



ASSESSMENT OF KNOWLEDGE, ATTITUDE AND PRACTICES OF HIGH SCHOOL TEACHERS OF HARYANA REGARDING PRELIMINARY CARE OF TRAUMATIC DENTAL INJURIES AND TOOTH AVULSION OF SCHOOL CHILDREN

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ABSTRACT

Aim - To assess the knowledge, attitude and practices of high school teachers regarding preliminary care of traumatic dental injuries and tooth avulsion. **Materials and method** - A cross-sectional questionnaire survey was conducted among 160 high school teachers of Ambala district of Haryana state, India.

Result - 43.1% of the teachers were females and 56.9% were males. Only 2 % of teachers had received information regarding first aid treatment of traumatic dental injuries (TDIs). In case any child would suffer a TDI, only 9.4% teachers preferred referring the child to a dentist. Gauze piece, plastic bag, antiseptic solution were preferred media for transportation of avulsed teeth. 36.9% (59) teachers believed that an avulsed tooth could be saved. Among these, 38.9% believed an active intervention should be taken up within 20 minutes of tooth avulsion. Only 13.8 % of the teachers were aware about the term 'mouth guard' although majority of them did not know the purpose of its use. 92 % teachers were willing for getting trained in emergency management of TDIs.

Conclusion- Teachers had inadequate knowledge regarding preliminary care of TDIs. A very small number of teachers had come across any TDI in schools. Most of the teachers had a positive attitude towards getting trained in the preliminary care of TDIs.

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INTRODUCTION

The high prevalence of dental trauma in young people is a continuing clinical and dental public health problem.⁽¹⁾ Most epidemiological studies have reported that the majority of traumatic dental injuries in school children occur at home or school.^(2,3) An oral traumatic injury can frequently lead to tooth lesions, affecting both supporting dental structures and hard tissues.⁽⁴⁾ Besides these local injuries, dental trauma can directly or indirectly, influence people's lives, affecting their appearance, speech, and position of teeth. Broadly speaking, TDIs may cause functional, esthetic, psychological and social problems.^(5,6) The prognosis of many dental injuries is decided at the time and place of accident but can be improved if correct measures are taken promptly.^(7,8) One of the most serious dental injuries is avulsion (ex-articulation) of a tooth. In such a case the prognosis is related to the injury to the periodontal membrane during the time avulsed tooth is out of socket. Ideally, an avulsed tooth should be replanted in its socket as soon as possible to avoid further damage to the periodontal ligament.^(9,10) Hence the patient needs to be taken to a dentist

immediately. Knowledge of the important steps to be taken immediately following an accident improves the prognosis of the avulsed and replanted tooth. For this reason, it is important to educate the public about accidents involving tooth avulsion in children.⁽¹¹⁾ People most likely to be in contact with the child at the time of the injury are school professionals, thus their knowledge of emergency procedure is important for the better prognosis of the tooth.⁽¹²⁾ Teachers knowledge regarding this subject can be of significant value to the prognosis of the teeth if they are adequately educated about the first-aid steps to be taken at the time of an accident. A thorough search of literature yielded no study conducted in the state of Haryana to assess either of the knowledge, attitude or practices of teachers regarding preliminary care of TDIs and tooth avulsion. Hence, this study was planned to assess the knowledge, attitude and practices of high school teachers of Haryana with regards to the preliminary care following dental trauma and tooth avulsion. The knowledge and attitude regarding the use of mouth guards to prevent dental injuries shall also be explored.

MATERIALS AND METHOD

A cross-sectional study was conducted among high school teachers of Ambala district from July to October 2008. Ethical clearance was obtained from ethical committee, M.M. College of Dental Sciences & Research, Mullana. Permission to conduct the study in various schools was taken from the district education officer (Ambala) & the principal of each school. Ambala, one of the 21 districts of Haryana state of India, is spread over a large area of 1568 sq kms (13). Majority of the schools in this district were graded as high schools (up to matriculation) and it was thus decided to include the teachers of these schools as the target population. 15 Schools were randomly selected from the list of 103 schools obtained from the district education officer. All the teachers present on the day were interviewed. The purpose of the study was explained to the teachers in local language. All the participants were promised anonymity and participation was voluntary. 100% response rate was achieved. A structured questionnaire (Table 1)

