Dental Traumatology 2005; 21: 183–187

DENTAL TRAUMATOLOGY

Knowledge and attitude of Jordanian school health teachers with regards to emergency management of dental trauma

Al-Jundi SH, Al-Waeili H, Khairalah K. Knowledge and attitude of Jordanian school health teachers with regards to emergency management of dental trauma. Dent Traumatol 2005; 21: 183–187. © Blackwell Munksgaard, 2005.

Abstract – The purpose of this study was to assess, by means of a self administered structured questionnaire, the level of knowledge of school health teachers in northern Jordan with regards to the immediate emergency management of dental trauma. The questionnaire surveyed teacher's background, Knowledge of management of tooth fracture, avulsion, and loss of consciousness, it also investigated teacher's attitudes, and self assessed knowledge, as well as knowledge of availability of emergency services in Jordan. The sample consisted of all school health teachers in northern Jordan (220) who attended an oral health education course held by the Jordanian dental association. Only 190 were included in the survey. Sixty-three percent were females, 44% were in their twenties, and 43% in their forties. Their school health teaching experience ranged from 1 to 7 years. Only 20% were officially trained in school health. Less than half of the teachers received first aid training only once in their teaching career, not necessarily as part of school health training. Only 10 teachers were trained in dental first aid, and more than half had a previous experience with handling dental trauma in children. Overall the teachers' knowledge with regards to the emergency management of the trauma cases presented in the report was deficient. Chi-square test showed that, the difference in their responses to the knowledge part of the questionnaire was not statistically significant with regards to age, gender, years of teaching experience, first aid training, or number of seen trauma cases. Generally, the attitude was positive, most teachers wanting further education on the topic, however those who were trained in first aid, thought they were able to give proper action when needed in cases of trauma ($P = 0.026$). Most teachers were unsatisfied with their level of knowledge, and only 30% knew of the availability of after hour emergency services for dental trauma. The present report indicated the gross lack of knowledge among school health teachers with regards to dental trauma emergency management. Educational programs to improve the knowledge and awareness of this group of adults, who are usually the first line of advice in case of dental trauma in schools, are mandatory. These programs should be properly designed to insure that proper information is retained with a positive effect on attitude, and self assessed competence.

Suhad H Al-Jundi[1], Haydar Al-Waeili[1], Khaled Khairalah[2]

Departments of [1]Preventive Dentistry, [2]Department of Public Health, Jordan University of Science and Technology, Irbid, Jordan

Key words: dental trauma; knowledge; emergency; attitude; school health teachers

Dr Suhad Al-Jundi, PO Box 810053, Irbid, Jordan
Tel.: +962 795 909 319
Fax: +962 272 78962
e-mail: suhadj@just.edu.jo

Accepted 17 June, 2004

Dental trauma remains one of the important oral health problems in childhood, and can cause much pain and distress. It is important to provide immediate first-class emergency care to reduce such outcomes (1). Many studies showed that accidents are very common among children, and that the permanent dentition revealed signs of dental trauma in over 20% of children (2). In Jordan, almost 19% of 10–12-year-old children sustained trauma (3). The prognosis of some of the dental injuries highly depends on correct and prompt emergency management and proper advice, which may frequently be the responsibility of lay people available at the accident site. Schoolteachers are frequently required to deal with trauma in schools, many studies indicated their deficient knowledge with regards to emergency management of dental trauma (4–6).

In Jordan, about one-third of dental injuries occur in schools (7), this places high responsibility on emergency care providers in schools to properly manage dental trauma.

Each public (government) school in Jordan has one school health teacher, this teacher not only teaches various health topics, but is usually responsible for providing emergency management and/or advice if needed, as only a few government schools in Jordan have a certified nurse because of the deficiency in the number of these nurses.

Two recent reports in Jordan (7, 8) indicated that a high percentage of dental trauma in children present late for treatment, resulting in unfavorable long-term prognosis possibly because of lack of awareness and knowledge among related adults.

Many international reports indicated the lacking knowledge of adults likely to be present at emergency sites with regards to immediate management of dental trauma. These surveys included parents (9), sport coaches (10), and even medical doctors (11).

The aim of this study is to assess, by use of a questionnaire, the level of knowledge and attitudes of school health teachers in northern Jordan with regards to immediate emergency management of dental trauma. This report is a part of a wide scale survey of knowledge and attitudes on dental trauma among adults expected to be present at accident sites. This survey will include school health teachers, school nurses, parents and sports coaches. The results of this survey is expected to lay down information that can help designing, organizing or refining first aid, and teacher training courses, which are usually lacking, with regards to this vital topic. The ultimate aim would be to minimize complications from dental trauma among children.

