

## Knowledge and Attitude of Primary School Staff to Management of Dental Trauma in North-east of Iran in 2015

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*Received 29 January 2017 and Accepted 10 March 2017*

### Abstract

**Introduction:** The purpose of this study was to assess the level of primary Knowledge among school staffs in Iran with regards to the immediate management of dental trauma. **Methods:** The data, from 160 participants, were collected using questionnaire, which surveyed staff's background, attitude and knowledge of dental trauma management.

**Results:** The total number of school staff who responded to all of the questions in the questionnaire was 138; the response rate was 86%. 91.3% of the participants had more than 10 years of teaching experience. Only 24 cases (17.4%) have participated in training courses in regards to the dental trauma. 46.4% of the participants estimated their level of knowledge regarding the dental trauma as moderate and 42.8% as low and 7.2% without knowledge, however, 56.5% of them were highly interested in attending the training courses. Overall, the teachers' knowledge on emergency management of the dental trauma cases presented in this study was deficient, especially in avulsed tooth management. Chi-square test showed that there was no statistically significant difference in the responses to the knowledge part of the questionnaire on age, gender, teaching experience and responsibility in school. **Conclusion:** The present report indicated the lack of knowledge among school

staff on dental injuries managements. Organizing educational courses to improve the knowledge and awareness of school staff, as the first encounters of dental trauma in schools, seems necessary.

**Key words:** dental trauma, Iran, knowledge, permanent dentition, primary school.

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Rouhani A, Movahhed T, Mohiti Y, Banihashemi E, Akbari A. Evaluation of Diagnodent Accuracy in Detecting Approximal Caries in Primary Molars. J Dent Mater Tech 2017; 6(2): 67-72.

## Introduction

Traumatic dental injuries, which may affect teeth, adjacent soft tissues and alveolar bone, are prevalent among children. The prevalences of traumatic dental injuries among Asian and African teenagers have been reported to be 4-35% and 15-21%, respectively (1, 2). Major part of the dental trauma in childhood occurs at home and school. In Iran, children attending primary schools are in age range of 7-12 years. Dealing with traumatized tooth in the early moments of the incident may significantly affect the final prognosis of the tooth. Moreover, in some injuries (e.g. dental avulsion) immediate management of the avulsed tooth significantly enhances the success rate of the final treatment (3). In this context, since primary school staff are likely to be the first people attending the accident scene and are required to manage the situation, they need to be educated about the prompt handling of these urgent conditions. Nonetheless, their insufficient awareness of urgent management of traumatized teeth has reported to be low in previous studies (4-7). Since the first step to organize health educational programs in order to enhance the general awareness of traumatic dental management is to assess the current needs in community, the aim of this study was to investigate the level of knowledge in primary school staff with regards to the management of traumatic dental injuries in children, in a metropolitan city in north-east of Iran, Mashhad.

## Materials and Method

This cross-sectional study was performed among primary school staff in Mashhad in 2015 and was approved by the Ethics Committee of Mashhad University of Medical Science.

In order to provide the study population, three regions were randomly selected from seven districts of Mashhad. Afterwards, one boys' and one girls' school from each district were randomly selected and the appointments were scheduled with school authorities notice.

A modified questionnaire (4, 8) was used to evaluate the school staff knowledge about management of dental trauma.

Each questionnaire composed of three parts: first part contained questions related to the personal and occupational profile of the participant (table 1). Second part included educational background of the dental trauma management, public attitudes toward educational programs on dental trauma emergency management and self-attitude knowledge of traumatized teeth management (table 2). The third part of the questionnaire was about management of our dental trauma cases; a fractured tooth in a nine-year old

child, dental luxation, avulsion in eight-year old child, and loss of consciousness after the trauma (table 3).

To draw the participant attention to participate in the survey, advantages of the study was written in the initial part of the questionnaire. All the participants signed a consent form and their confidentiality was maintained throughout the survey. After recollecting the questionnaires, data were analyzed by Chi-square. P value significance was set at  $P < 0.05$ .

## Results

The number of school staff who responded to all of the questions in the questionnaire was 138 from total of 160 teachers; the response rate was recorded as 86%. Personal and professional information of the respondents are presented in table 1.

76% of the respondents were females; most respondents (91.3%) had more than 10 years of teaching experience. The level of education in 94.9% of participants was Bachelor of Science or higher. 108 participants were teachers, 10 gym teachers, 8 health teachers and 12 vice principals.

Part II attitude survey responses are presented in Table 2. Only 24 respondents (17.4%) have participated in dental trauma training courses. 46.4% of the participants estimated their level of knowledge as moderate and 42.8% as low. In addition, 7.2% noted that they have no awareness about management of dental trauma. Moreover, 56.5% of the school staff were highly interested in attending the traumatized teeth management training courses. Main source of participant dental trauma knowledge was noted as articles and books (37%), while information taken from attending in previous training courses was only mentioned by 2.9% of the school staffs.