Table 1 Questionnaire

1. Sr. No.
2. Date
3. School
4. Name (Optional)
5. Age
6. Sex
7. Education status
8. Have you received information regarding first aid treatment following an injury? Yes/No
a) Have you received information regarding first aid treatment to be provided following dental trauma? Yes/No
Case 1: A boy 12 year old fell on ground and broke his anterior tooth
9. Have you experienced such a situation in school? Yes/No
What did you do/ would do in such a case? _____
Case 2 A boy 12 year old fell on ground and his tooth knocked out
10. Have you experienced such a situation in school? Yes No
a) Where did /would you seek treatment? _____
b) Did/would you put back the tooth in socket? Yes
c) Do you think the knocked out tooth can be saved Yes No If yes,
i) Within how much time? _____
ii) Did/Would you wash the tooth? Yes No Don't know a) If yes, in what medium _____
iii) How did / would you carry the tooth? _____
11) Have you heard about mouth guard? Yes No a) When should it be used? While driving While playing While sleeping
12) Are you willing for training on TDI Yes No

was developed which consisted of four parts. A pilot study was conducted among 25 teachers of one school to validate the questionnaire. The questionnaire consisted of 12 items with few open ended and few closed ended questions. One investigator (AK) read all the questions and marked teachers response. After recording the data, a discussion was undertaken with the teachers regarding TDIs and their correct preliminary care. Results were analyzed using SPSS 11.0 software for windows and chi-square test was applied to test

for significant differences in categorical variables. A significant difference was inferred at $p \leq 0.05$.

RESULTS

A total of 160 teachers were interviewed. 43.1% of them were females and 56.9% were males. The age range of teachers was 24 to 56 years with a mean age of 40.18 ± 8.17 years. 47% of the teachers were graduates and 53% were having higher education. 76% of teachers had received information regarding first aid training and it was significantly related to education. Only 2% of teachers had received information about first aid treatment specifically for dental injuries. In case 1 when a 9 year old boy broke his tooth due to an injury, 58.8% of teachers had experienced such injuries to school children. The responses of teachers for case 1 and 2 are showed in Table 2,3 and 4. Only 13.8% of teachers were aware about the use of mouth guard. Out of these, 77.2% had a perception that it should be used while playing, 4.5% answered while driving, 4.5% while sleeping whereas 13.6% were not aware of its use. Majority of teachers (92 %) were willing for getting trained in preliminary care of TDIs, in case they get a chance.

Table 2 Response of teachers for what should be done in case of TDI

Will refer to	Number of teachers	Age group (years) N(%)		Gender N(%)	
		21-40 N (%)	41-58 N(%)	Male	Female
Dentist	15(9.4)	12(7.5)	3(1.9)	8(5)	7(4.3)
Parents	16(10)	7(4.3)	9(5.7)	9(5.7)	7(4.3)
No attention	27(16.9)	15(9.3)	12(7.6)	12(7.6)	15(9.3)
Doctor	51(31.9)	24(15)	27(16.9)	30(18.75)	21(13.1)
By self first aid	51(31.9)	33(20.6)	18(11.3)	32(20)	19(11.8)
Total	160	91(56.8)	69(43.1)	91(56.8)	69(43.1)
P		0.104		0.631	

Table 3 Showing response of teachers on “can avulsed tooth be saved?”

Can avulsed tooth be saved?	Gender N(%)		Age group (years) N(%)	
	Female	Male	21-40	41-58
Yes	27(16.9)	32(20)	34(21.2)	25(15.6)
No	35(21.8)	41(25.6)	39(24.3)	37(23.1)
Don't know	7(4.3)	18(11.3)	18(11.3)	7(4.3)
Total	69(43.1)	91(56.8)	91(56.8)	69(43.1)
P	0.251		0.187	

Table 4 Response of teachers on “maximum time within which an avulsed tooth can be saved.”

Time (minutes)	Number of teachers	Percentage of teachers
20	23	38.9
20-60	6	10.1
60-120	2	3.3
120	2	3.3
Don't know	26	44
Total	59	100

DISCUSSION

The current study investigated high school teachers' knowledge in preliminary care of traumatic dental injuries. This is the first study conducted in the state of Haryana to assess the information about knowledge, attitude and practices of handling TDI and tooth avulsion among school teachers. The mean age of teachers was lower than that reported from study conducted in Norway.⁽¹⁴⁾ Only 2% teachers had received information on TDI which is lower than as reported in US⁽¹⁵⁾

and in England and Wales.⁽¹⁶⁾ Many international studies have revealed little knowledge among teachers about handling TDI but presently several institutions across the world have educational program focusing on TDIs^(14,17) which is non-existent in India. Majority of teachers had encountered cases of TDI which indicates that dental injuries are common among children in Ambala & also these findings are higher than that reported by Marit S. Skeie⁽¹⁴⁾ and Melntyre *et al.*⁽¹⁵⁾ The number of teachers who would seek a health care professional consultation i.e. either a dentist or a doctor was lower than that reported by Al-Obaida M.⁽¹⁸⁾ This difference reflects the lack of knowledge among the teachers regarding management of TDIs. There was no significant difference between education status and knowledge about TDI which is contrary to that reported by Feldens EG.⁽¹⁹⁾ A great number of teachers would pay no attention following a case of TDI which shows a great negligence on part of teachers and is a matter of great concern. Such findings have not been reported in any of the previous studies. The number of teachers who had received information regarding measures to be taken following dental trauma was low and similar to that reported in Saudi Arabia.⁽¹⁸⁾ Feldens reported that females had greater knowledge of TDI management which is contrary to that reported in this study.⁽¹⁹⁾ It is also worth noting that a 100% response rate was received from the participants which is higher than that reported in many studies and also indicates these results can be generalized.