Materials and methods

This study was carried out in Irbid governate in northern Jordan, where 20% of the Jordanian population reside. The total number of school health teachers in northern Jordan's public schools is 220 teachers; they all attended a course on dental health education, organized by the Jordanian dental association, and were surveyed before the course by means of a structured self-administered questionnaire. The survey aimed at assessing their background, level of knowledge, and attitudes with regards to immediate dental trauma management, as well as knowledge of availability and priority of emergency services for dental trauma.

The questionnaire was modified from those used in previous similar studies (5, 6), and was divided into four parts. Part 1 consisted of questions on personal and professional profile of the respondents, part II consisted of questions on the immediate management of three imaginary cases of dental injuries (Table 1). The first case was a fractured tooth in a 9-year old, the second was a case of avulsion in a 13-year old, and the third was a case of loss of consciousness subsequent to a fall on the face.

The third part of the questionnaire was concerned with self assessed knowledge, and attitude to public education programs on dental trauma emergency management. The fourth part aimed at assessing the knowledge of availability of emergency

Table 1. Part II knowledge questionnaire (case scenario)

Case I: A 9-year-old child fell and broke her upper front tooth
Q1 the broken tooth is likely to be:
(a) Permanent tooth*
(b) Baby tooth
(c) Do not know
Q2 your immediate emergency management of the case is
(a) Send the child to school nurse if available*
(b) Contact parents and advice them to send child to the dentist immediately*
(c) Reassure the child and send her back to class
(d) Not sure what to do
Case II: a 12-year-old boy was hit on the face and his upper front tooth fell out of his mouth
Q1 the immediate emergency action you would take is
(a) put the tooth back in its place in the mouth and send to the dentist immediately*
(b) stop oral bleeding then send the child home
(c) put the tooth in a solution and send child to the dentist immediately*
d- not sure what to do
Case II: a 10-year-old child fell down while playing and lost consciousness
Q1 the immediate emergency action you would take is
(a) awaken the child then send him home to rest
(b) send the child to hospital immediately*
(c) not sure what to do

*Correct response.

services and priority of emergency management of dental trauma.

The returned questionnaires were analyzed; the results were expressed in frequency distribution. Chi-square test was used to test the influence of different variables such as age, gender, duration of school health teaching, and first aid training, on knowledge of the management of each of the cases presented and attitudes to more education in trauma management. The level of significance was set at $P = 0.05$.

Results

The number of teachers who responded to all of the questions in the questionnaire was 190; the response rate was 86.3%. The demographic characteristics of the respondents are presented in Table 2, which indicated that 63.1% of the respondents were females, all respondents had at least 14 years of education, and 44% were in their twenties. The professional profile indicated that only 38 teachers (20%) had official training in school health education, of those only eight teachers were trained in first aid as part of school health education. In general 46% (87 teachers) had first aid training once in their teaching career; only 10 teachers were trained to deal with dental emergencies as part of their first aid training. With regards to the number of seen trauma cases, Table 2 shows that most teachers (62%) have seen at least one trauma case throughout their teaching career. The responses to part II of the questionnaire, which is dealing with the cases were as follows (Table 3).

Table 2. Responses to part I; personal and professional characteristics of the respondents

Characteristic	*n* (%)
Personal profile	
Gender	
Male	70 (36.9)
Female	120 (63.1)
Age	
20–29	84 (44.2)
30–39	19 (10)
40–49	82 (43.1)
>50	5 (2.5)
Education	
14 years (diploma)	94 (49.5)
16 years (university)	90 (47.4)
>16 years (higher education)	6 (3.1)
Professional profile	
School health experience	
<3 years	81 (42.7)
3–6 years	34 (17.8)
>6 years	75 (39.5)
Qualified in school health	
Yes	38 (20)
No	152 (80)
First aid training in general	
Yes	87 (46)
No	103 (54)
Training for dental emergencies	
Yes	10 (5.2)
No	180 (94.8)
No. of seen trauma cases	
Zero cases	72 (37.8)
1–2 cases	57 (30)
3–4 cases	26 (13.7)
5 or more cases	35 (18.5)

Case I: broken incisor in a 9-year old girl

Forty percent (76) of the respondents knew that the fractured tooth is most likely to be a permanent incisor. With regards to the immediate emergency management of the case, 56.3% gave the wrong response.

