Dental trauma management knowledge among a group of teachers in two south European cities

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Abstract – The purpose of the present study is to assess the teachers' knowledge regarding dental trauma management in two south European cities. A three-part questionnaire comprised of questions on demographic data and knowledge was distributed to teachers in Porto and Istanbul. Seventy-eight teachers participated in the study; 23 had previously had formal dental trauma education. From the teachers interviewed, 58 of them admitted having no knowledge of dental trauma. Concerning knowledge, 29 teachers from Porto and 12 from Istanbul thought dental trauma emergency should be dealt with immediately. Knowledge of optimal storage media for avulsed permanent teeth was especially poor. In the present study, the majority of teachers did not know the importance of tetanus vaccine control in dental trauma. It is recommended that public education targeted at teachers should be carried out to increase dental trauma management knowledge.

It is well known that the majority of dental injuries happen in children between ages of 8 and 11 (1). The awareness of dental trauma management at this critical age range is important for the longterm success of traumatized teeth. Schools are the most available places to initiate dental trauma education programmes to educate people spending time with children (parents, guardians and mostly teachers.



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Two South European cities, at the most west and east end points of the continent, Istanbul and Porto; were selected for the present study. Istanbul and Porto are cities with limited scientific data about dental (2–4). The effect of teachers' education on immediate management of traumatized teeth may lessen trauma cases in schools (5). As part of a school-based educational program, a project 'What to do in case of dental trauma?' is

Fig. 1. Map of Istanbul and Porto, south Europe.

planned in both cities for elementary school teachers to be active and aware in the management of dental trauma. Concurrent with the dental education programme, a survey was conducted of elementary school teachers (by EC in Istanbul & LPF in Porto, December 2003, investigating their

awareness of immediate management of dental trauma.

The purpose of the present study was therefore to evaluate, by questionnaires, teachers' knowledge of the importance of immediate management of traumatized teeth. Regarding data from the present

Part 1 Personal	and Prof	essional Info	ormation			
Q1. Nationality		Por	Tur			
Q2. Sex		Male	Female			
Q3. Age	20-29	30-39	40-49	50+		
Q4. Length of service (year) Under 1		1-5	5-10	10-15	15+	
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Q5. Did you have a first-aid training ? If yes, did it cover 'management of dental trauma?

Q6. Have you ever experienced an accident where a tooth was knocked out?

Part 2 Attitudes

CASE 1. During school hours, a 9-year-old boy was hit in the face with a softball. His upper front teeth were broken. He was otherwise unhurt and did not lose consciousness.

Q1. Are the damaged front teeth likely to be permanent or primary (baby) teeth?

Q2. Which of the following actions would you consider as the most appropriate?

- a. After class, contact his parents to explain what had happened.
- b. Give him a warm drink and contact her parents.
- c. Send him immediately to the school nurse or doctor.
- d. Search for pieces.

e. Contact her parents and get them to take him to dentist.

CASE 2. During school hours, a 12-year old girl fell from the stairs and hit in the mouth. Her mouth is bleeding and an upper front teeth is found to be missing.

Q3. Which of the following would you do?

- a. Sideline the injured girl, getting her to bite on a hankerchief to control the bleeding.
- b. Look for the tooth, wash it and give it to the girl to take home.
- c. Look for the tooth, and put it back into the socket.
- d. Put the tooth in liquid and send the girl home straight away.
- e. Get the girl to hold the tooth carefully in her mouth and take her immediately to the nearest dentist.

Part 3 Knowledge

Q1. If your students came to you with a knocked-out tooth in the hand after an accident, which would be the first place you would contact and seek treatment?

a. Medical doctor b. General dentist c. Pediatric dentist d. Hospital e. Dental School University

- Q2. How urgent do you think it is to seek professional help if a permanent tooth has been knocked out?a. Immediatelyb. Within 30 minc. Within a few hoursd. Before next day
- Q3. Would you replant (put back) the tooth back into the socket from which it avulsed?
- Q4. If you decide to replant a tooth back into its socket but it had fallen onto the ground and was
 - covered in dirt, whatwould you do?
 - a. Scrub the tooth gentlywith a toothbrush.
 - b. Rinse the tooth under tap water.
 - c. Put the tooth straight back into the socket without any pretreatment.
 - d. Rinse the tooth with detergant or soap.
- Q5. If you did not replant the tooth, how would you transport it to the dentist?
 - a. Ice b. any liquid c. child'smouth d. child's hand e. paper tissue
- Q6. If used a liquid to wash or transport the tooth, what liquid would you use?
 - a. tap water b. fresh milk c. saliva of the child d. alcohol e. fruit juice f.normal saline solution g. antiseptic solution
- Q7. Would you search for if the child had tetanus vaccine?

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study, a comprehensive campaign in schools of Istanbul and Porto is planned.

Methods

All teachers, randomly selected from elementary schools in downtown Istanbul and downtown Porto were surveyed during a visit (Fig. 1). The questionnaire was personally distributed to the teachers (Fig. 2). Part 1 contained survey questions on gender, age, teaching experience and dental trauma education. Part 2 contained case studies relevant to attitude about dental trauma. Part 3 contained questions on knowledge of available emergency services and conditions for injured teeth. The teachers who agreed to take part in the survey were assured of strict confidentiality. The results to all three parts were analysed by frequency distribution.

