

Original Article

Evaluation of knowledge and attitude of school teachers about emergency management of traumatic dental injuries: An original research

Dr. Ankita Pandey¹, Dr. Bhuvneshwer Pandey²

¹MDS, Consultant Community Dentist, Goodwill Hospital, Aamghat Colony, Ghazipur, Uttar Pradesh, India;

²MDS, Consultant Prosthodontist, Goodwill Hospital, Aamghat Colony, Ghazipur, Uttar Pradesh, India

ABSTRACT:

Aim: Purpose of our study was to assess the knowledge of school teachers about handling emergencies like -traumatic dental injuries of young students. **Methodology:** A questionnaire comprised questions on demographic data, attitude, knowledge toward TDI, and behavior in case of accident and self-assessment questions were distributed among 100 teachers from 10 schools. The Chi-square test was used to investigate the participants teaching topics on their knowledge and attitudes.

Results: More than half of teachers (56.6%) have witnessed TDI. Almost all respondents (94.3%) indicated that in case of dental trauma is important to take emergency management as soon as possible. However, two-thirds of them (75.5%) thought that teachers cannot provide appropriate emergency management in case of TDI. **Conclusion :**The study revealed inappropriate knowledge and attitude regarding TDI among school teachers and their behavior in first- aid management.

Keywords Dental trauma, emergency care, schoolchildren, teachers.

Received: 15-07-2021

Accepted: 20-08-2021

Published: 31-08-2021

Corresponding author: Dr. Ankita Pandey, MDS, Consultant Community Dentist, Goodwill Hospital, Aamghat Colony, Ghazipur, Uttar Pradesh, India

This article may be cited as: Pandey A, Pandey B. Evaluation of knowledge and attitude of school teachers about emergency management of traumatic dental injuries: An original research. J Adv Med Dent Scie Res 2021;9(8):146-150.

INTRODUCTION

Dental traumas are injuries of the teeth, periodontium, and surrounding soft tissues. Being quite common in dentistry, they include 5% of all traumatic injuries when people seek first aid.[1] According to the WHO, 16%–40% of children aged 6–12 years experience mild or severe dental traumas because of different reasons: unsafe playing in playgrounds, accidents at schools, accidents during car crashes, or violence.[2] Children dental traumas are a big issue nowadays not only for their possible negative outcome and for being common, [3,4] but also because they can reduce the quality of life. [5-7] First, children experience severe pain, stressful situations, and poor esthetics. Second, dental traumas can cause malocclusion.[8] In addition, people having untreated dental traumas can have chewing problems more often.[6] Furthermore, they can experience social interaction problems such as being concerned with what others think, avoiding smiling and laughing, not talk to other children.[6] Moreover, dental traumas can cause delayed permanent tooth eruption.[9] Finally, treatment of

dental traumas can require orthodontic treatment and prosthetic rehabilitation.[8] Long-term success depends on the treatment given at the site of the injury (replantation/storage media) and treatment of the root-surface area administered immediately upon arrival at the dental clinic.[10] The lack of dental education can result in avulsed teeth extraoral dry time of 60 min or more, which can cause necrosis of all periodontal ligament cells with eventual replacement resorption.[10] The most prevalent complications are coronal discoloration and external resorption.[11] The greatest incidence of trauma to the primary teeth occurs at 2–3 years of age, when motor coordination is developing. Most dental injuries occur to permanent teeth with incomplete root development in children in mixed dentition. Due to their immature motor coordination, these young children are predisposed to falls and hence are at a risk of sustaining TDIs.[12] When teeth and their supporting structures are subjected to impact trauma, the resultant injury manifests either as a separation or a crushing injury or a combination of both. Among the different types of

dental trauma, avulsion results in the greatest functional and esthetic impairment due to its worse prognosis.[13] Prompt and pertinent emergency management is not only the responsibility of the dentist but also of lay people, such as the parents and the school teachers available at the site of accident.[14] School is one of the locations with the greatest prevalence of the occurrence of dental trauma in adolescents. Falls and collisions, followed by sports activities such as cycling and soccer, are the most prevalent etiological factors. There are various dental trauma that can be encountered during sports such as soft tissue injuries, fractures, TMJ injuries, tooth intrusion, tooth extrusion, crown and root fractures, and avulsion.[15] Teachers are generally present at the time dental trauma occurs, as such accidents often take place during or after school activities. However, they have few/limited knowledge regarding the recommended course of action in such situations. It is therefore of fundamental importance for coaches, teachers, and undergraduate students in physical education to be duly informed with regard to the correct first-aid measures. So, school teachers should have knowledge of basic dental physiology and the treatment protocol for such injuries.[16]

AIM OF THE STUDY

Purpose of our study was to assess the knowledge of school teachers about handling emergencies like - traumatic dental injuries (TDI) of young students.