Chi-square test indicated that there was no significant difference in the number of correct responses in relation to age, gender, years of teaching experience, first aid training, or number of seen trauma cases (*P*-values; 0.616, 0.74, 0.174, 0.42, and 0.3, respectively).

Case II: avulsed permanent tooth in a 13-year-old boy

With regards to the emergency management of this case, 80.5% (153) gave the wrong action which was to concentrate on stopping oral bleeding and sending the child home. Only two teachers (1%) responded ideally by replanting the tooth. Chi-square test indicated that there was no significant difference in the number of correct responses among the respondents according to age, gender, years of teaching experience, first aid training, or number of seen trauma cases (*P*-values; 0.762, 0.168, 0.436, 0.301, and 0.17, respectively).

Case III: loss of consciousness associated with a fall on the face

Almost 67% (127) responded correctly by sending the child to hospital immediately, the rest would just awaken the child and send him home to rest. This response was considered wrong as loss of consciousness may indicate serious brain injury.

Table 3. Results of part II (knowledge questionnaire)

Case	Incorrect [*n* (%)]	Correct [*n* (%)]	Not sure [*n* (%)]
Broken tooth			
Type of tooth	72 (37.9)	76 (40)	42 (22.1)
Management	107 (56.3)	77 (40.5)	6 (3.1)
Avulsed tooth			
Management	153 (80.5)	36 (18.9)	1 (0.5)
Loss of consciousness			
Management	127 (66.85)	63 (33.15)	zero

The responses to part III of the questionnaire which investigated self assessed knowledge and attitude to further education on the topic are presented in Table 4, which shows that, almost 97% (184) of the respondents thought their knowledge regarding emergency management of dental trauma was not enough, however only 27 teachers (14.2%) of all respondents indicated that they were unable to provide suitable action when needed in situations associated with dental trauma. The difference in the responses to this question related to the above variables was only significant for first aid training ($P = 0.026$). Indicating that, teachers who were trained in first aid, thought they were able to provide suitable action when needed.

The responses to Part IV of the questionnaire which dealt with availability and priority of emergency treatment of dental trauma (Table 4); showed that 70% of the respondents did not know of the availability of after-hour emergency services for dental trauma.

Discussion

This survey included all school health education teachers in Irbid governate (northern Jordan), the response rate was high (86.3%), and the fact that they all attended a course of dental health education, organized by the Jordanian Dental Association is promising.

It is worth noting that female teachers were keener to fill up the questionnaire resulting in a higher response rate than males, this can be related to the caring nature and closeness of females to children. All respondents had at least 14 years of education, as regulations in Jordan set this as the minimum level of education for all schoolteachers.

A rather disturbing finding in our survey was the fact that only 46% of school health teachers had first aid training only once in their teaching career, the rest never had any. This is in contrast to the high percentages of first aid training among those teachers in the Hong Kong and England studies (5, 8). An even more disturbing fact was that first aid training is not an integral component of school health teacher training in Jordan, the result of the current survey indicated that only 21% of those trained for school health, received first aid training as part of their programs. Only (11.8%) received dental emergency training as a part of their school health education programs indicating the need to properly, and periodically train school health teachers in first aid with an increase in the focus on dental emergency training. A change in legislation in Jordan with regards to the expiry of the first aid training certificate is necessary, as there is no law indicating the frequency of updating first aid training certificates. It is obvious that certifying school health teachers in first aid and periodically updating their certificates is mandatory, as these teachers are expected to provide emergency management for any medical or dental emergency that may arise during school hours.

To test the respondent's general knowledge for two different types of dental injuries, three imaginary cases in part II of the questionnaire were designed. In case I the age of the injured child was 9 years old with a broken incisor; it appeared that only (40.3%) of teachers know the broken tooth would be a permanent one in this age, this indicates the inadequate general dental knowledge of the studied group.