The results of the questionnaire were expressed as frequency distributions and computed in percent-

Table 1. Demographic characteristics of the teachers - part 1

	Istar	nbul	Porto		
Demographic information	п	%	п	%	
Age (year)					
20-29	6	15.3	8	20.5	
30-39	7	17.9	9	23	
40-49	12	30.7	16	41	
50+	14	35.8	6	15.3	
Gender					
Male	9	23	10	25.6	
Female	30	77	29	74.4	
Length of teaching experience	e (year)				
1	2	5.1	2	5.1	
1-5	6	15.3	8	20.5	
5-10	12	30.7	8	20.5	
10-15	3	7.6	4	10.2	
15+	16	41	17	43.5	
Received first aid training					
No	24*	61.6	34*	87.2	
Yes	15*	38.4	5*	12.8	
Dental trauma experience arc	ound				
No	25	64.2	30	77	
Yes	14	35.8	9	23	

* P < 0.05.

Table 2. Results of the attitude questionnaire - part 2

ages. Statistical analysis was performed by means of the version 10.0 of the SPSS software for Windows. The significance of the difference between the means of the recorded variables was calculated using a Fisher's exact test.

Results

The results from part 1 on teachers' demographic characteristics are shown in Table 1. There were a comparable number of females to males in both cities. From the teachers interviewed in Istanbul, 15 had received first aid training while five in Porto had the same education (P = 0.018). In Istanbul, 14 teachers had already experienced dental avulsions while nine in Porto had the experience.

The responses from part 2 attitude survey as (Table 2) were generally negative. However, Porto teachers had more correct answers regarding immediate reaction to dental trauma (P = 0.046). Results of the knowledge survey are demonstrated in Table 3. No statistical difference between two cities' teachers' responses existed, except Porto teachers had more correct answers regarding the storage medium (P = 0.000).

Discussion

Previous reports indicated that some influence of teachers' education on immediate management of traumatized teeth may lessen trauma cases in schools (5-6). In both cities of Istanbul and Porto, young children spend a large proportion of their time in school. Hence, teachers assume responsible roles both in their daily activities and health related issues. Therefore there is an urgent need to increase the dental awareness of teachers. In the present study, although more teachers in Istanbul statistically seemed to have first aid training, majority of teachers in both cities did not have a first aid training. Thus, the majority of the teachers did not have training regarding dental trauma. This lack of knowledge should be supplemented with frequent comprehensive public awareness campaigns focusing on dental trauma.

	Istanbul				Porto			
	Correct		Incorrect		Correct		Incorrect	
Attitude	п	%	п	%	п	%	п	%
Awareness of tooth eruption timing	31	79.4	8	20.6	34	87.1	5	12.9
Immediate reaction to trauma	7*	17.9	32*	82.1	16*	41	23*	59
Reaction regarding avulsed tooth	11	28.2	28	71.8	5	12.9	34	87.1

*P < 0.05.

Knowledge	Istanbul				Porto				
	Correct		Incorrect		Correct		Incorrect		
	п	%	n	%	n	%	п	%	
Immediate contact	22	56.4	17	43.6	21	53.9	18	46.1	
Time to replant avulsed teeth	28	71.8	11	28.2	34	87.1	5	12.9	
Clearance of avulsed teeth	19	48.7	20	51.3	18	46.1	21	53.9	
Transportation vehicle	11	28.2	28	71.8	12	30.7	27	69.3	
Transportation liquid	7*	17.9	22*	82.1	26*	66.6	13*	33.3	
Tetanus vaccine control	11	28.2	28	71.8	12	30.7	27	69.3	

Table 3. Results of the knowledge questionnaire - part 3

*P < 0.05.

Immediate reaction to dental trauma is vital for the teeth injured (1). In the present study, Porto teachers statistically had more correct answers on immediate reaction to trauma. The basic knowledge on where to seek emergency service is crucial for avulsed teeth, where prolonged extraalveolar duration is detrimental to the long-term success rate (7). Regarding the present survey, the concept of management of avulsed teeth has not been fully understood among teachers. It is important to inform the public that a fractured fragment can be reattached (7–8). However, only one teacher form Istanbul and six from Porto responded they would search for pieces of the fractured tooth.

It has been stated previously that every effort should be made to replant the tooth immediately (8). This usually requires schoolteachers at the site of injury with some knowledge of treatment protocol. From the teachers interviewed, 10 of them had stated that they would replant an avulsed permanent tooth, although 16 had stated replantation is the correct attitude. Time is one of the most important factors for avulsed teeth to preserve their vitality after reimplantation. A Danish study reported that teeth replanted within 5 min had the best prognosis (9). Other studies suggest that 20-30 min seems to be the maximum limit of dry time for an avulsed tooth as drying causes loss of normal physiologic metabolism and morphology of periodontal ligament cells (10–13). In the present study most of the teachers in both cities stated the correct timing for replantation. The appropriate storage media to permit periodontal and pulpal healing are milk, physiological saline, tissue culture media (not legally available in Portugal and Turkey) and saliva (1). However, at the site of injury, only saliva is always available. Regarding these statements, Porto teachers statistically had more correct answers for the transportation media for avulsed teeth. Teachers' decision on disinfections of avulsed tooth were also questionable, rather incorrect.

The severe and often fatal infection of tetanus is questionable in south Europe because of the hot climate. Nevertheless, in case of intra-oral wounds tetanus prophylaxis should be considered. Vaccination Tetanus vaccine is necessary to be checked out in case of dental trauma (14). In the present study, the majority of teachers did not know the importance of tetanus vaccine control in dental trauma.

In conclusion, it appears that educational programmes are necessary to improve teachers' awareness of the immediate management of traumatized teeth in both cities.

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