RESULTS

All respondents were aged between 25–59 years (mean 39.3, standard deviation [SD] = 0.56). Almost everyone has participated in first-aid training course (99.1%). More than a half of participants have witnessed TDI (56.6%). (Table 1)

Table 1- Participants responses about their experience in the first aid

Questions	n (%)
Participated in first aid training	
Yes	105 (99.1)
No	1 (0.9)
Witnessed dental trauma	
Yes	60 (56.6)
No	46 (43.4)
Provided dental trauma first aid	
Yes	26 (43.3)
No	34 (56.7)

Table 2- School teacher’s responses regarding their behaviour in case of traumatic dental injuries

S.No.	Questions	Answers	n (%)
1	The broken 9 year old child’s tooth is likely to be	Temporary tooth Permanent tooth Do not know	11 (10.4) 90 (84.9) 5 (4.7)
2	The immediate emergency action you would take in the case of avulsion is	Stop the bleeding by compressing a cloth over the injury Look for the tooth, wash it and put it back in its place Save the tooth in child’s mouth and look for professional help	67 (44.7) 7 (4.7) 19 (12.7)

METHODOLOGY

A total of 100 teachers (36 male and rest female teachers) from total 10 schools were included in the present study. All the available subjects who were willing to participate in the survey were included in the study. Those who were absent on the day of examination were excluded. Before scheduling the present study, the required ethical clearance was obtained from institutional ethical clearance committee.

Before the data collection and clinical examination, the purpose and the methodology of the survey was explained to each of the subject and informed consent was obtained. Data were collected through a survey, which included a self-administered questionnaire.

Questionnaire comprised questions assessing participants’ knowledge with regard to dental trauma. This part was further divided into the following sections:

- Basic knowledge on the growth patterns of children’s dentition
- General knowledge of dental trauma
- Knowledge of fractured teeth
- Knowledge of avulsed teeth.

All the data were entered in Microsoft excel and analyzed using SPSS package (version 22). The Chi-square test was used to investigate the participants teaching topics on their knowledge and attitudes. The significance level was set at 0.05.

		Place the tooth in a paper and send the child to dentist after the school time	42 (28.0)
		Don't know what to do	15 (10.0)
3	What type of health service would you seek first?	General practitioner Hospital emergency General dentist Pediatric dentist Endodontist	2 (1.4) 36 (24.3) 15 (10.1) 91 (61.5) 4 (2.7)
4	If the tooth has fallen on the dirty ground what would you do?	Rinse the tooth under tap water and put it back into its socket	25 (21.4)
		Rub away the dirt by a sponge and soap and put it back in its place	10 (8.5)
		Put it back into the socket immediately without cleaning	2 (1.7)
		Discard the tooth	20 (17.1)
		Don't know what to do	60 (51.3)
5	How would you transport the tooth on the way to the dentist if you cannot put the tooth back into its socket?	Put the tooth in ice Put the tooth in liquid Place the tooth in the child's mouth Place the tooth in the child's hand Wrap the tooth in a handkerchief or paper tissue	10 (8.7) 14 (12.2) 10 (8.7) 0 (0.0) 81 (70.4)
6	Which is the best time for putting back a tooth in if it is knocked out of the mouth?	Immediately after the accident Within 30 min after the bleeding has stopped Within the same day This is not a crucial factor Don't know what to do	18 (14.9) 34 (28.1) 13 (10.7) 12 (9.9) 44 (36.4)

Table 2 shows participants knowledge toward TDI in emergency situation. Almost half of teachers (44.7%) in case of tooth avulsion would “stop the bleeding by compressing a cloth over the injury.” Most (70.4%) would “wrap the tooth in a handkerchief or paper” an avulsed tooth and transport to the dentist, while 8.7% would put into the child’s mouth. No one of those (12.2%) who would put a tooth into the liquid knew the right storage media: 90.9% would use the tap water and 9.1% strong disinfecting solution. 14.9% of teachers would replant tooth immediately after accident and 10.7% on the same day.