Responses to the part III of the questionnaire, which was dealing with the cases, were as follows (Table 4).

### Case I: Broken incisor in a nine-year-old child

The general knowledge of the respondents to this question was mostly good. 107 (77.5%) of the school staff were aware that the anterior maxillary tooth of a nine year old child is permanent. Chi-square test indicated a non-significant difference in the number of correct responses with relation to the level of education, teaching experience and responsibility in school (P-values: 0.519, 0.267 and 0.885 respectively). However, there was a statistically significant association between age and number of correct answers to the aforementioned question. The staff ages range from 20-30 years responded to this question more accurately (P=0.031).

### Case II: Luxation injury in a seven-year old child

115 (83.9%) of school staff correctly answered the first step after occurrence of a luxation injury is referral

to the dentist at the day of incident. Chi-square test indicated a non-significant difference in the number of correct responses with relation to the age, level of education, teaching experience and responsibility in school (P-values: 0.881, 0.682, 0.768 and 0.852, respectively).

Case III: Avulsed permanent tooth in a 10-year-old child

Considering the emergency management of the case III, only 28 (20.3%) of school staff responded correctly by replanting the tooth, or putting it in a solution and going to the dentist immediately. Chi-square test indicated a non-significant difference in the number of correct responses with relation to the age, level of education, teaching experience and responsibility in school (P-values: 0.639, 0.153, 0.665 and 0.346, respectively). A glass of milk was chosen by 47 (34%) of the school staff as an ideal media to transport the avulsed tooth to the dentist. There was no significant difference in the number of correct responses with relation to the above-mentioned criteria (P-values: 0.702, 0.41, 0.723 and 0.746 respectively).

Case IV: Loss of consciousness associated with a fall.

86 (62.3%) of respondents correctly declared that they will send the child to the hospital immediately. Chi-square test indicated a non-significant difference in the number of correct responses with relation to the age, level of education, teaching experience and responsibility in school (P-values: 0.983, 0.202, 0.161 and 0.084, respectively).

## Discussion

In the present cross-sectional study conducted among primary school staff in Mashhad, response rate was relatively high (86.2%), exhibiting the general interest of participants in children dental care. Most of the participants in this study were female (76%) which could be explained by the higher number of female primary school teachers in Iran.

The prevalence of attendance in training courses was very low among the school staff (17.4%), but most of them were unsatisfied with their level of knowledge. They were keen to attend educational courses in this field which was similar to the results of previous studies (9-12). The level of knowledge with regards to the management of dental trauma was similar between the staff participated in training courses and those who did not. Nevertheless, efficient and continuous training courses concentrating on the accurate management of dental injury cases should be mandatory for all the primary school staff as the first people expected to manage the traumatized child. In the present survey, self-assessment knowledge of 50% of the school staff with regards to the dental trauma management was

moderate to high. However, after assessing the returned questionnaires it was revealed that 61% of them had moderate to high level of knowledge. This difference may be explained by the participants with low confidence in managing dental injuries. In addition, it indicates that their information were practical in controlling dental traumatic situations. In order to evaluate participants' information about different traumatic dental situations, five questions about four traumatic cases were designed. In the first question, 77.5% of school staff were aware that the anterior tooth of a nine-year old child is permanent which represents a high level of awareness in this regard. It should be noted that in Al Jundi's study only 46% of teachers assumed the anterior tooth of a nine-year old child as a permanent (12). Knowledge of the participant with regards to the management of luxation injuries was assessed in the second case and 83.9% of the school staff were aware that the injured child should be referred to the dental office at the day of incident which represents a relatively high awareness in this regard.

Since the ultimate prognosis of an avulsed tooth significantly depends on the early moment procedures performed by an unprofessional individual in the site of trauma (3), the third case was evaluated the school staffs' information about management of this type of dental trauma. It was reported that replantation of an avulsed tooth within the first 30 minutes increases the success rate of treatment up to 90%. However, if replantation performed after two hours, long-term chance of the tooth survival would be only 5% (13). In this regard, 20.3% of the participants declared that their initial performance in contact to an avulsed tooth is to instantly relocate the tooth in its socket or put the tooth in a liquid and then refer to a dentist. Compared to our study, level of knowledge considering the management of an avulsed tooth among Israelite teachers was considerably lower, as only 5.5% of them were aware of the correct procedure (10). However, Sae Lim survey results were significantly better, as 71% of teachers were familiar with the correct management of an avulsed tooth (8). This rate of information among teachers in Hong Kong and Jordan were reported to be 17.5% (7) and 18.9% (4), respectively.