The general knowledge of proper action in case I is grossly lacking. In contrast to more than 70% found in Hong Kong and England studies, only (43.7%) of the teachers in this study acted correctly by sending the child to the school nurse or contacting the parents and advising them to send the child to the dentist promptly. This indicates the lack of knowledge and the need for continuous spotlighted dental emergency training to school health education teachers. The need for these programs should be provided to all school health teachers with no regard to their age, experience or gender, as our study indicated that the lack in knowledge in dental emergency management was not different among the respondents with regards to the above variables. It is crucial to manage avulsed permanent teeth immediately to ensure the best long-term prognosis. The ideal treatment for avulsed teeth is immediate replantation; as the promptness of providing such treatment will have a direct bearing on the outcome (1). This was the concern of the questions for case II. Unfortunately only two teachers (1%) would put the tooth back into the socket immediately, and only (15.1%)

Table 4. Responses to part III and IV, self assessed knowledge, attitude, and emergency services for dental trauma in Jordan

	n (%)
Self assessed knowledge	
Enough	6 (3.2)
Not enough	184 (96.8)
Need for further education	
Yes	176 (92.6)
No	14 (7.4)
Ability to provide proper action when needed	
Able	163 (85.8)
Unable	27 (14.2)
Emergency management of dental trauma is a priority	
Yes	180 (94.7)
No	10 (5.3)
Availability of after hour emergency services	
Correct	57 (30)
Incorrect	133 (70)

would look for the tooth and put it in the child's mouth or in a liquid and send him/her to dentist. Eighty percent of the respondents were worried about stopping the bleeding, mostly because bleeding is perceived by most people as life threatening.

Generally the results of part III (attitude part) of the survey was positive indicating that the respondents were not satisfied with their level of knowledge, and that they were keen to learn more about dental trauma management.

However, those who were trained in dental first aid, had a false sense of knowledge, and indicated that they were able to give suitable action when needed in cases of dental trauma, although their responses to the imaginary cases were incorrect, and did not show any significant difference from other respondents within the knowledge part. Conversely, past dental trauma experience had no effect on knowledge of dental trauma management; however, it had a positive effect on the attitude. Although the numbers are not large enough to draw wide conclusions, it still emphasizes that it is not only enough to train teachers in first aid, but the programs should be designed properly utilizing visual aids perhaps demonstrating real cases to make sure the correct information is retained, with a positive effect on attitude and self assessed competence.

Part IV of the questionnaire reflected the knowledge of availability of dental emergency services during working hours by most of the respondents, however after hours services were only known by a minority, this is similar to the finding of Sea-Lim and Lim in Singapore (6). In Jordan all after-hour emergencies including dental emergencies are dealt with by physicians at general hospitals. Therefore it is important to educate the public of the availability of after hour dental emergency services to overcome delay in seeking professional help in cases of dental trauma, which was noticed to be an important complicating factor in management of dental trauma in Jordan (7).

References

1. Roberts G, Longhurst P. Oral and dental trauma in children and adolescents, 1st edn. London: Oxford University Press; 1996.
2. Andreasen JO. Traumatic injuries of teeth, 2nd edn. Copenhagen: Munksgaard; 1981.
3. Hamdan MA, Rock WP. A study comparing the prevalence and distribution of traumatic dental injuries among 10–12 year-old children in an urban and in a rural area of Jordan. Int J Pediatr Dent 1995;5:237–41.
4. Newman L, Crawford PJM. Dental injuries: 'first aid' knowledge of Southampton teachers of physical education. Endod Dent Traumatol 1991;7:255–8.
5. Chan AW, Wong TK, Cheung GS. Lay knowledge of physical health education teachers about the emergency management of dental trauma in Hong Kong. Dent Traumatol 2001;17:77–85.
6. Sea-Lim V, Lim LP. Dental trauma management awareness of Singapore pre-schoolteachers. Dent Traumatol 2001;17:71–6.
7. Al-Jundi SH. Dental emergencies presenting to a dental teaching hospital due to complications from traumatic dental injuries. Dent Traumatol 2002;18:1–5.
8. Al-Jundi SH. Type of treatment, prognosis, and estimation of time spent to manage dental trauma in late presentation cases at a dental teaching hospital: a longitudinal and retrospective study. Dent Traumatol 2004;20:1–5.
9. Raphael SL, Gregory PJ. Parental awareness of the emergency management of avulsed teeth in children. Aust Dent J 1990;35:130–3.
10. Stokes AN, Anderson HK, Cowan TM. Lay and professional knowledge of methods for emergency management of avulsed teeth. Endod Dent Traumatol 1992;8:160–2.
11. Holan G, Shmneli Y. Knowledge of physicians in hospital emergency rooms in Israel on their role in cases of avulsion of permanent incisors. Int J Paediatr Dent 2003;13:13–9.