DISCUSSION

The current study has shown that participants had little knowledge of dental traumas and the proper emergency management in the case of TDI. The findings are in accordance with the study where almost all teachers did not feel prepared to assist a child with a dental trauma [17] and different from study in Italy where more than a half of participants would know what to do in case of dental trauma.[18] Attitude regarding TDI is important because it may

have an impact on behavior. Unfortunately, respondents incorrectly thought that teachers cannot provide appropriate emergency management in the case of TDI; it can only be done by the professionals. The findings are in line with some other studies where teachers have thought that emergency management of dental trauma is thoroughly professional, requires special education, and there is no need for teacher intervention.[16] More than half (59.6%) of the respondents think that they could not perform

emergency management in case of dental trauma.[26] Almost one- third of teachers in the current study indicated thought that an avulsed tooth cannot be replanted. 56.8% of respondents in a study by Nirwan and coauthors would try to find an avulsed tooth.[19] Interestingly, more than half of the 1st- year dental students would not suggest to replant avulsed tooth.[20] In the survey, almost a half of the respondents (44.7%) in case of avulsion would stop the bleeding by compressing a cloth over the injury; one- third of teachers (28%) would place the tooth in a paper and send the child to dentist after the school time. Participants did not know what to do if the tooth has fallen on the dirty ground (51.3%) and 17.1% of them would throw the tooth away. Similar studies showed that 20% of participants would discard an avulsed tooth.[21] A majority (90.1%) of the respondents indicated tap water as the transportation media for an avulsed tooth. That is not right media. Some studies showed more optimistic results where 42.2% of respondents said that they would use tap water if the tooth had fallen on the ground.[18] Many factors during the first- aid management are important and can decide future good or bad prognosis. One of the most significant points for a good avulsed tooth prognosis is the storage media. The knowledge regarding the storage media for the avulsed tooth was inappropriate in the current survey: 91.3% of teachers would transport a tooth in a bad storage media and only 8.7% of the participants would put an avulsed tooth in child's mouth. In other researches, there were the same results: only 16.5% of participants would transport a tooth in the milk,[22] only 3.1% have chosen the correct media,[23] and 3% of participants would transport the tooth in milk.[24] Almost all respondents have participated in first- aid training courses; however, no dental emergency situations were provided. Anyway, they showed some knowledge and attitude in emergency of TDI management. Nevertheless, in the current survey, many participants reported their interest in receiving more information and/or training about TDI.

CONCLUSION

Two- thirds of respondents in the current survey would like to participate in TDI first- aid training. The situation is in line with other studies: almost all participants would like to know more about dental traumas and get education about emergency management in TDI situations.

REFERENCES

1. Andreasen JO, Andreasen FM, Andersson L. Textbook and Color atlas of Traumatic Injuries to the Teeth. 4th ed.. Copenhagen: Blackwell Munksgaard; 2007.
2. World Health Organization; Fact Sheet N 318 April, 2012. Available from: <http://www.who.int/mediacentre/factsheets/fs318/en/>.
3. Al-Bajjali TT, Rajab LD. Traumatic dental injuries among 12-year-old Jordanian schoolchildren: An