It has been proved that if an avulsed tooth is restored within 15 minutes in a proper media like saliva, milk or saline, and then replanted instantly, there is a probable chance of survival in some of the cemental and PDL cells which can play a role in regeneration (14). Therefore, the third case of the present study also assessed the participant's information about the proper preservation media for an avulsed tooth. A rate of 34% of the school staff correctly declared that the best way to send an avulsed

tooth to a dentist is to put it in a glass of milk. Similarly, in Blakytyn study, 45.6% of teachers selected milk as a suitable media (15) and in McIntyre study, 34% and 32% of teachers chose milk and HBSS solution (16). Likewise to the present study in the above-mentioned researches, the second most popular solution media for preserving the avulsed tooth was water (after milk) and other optional solutions were included saliva, saline, salty water, alcohol and disinfectant solutions.

In the last question, information of the study population was assessed with regards to a situation in which a traumatic hit to a child caused a few minutes unconsciousness beside the tooth fracture. In this concept, level of knowledge between school staff was relatively high. 62.3% of them correctly declared that the proper procedure in this situation is to refer the injured child to the hospital.

**Table1.** Responses to part I: Personal and occupational profile of respondents

Sex	Male	33(24)
	Female	105(76)
Age	<20	0
	20-30	7(5.1)
	31-40	43(31.2)
	41-50	81(58.6)
	>50	7(5.1)
Teaching experience	<5 years	5(3.6)
	5-10 years	7(5.1)
	11-20 years	34(24.6)
	21-30 years	89(64.5)
	>30 years	3(2.2)
Responsibility in school	Vice principal	12(8.7)
	Teacher	108(78.2)
	Gym teacher	10(7.3)
	Health teacher	8(5.8)
Level of education	High school Diploma	7(5.1)
	Bachelor of Science	122(88.4)
	Master of Science	9(6.5)

Data presented as numbers, with percentages in parentheses.

**Table 2 .**Responses to part II: educational background and attitude questionnaire

✓	Have you participated in training courses on dental traumas so far? Yes : 24(17.4) No : 114(82.6)
✓	How do you assess your own knowledge concerning management of dental traumas? None : 10(7.2) Low : 59(42.8) Moderate : 64(46.4) High : 5(3.6)
✓	How interested are you in taking "management of dental trauma" courses? Not interested : 8(5.8) A little interested : 52(37.7) A lot interested : 78(56.5)
✓	What was your main source of knowledge in regard to dental traumas? Training courses : 4(2.9) Dentists : 35(25.4) Friends : 23(16.7) Articles and books : 51(37) None : 25(18.1)

Data presented as numbers, with percentages in parentheses.

**Table 3.** Part III: knowledge questionnaire

Case I: A 9-year-old child fell and broke her upper front tooth. The broken tooth is likely to be: a) *Permanent b) Primary c) No idea
Case II: A 7-year-old child fell and his/her maxillary intact incisor is loosed. immediate emergency action you would take is: a) *Refer to dentist at the day of incident b) If the tooth is not fractured there is no need to be evaluated by dentist c) No idea
Case III: A 10 year old child fell and his/her maxillary intact incisor is completely out of his/her mouth. What would be your first performance? a) *Relocate the tooth in its socket in mouth and refer to dentist b) *Put the tooth in a liquid and refer to dentist c) Put a clean tissue on the bleeding site in mouth and ask the child to press to stop the bleeding and refer to dentist d) No idea
Which media is more proper for sending an avulsed tooth to dentist? a) A clean tissue b) *A glass of milk c) A glass of water d) No idea
Case IV: A 10 year old child became unconscious for couple of minutes after falling down. A part of his/her teeth is fractured. What would be your first procedure? a) *Refer the child instantly to hospital b) Let the child rest and refer to dentist in proper time c) No idea

(\*) indicates the right answers

**Table 4.** Results of part III (knowledge questionnaire)

Case	Correct	Incorrect
I- Broken tooth Management	107(77.5)	31(22.5)
II- Luxation tooth Management	115(83.9)	23(16.1)
III- a)Avulsed tooth Management	28(20.3)	110(79.7)
III b)Storage medium	47(34)	91(66)
IV- Unconsciousness Management	86(62.3)	52(37.7)

Data presented as numbers, with percentages in parentheses.

### Conclusion:

The present report indicated the lack of knowledge among school staff with regards to dental injuries managements. Organizing educational courses to enhance the knowledge and awareness of this group,

who are usually the first line of advice in case of dental trauma in schools, seems necessary. These programs should be properly designed to insure that proper information is retained with a positive effect on attitude and self-assessed competence.

## Acknowledgment

This article is based on undergraduate thesis of Dr. Mohiti. This study was supported by the Vice Chancellor for Research, Mashhad University of Medical Sciences. The authors declared no conflicts of interest related to this study.

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