Avulsion of the permanent tooth is a true dental emergency and appropriate on-site management can help determine the ultimate prognosis. Although the number of teachers who had experienced TDIs in school children was high, the reports regarding tooth avulsion were lower than that reported by Mohandas⁽²⁰⁾ and Abidi.⁽¹⁰⁾ This might be due lower contact sport activity among school children. Majority of the teachers would refer a child to a dentist following avulsion but this is lower than that reported by Abidi,⁽¹⁰⁾ Mohandas⁽²⁰⁾ and Kahabuka.⁽²¹⁾ This might be due to poor accessibility of dental clinic. Only 36.9% of teachers believed that avulsed tooth can be saved. It is known that when re-implantation is performed immediately after tooth avulsion (up to 15 minutes) or when the tooth is stored in appropriate solutions compatible with cell survival, case prognosis is greatly enhanced. It was surprising that none of the teachers would reimplant an avulsed tooth themselves which is quite opposite to that reported in other studies.^(14,17) This might be due to the greater concern of bleeding and associated soft tissue injury following tooth avulsion. However this maneuver will delay in replanting the tooth and jeopardize the prognosis.⁽²⁰⁾ Compared to findings of other studies fewer teachers in the current study would transport the avulsed tooth in milk.^(10,14,20) This is probably because very little or no information about tooth avulsion and re-implantation has been disseminated to the teachers.

Tooth avulsions are less frequent than luxations but require a more complex treatment approach. In the treatment of avulsed teeth the periodontal apparatus plays a key role. Concerning prognosis and tooth survival the periodontal cells on the root surface play an essential role.⁽²²⁾ Overall knowledge regarding preliminary care of TDI and tooth avulsion was grossly insufficient. A lack of knowledge will result in avulsed teeth not being re-implanted or being stored in a non-physiological medium prior to reimplantation, which will severely affect the prognosis. In the dental profession, it is generally accepted that prompt and proper management of traumatized dental injuries

is an important determinant of prognosis especially in relation to avulsed permanent incisor.⁽²³⁾ As a consequence, the child's future shall be affected both physiologically as well as psychologically. There are also financial implications of a mismanaged TDI which can place a burden on a family's quality of life in more than one way. Moreover, providing information about first-aid is not included in the regular teachers training programme and this has also been reported in other countries⁽²⁰⁾ indicating negligence towards need for emergency aid for various injuries which may occur at school. Considering that dental injuries occur frequently in schools, it calls for including information on first aid treatment of injuries including TDIs in teachers' training curriculum. The school teachers are thought to be banks of knowledge and they act as leaders of the community in various matters of educational character. As the knowledge of school teachers regarding preliminary care of TDIs has been found to be low, it would be most likely that the lay public would have similar or poorer results hence seminars should be organized for a wider coverage so as to create awareness to the larger population regarding measures to be taken in the event of TDIs.

Awareness programs should be developed for teachers, to encourage them to guide the school children to seek treatment immediately when a TDI occurs. These programs should emphasize the possible consequences following trauma, so that they can consult dentists immediately after any tooth avulsion. From the present study, it is concluded that high school teachers of Ambala district of Haryana state are lacking in knowledge regarding preliminary care of avulsed teeth. Most of the teachers are unaware that avulsed teeth can be reimplanted. The strategies to change the scenario of lack of knowledge should also involve first aid training. This approach must include visual resources of trauma situations in order to provide a better understanding and higher retention of information, so that the teachers can become more sensitive and better prepared to adequately manage emergency situations, changing their behavior.⁽²⁶⁾ Future studies should also look at the consequences of various health education aids such as lectures, pamphlets, posters etc. on the awareness and attitude levels of teachers.

References

1. Nicolau B, Marcenes W, Sheiham A. Prevalence, causes and correlates of traumatic dental injuries among 13-year-olds in Brazil. *Dent Traumatol* 2001; 17: 213-217.
2. Vergotine RJ, Govoni R. Public school educator's knowledge of initial management of dental Dent Traumatol 2010; 26: 133-136.
3. Sgan-Cohen HD, Yassin H, Livny A. Dental trauma among 5th and 6th grade Arab schoolchildren in Eastern Jerusalem. *Dent Traumatol* 2008; 24: 458-461.
4. Caldas AF, Burgos MEA. A retrospective study of traumatic, dental injuries in a Brazilian dental trauma clinic. *Dent Traumatol* 2001; 17: 250-253.
5. Barbosa TS, Gavião MB. Oral health-related quality of life in children: part II. Effects of clinical oral health status. A systematic review. *Int J Dent Hyg* 2008; 6(2): 100-7.