- investigation on obesity and other risk factors. BMC Oral Health 2014;14:101.
4. Frujeri Mde L, Frujeri JA, Bezerra AC, Cortes MI, Costa ED Jr., Socio-economic indicators and predisposing factors associated with traumatic dental injuries in schoolchildren at Brasília, Brazil: A cross-sectional, population-based study. BMC Oral Health 2014;14:91.
5. Ramos-Jorge ML, Bosco VL, Peres MA, Nunes AC. The impact of treatment of dental trauma on the quality of life of adolescents A case-control study in southern Brazil. Dent Traumatol 2007;23:114-9.
6. Fakhruddin KS, Lawrence HP, Kenny DJ, Locker D. Impact of treated and untreated dental injuries on the quality of life of Ontario school children. Dent Traumatol 2008;24:309-13.
7. Bendo CB, Paiva SM, Varni JW, Vale MP. Oral health-related quality of life and traumatic dental injuries in Brazilian adolescents. Community Dent Oral Epidemiol 2014;42:216-23.
8. Drummond S, Pessica LS, Monnerat AB, Monnerat AF, de Oliveira Almeida MA. Multidisciplinary solution for an avulsed upper central incisor: Case report. Dent Traumatol 2011;27:241-6.
9. Biagi R, Butti AC, Salvato A. Premature loss of maxillary primary incisor and delayed eruption of its successor: Report of a case. Eur J Paediatr Dent 2011;12:194-7.
10. Lin S, Zuckerman O, Fuss Z, Ashkenazi M, American Association of Endodontists, International Association of Dental Traumatology, *et al*. New emphasis in the treatment of dental trauma: Avulsion and luxation. Dent Traumatol 2007;23:297-303.
11. Jesus MA, Antunes LA, Risso Pde A, Freire MV, Maia LC. Epidemiologic survey of traumatic dental injuries in children seen at the Federal University of Rio de Janeiro, Brazil. Braz Oral Res 2010;24:89-94.
12. Bayrak S, Tunc ES, Sari E. Evaluation of elementary school teachers' knowledge and attitudes about immediate emergency management of traumatic dental injuries. Oral Health Prev Dent 2012;10:253-8.
13. Zakirulla M, Togoo RA, Yaseen SM, Al-Shehri DA, Al-Ghamdi AS, Al-Hafed MS, *et al*. Knowledge and attitude of Saudi Arabian school teachers with regards to emergency management of dental trauma. Int J Clin Dent Sci 2011;2:25-29.
14. Pujita C, Nuvvula S, Shilpa G, Nirmala S, Yamini V. Informative promotional outcome on school teachers' knowledge about emergency management of dental trauma. J Conserv Dent 2013;16:21-7.
15. Knowlton R, Kracher CM, Schmeling W. Smith Sports-Related Dental Injuries and Sports Dentistry. Continuing Dental Education. Available from: <http://www.dentalcare.com>.
16. Krishnan B, Joseph J. Knowledge of basic dental physiology among teachers can improve preliminary management of acute dental avulsion in school children. Int J Clin Exp Physiol 2014;1:63-7.
17. Antunes LA, Rodrigues AS, Martins AM, Cardoso ES, Homs N, Antunes LS. Traumatic dental injury in permanent teeth: Knowledge and management in a group of Brazilian school teachers. Dent Traumatol 2016;32:269-73.
18. Quaranta A, De Giglio O, Trerotoli P, Vaccaro S, Napoli C, Montagna MT, *et al*. Knowledge, attitudes,

- and behavior concerning dental trauma among parents of children attending primary school. *Ann Ig* 2016;28:450-9.
19. Nirwan M, Syed AA, Chaturvedi S, Goenka P, Sharma S. Awareness in Primary School Teachers regarding Traumatic Dental Injuries in Children and Their Emergency Management: A Survey in South Jaipur. *Int J Clin Pediatr Dent* 2016;9:62-6.
 20. Fujita Y, Shiono Y, Maki K. Knowledge of emergency management of avulsed tooth among Japanese dental students. *BMC Oral Health* 2014;14:34.
 21. Nikam AP, Kathariya MD, Chopra K, Gupta A, Kathariya R. Knowledge and attitude of parents/caretakers toward management of avulsed tooth in maharashtrian population: A questionnaire method. *J Int Oral Health* 2014;6:1-4.
 22. Fux-Noy A, Sarnat H, Amir E. Knowledge of elementary school teachers in Tel-Aviv, Israel, regarding emergency care of dental injuries. *Dent Traumatol* 2011;27:252-6.
 23. Ozer S, Yilmaz EI, Bayrak S, Tunc ES. Parental knowledge and attitudes regarding the emergency treatment of avulsed permanent teeth. *Eur J Dent* 2012;6:370-5.
 24. Santos ME, Habecost AP, Gomes FV, Weber JB, de Oliveira MG. Parent and caretaker knowledge about avulsion of permanent teeth. *Dent Traumatol* 2009;25:203-8.