6% of teacher’s education studen-
ters answered correctly the questions regarding the storage medium. A study conducted on dental students in Saudi Ara-
bic and Japan has obtained better results (11,32). De Oliveira
et al. (8) showed that 31.1% of physical education students
would keep a tooth in a dry medium (handkerchief, a piece of
clot, in their hand), while 7.5% of them would keep it in
milk and 7.5 % of them in their mouth (saliva). Prasanna
et al. (30) reported that 39.0% of 300 primary school teach-
ers thought that the knocked-out tooth should be kept in a
cotton roll, while only 3.0% of them stated milk as a suitable
medium. Concerning the adequate extra-oral time for re-
plantation, 73.7% of dental students answered correctly (im-
mediate replantation). Other studies reported similar results
(11,32). Slightly smaller number of dental students in Sau-
di Arabia successfully answered the same question (67.5%)
(11). Only 38.1% of physical education students answered
correctly, while in Spain, the same answer was provided by
25.0% of students (24).

As expected, older students (≥25 years old) showed bet-
ter knowledge than their younger colleagues (p≤0.001). This
answer can be explained by the fact that dental and medical students
encountered the examined topic in their higher years of study.
In most studies, the age of participants had no effect or was
positively significantly related to the knowledge level of den-
tal trauma and its management (9,11,14,29,31,32). In con-
trast, some studies have confirmed the fact that older dentists
have more deficient knowledge than their younger colleagues
(33, 34).

The students who have witnessed dental trauma showed
posses to obtain better knowledge since they presented a higher
prevalence of correct answers (p=0.034). Interestingly, those
that experienced dental trauma personally did not show bet-
ter results. Approximately 30.0% of dental and medical stu-
dents have witnessed dental trauma. The majority of those
who suffered tooth injury themselves were from Physical Edu-
cation (29.1%), and the smallest number of them were from
the Teachers Education Study (13.3%). Out of 199 physical
education students examined by de Oliveira et al. (8), only
34.7% of them had dental injury personally. Nikolic et al.
(16) reported that 29.0% of pediatricians experienced dental
trauma, while 69.0% of them witnessed trauma in their med-
ic practice more than once.

Conclusion

From the results obtained in the current study, it could be
concluded that students’ knowledge about the emergency
management of dental trauma is insufficient. Although this
study was conducted at only one university in Croatia, these
results emphasize the importance of additional student ed-
ucation aiming to improve the outcomes of dental trauma
treatment. The majority of students who participated in the
current study considered the training on emergency manage-
ment relevant to their particular profession. Since most of the
studied groups have shown an interest in training on this top-
ic, it would be beneficial if such a training becomes an inte-
gral part of their study curricula.

je samo 25,0 % studenata dentalne medicine, 13,4 % stude-
nta kineziologije, 8,9 % studenata medicine, 8,5 % ranog
i preskolskog odgoja i obrazovanja te samo 1,6 % studenata
Učiteljskog studija. U istraživanjima provedenima među stu-
dentima dentalne medicine u Saudskoj Arabiji i Japanu do-
biveni su bolji rezultati (11, 32). De Oliveira i suradnici (8)
posezali su da bi 31,1 % studenata kineziologije čuvalo izb-
bijeni zub u suhom mediju (rupčić, komad tkaine, u ruci), 7,5 % čuvalo bi zub u mlijeku, a 7,5 % u ustima (слин). Pra-
sanna i suradnici (30) izvijestili su da je 39,0 % od 300 uči-
telja u osnovnoj školi smatralo da izbijeni zub treba čuvati u
pamučnoj vatici, a samo je 3,0 % navelo mlijeko kao prikla-
dan medij. Kad je riječ o odgovarajućem ekstraoralnom vre-
menu za replantaciju, 73,7 % studenata dentalne medicine
odgovorio je točno (trenutačna replantacija). U ostalim stu-
dijama dobiveni su slični rezultati (11, 32). Nešto manje stu-
denata dentalne medicine u Saudskoj Arabiji odgovorio je
eto na isto pitanje (67,5 %) (11). Samo 38,1 % studenata
kineziologije odgovorio je točno na isto pitanje, u Španjol-
skoj 25,0 % (24).

Očekivano, stariji studenti (≥ 25 godina) pokazali su bo-
lje znanje od mladih kolega (p ≤ 0,001). To se može objasni-
iti činjenicom da se studenti dentalne medicine i medicine
susreću s navedenom temom na višim godinama studija. U
većini objavljenih istraživanja dob ispitnika nema nikakav
utjecaj ili je pozitivno povezana sa znanjem ispitnika o den-
talnim trauma i njojovu liječenju (9, 11, 14, 29, 31, 32). Za
razliku od toga, u nekim istraživanjima autori potvrđuju
da stariji doktori dentalne medicine imaju nedostatnije zna-
anje od svojih mladih kolega (33, 34).

Studenti koji su bili svjedoci traume zuba imali su bolje
znanje jer su pokazali veću prevalenciju točnih odgovora (p =
0,034). Zanimljivo, oni koji su osobno doživjeli traumatsku
ozljedu zuba nisu pokazali bolje rezultate. Optrilike 30,0 %
studenata dentalne medicine i medicine svjedočilo je traumi
zuba. Većina onih koji su sami pretprijeli ozljedu bili su stu-
denti kineziologije (29,1 %), a najmanje ih je bilo s Učitelj-
skog studija (13,3 %). Od 199 studenata kineziologije koje
isu ispitali de Oliveira i suradnici (8), njih 34,7 % doživjelo je
traumatsku ozljedu zuba, Nikolić i suradnici (16) izvijestili su
da je 29,0 % pedijatara doživjelo traumu zuba, a 69,0 % svje-
dočilo je trauma u svojoj medicinskoj praksi više od jedanput.

Zaključak

Iz rezultata se može zaključiti da znanje studenta o lije-
čenju traumatskih ozljeda zuba ne zadovoljava. Iako je ovo
istraživanje provedeno na samo jednom sveučilištu u Hrvats-
skoj, dobiveni rezultati pokazuju koliko je važna dodatna
edukacija studenata sa svrhom da se poboljšaju rezultati lije-
čenja trauma zuba. Budući da je većina ispitivanih skupina
pokazala zanimanje za izobrazbu o toj temi, bilo bi poželjno
da ona postane sastavni dio njihovih studijskih programi jer
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Conflict of interest

The authors declare no conflict of interest.

Contributors

I.I. and L.G. - contributed to acquisition, analysis and interpretation of the data; drafting and providing final approval of the version to be published; D.J., N.G., N.Z.V. and D.M. - contributed to interpretation of the data; drafting the article and providing final approval of the version to be published; A.T. - contributed to the design and concept; acquisition, analysis and interpretation of the data; drafting and critical revision, supervision of the study and providing final approval of the version to be published.

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Autori nisu bili u sukobu interesa.

Doprinos autora

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