6. Locker D. Self-reported dental and oral injuries in a population of adults aged 18-50 years. *Dent Traumatol* 2007; 23: 291-296.
7. Marcenes W, Beiruti N, Tayfour D, Issa S. Epidemiology of traumatic injuries to the permanent incisors of 9- 12-year-old schoolchildren in Damascus, Syria. *Endod Dent Traumatol* 1999; 15: 117-123.
8. Maria LR, Marco AP, Jefferson T, Carolina ZG, Saul MP, Isabela AP, et al. Incidence of dental trauma among adolescents: a prospective cohort study. *Dent Traumatol* 2008; 24: 159-163.
9. Andreasen JO, Andreasen FM, Skeie A, Hjørting-Hansen E, Schwartz O. Effect of treatment delay upon pulp and periodontal healing of traumatic dental injuries -- a review article. *Dental Traumatol* 2002; 18(3): 116-28.
10. Abidi YA, Khan AM, Khan MA, Qazi F, Ghazali NZ. Knowledge about management of avulsed tooth among Karachi school teachers. *Pakistan Oral & Dental Journal* 2010; 30: 515-520.
11. Shashikiran ND, Reddy VVS, Nagaveni NB. Knowledge and attitude of 2,000 parents (urban and rural - 1,000 each) with regard to avulsed permanent incisors and their emergency management, in and around Davangere. *J Indian Soc Pedod Prev Dent* 2006; 24: 116-12.
12. Al-Asfour A, Andersson L, Al-Jame Q. School teachers' knowledge of tooth avulsion and dental first aid before and after receiving information about avulsed teeth and replantation. *Dent Traumatol* 2008; 24: 43-9.
13. The official website of Ambala district of Haryana. Available at: www.ambala.nic.in. [Accessed on 28 October 2010].
14. Skeie MS, Audestad E, Bårdsen A. Traumatic dental injuries--knowledge and awareness among present and prospective teachers in selected urban and rural areas of Norway. *Dent Traumatol*. 2010; 26: 243-7.
15. McIntyre JD, Lee JY, Trope M, Vann WF Jr. Elementary school staff knowledge about dental injuries. *Dent Traumatol* 2008; 24: 289-98.
16. Blakytyn C, Surbutts C, Thomas A, Hunter ML. Avulsed permanent incisors: knowledge and attitudes of primary school teachers with regard to emergency management. *Int J Paediatr Dent* 2001; 11: 327-32.
17. Al-Juni 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: 183-7.
18. Al-Obaida M. Knowledge and management of traumatic dental injuries in a group of Saudi primary schools teachers. *Dent Traumatol* 2010; 26(4): 338-41.
19. Feldens EG, Feldens CF, Kramer PF, Da Silva KG, Munari CC, Brei VA. Understanding Schoolteacher's knowledge regarding dental trauma: A basis for future interventions. *Dent Traumatol* 2010; 26(2): 158-63.
20. Mohandas U, Chandan GD. Knowledge, attitude and practice in emergency management of dental injury among physical education teachers: A survey in Bangalore urban schools. *J Indian Soc Pedod Prev Dent* 2009; 27: 242-248
21. Kahabuka FK, Van't Hof M, Willemsen W, Burgersdijk R. Influence of seminar and mailed guidelines on knowledge of school teachers regarding emergency treatment for dental injuries. *East Afr Med J* 2003; 80(2): 105-9.
22. Lieger O., Graf C., El-Maaytah M. Impact of educational posters on the lay knowledge of school teachers regarding emergency management of dental injuries. *Dent Traumatol* 2009; 25: 406-412.
23. Al-Obaida Mohammad. Knowledge and management of traumatic dental injuries in a group of Saudi primaryschools teachers. *Dent Traumatol* 2010; 26: 338-341.
24. Mesgarzadeh A H, Shahamfar M, Hefzollesan A. Evaluating Knowledge and Attitudes of Elementary School Teachers on Emergency Management of Traumatic Dental Injuries: A Study in an Iranian Urban Area. *Oral Health Prev Dent* 2009; 7: 297-308.
25. Skeie MS, Audestad E, Bardsen I A. Traumatic dental injuries - knowledge and awareness among present and prospectiveteachers in selected urban and rural areas of Norway. *Dent Traumatol* 2010; 26: 243-247.
26. Tzigkounakis V, Merglova V. Attitude of Pilsen primary school teachers in dental traumas. *Dent Traumatol* 2008; 24: 528-531
