

Perception of Teachers towards Traumatic Tooth Avulsion and Its Management amongst School Children

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Abstract

Background: The prognosis of traumatized tooth often depends on the prompt and appropriate treatment, which often relies on the people who are present at the site. Often these injuries occur in school environment and, therefore, the perception of school teacher towards these is crucial to prognosis. **Method:** A total of 131 teachers from different schools of Durg district, Chhattisgarh providing representation to both public and private sector constituted the sample of the study. A self administered questionnaire was used to assess the perception of school teachers. **Results:** Mean knowledge score was 3.75 ranging from a minimum of 2 to a maximum of 6. Mean knowledge score had no significant relation with the subjects the teachers taught in school ($p=0.285$). There was neither any statistical significant difference between the total score and socio – demographic factors like age, gender and certain other factors like teaching experience and type of school. **Conclusion:** The knowledge of school teachers towards emergency management of traumatic dental injuries (TDI) is insufficient, particularly regarding immediate management of avulsed tooth and medium for storage and transport of avulsed tooth. Therefore, a teacher's orientation program towards management of TDI is highly suggested.

Key Words: Traumatic dental injuries, Teachers, Children, Perception, Avulsion, Durg

Introduction

Dento-facial trauma remains one of the important health problems faced in childhood and causes a lot of pain and distress. It is very necessary to impart first aid care to reduce the severity of outcomes. The prognosis of such cases are entirely dependent upon correct and prompt emergency management and correct referral, which has to be provided by the lay people available at the site [1,2].

School and home are the most common locations where traumatic dental injuries are prevalent [3-5]. Falls, sports, collisions, physical leisure activities, being struck by an object and traffic accidents are the common listed causes of traumatic dental injuries [6,7]. Amongst these, fall is most common etiological factor. It is evident that these young children are predisposed to falls due to immature motor coordination and hence are potentially at risk of sustaining dental trauma [8-10].

Among the dental professionals, it is accepted that prompt and adequate management of traumatic dental injury is important factor for prognosis [11-13]. The prognosis quite often depends on people such as child's parents and school teachers who are present at the site of accident, prior to referral to dentist, and who have only little information about the prompt treatment that needs to be rendered in cases of traumatic dental injury [14,15]. School teachers are likely to be among the first to see a child immediately after an injury has occurred, and their knowledge regarding emergency management of traumatic tooth avulsion is critical for effective dental treatment. Hence, a study was conducted to evaluate the knowledge of the school teachers in Durg district of Chhattisgarh state regarding management of traumatic tooth avulsion.

Materials & Methods

Study design & study setting

This cross sectional study was conducted among school teachers of public and private schools of Durg block.

Sample selection

A total of 150 teachers, who gave an informed consent to

participate in the study, were included in the survey conducted between April & May 2013.

Ethical approval

The study was approved by the Institutional Review Board of our college and a prior permission was also obtained from the District Education Officer, Durg.

Questionnaire

The nature and the objectives of the study were first explained to the teachers in their local language. The voluntary nature of the survey was emphasized and confidentiality was assured. The questionnaire comprised of an 18 stemmed questions to evaluate the knowledge, attitude and practice regarding management of traumatic tooth avulsion. The questionnaire was divided into two parts. All questions included were close ended.

Part I contained questions regarding demographic data such as age, gender, years of teaching experience, prior training regarding dental trauma and whether the respondent has ever witnessed a case of dental trauma during school hours. Part II of the questionnaire presented a typical example of a case of avulsed tooth, including questions on what the teacher would do in such a case as well as certain other specific questions on management of traumatic dental injuries.

To ease the respondents to make early and quick decisions, alternative choices resembling real situations were provided. The questionnaire was pilot tested on 20 teachers to check whether the target population can comprehend the language used. All completed questionnaires were coded and analyzed. The questions pertaining to knowledge were provided with a marking scheme (1 mark was given for correct answer, 0 for 'do not know' and an incorrect answer).

Statistical analysis

Results were expressed as number and percentage of respondents for each question, and were analyzed using SPSS software Version 16. The teachers were categorized into different groups on grounds of age, gender, teaching experience and subject taught in schools to find out the influence of

these factors, if any on knowledge and attitudes. The total knowledge scores of different groups were compared using Kruskal Wallis Test.

Results

A total of 131 completed questionnaires (87.33% - response rate) were collected and the statistics of the respondents' background information is tabulated in *Table 1*.

Responses of teachers towards the questions asked in the questionnaire have been tabulated as percentages (*Tables 2 and 3*).

The questions pertaining to knowledge were scored as +1 for a correct answer but with no negative marking for an incorrect answer. Mean scores were tabulated for the responses. Summary statistics are shown in *Table 4*.

Table 1. Demographics and characteristics of respondents (n=131).

1. Gender	
a. Male	31 (23.7%)
b. Female	100 (76.3%)
2. Age group	
a. 20 – 30 years	19 (14.5%)
b. 31 – 40 years	31 (23.7%)
c. 41 – 50 years	58 (44.3%)
d. 51 – 60 years	22 (16.8%)
e. 61 & above	01 (00.8%)
3. School type	
a. Government	78 (59.5%)
b. Private	53 (40.5%)
4. Post	
a. Principal	30 (22.9%)
b. Other teaching staff	101 (77.1%)
5. Subjects respondents taught in school	
a. Mathematics	23 (17.6%)
b. English	08 (6.1%)
c. Science	49 (37.4%)
d. Others	51 (38.9%)
6. Teaching experience	
a. 0 – 15 years	65 (49.6%)
b. 16 – 30 years	63 (48.1%)
c. 31 & above	03 (2.3%)

Table 2. Response of teachers towards the questions.

S.no	Questions along with response
	Have you received first aid training? a. Yes (29%) b. No (71%)
	If yes, did it cover management of tooth injury? a. Yes (5.3%) b. No (94.7%)
	During school hours, a 12 year old boy fell from stairs and was hit in mouth, his upper front tooth is found to be missing, what would you do? a. Look for tooth immediately and take him to dentist (25.2%) b. Give first aid to boy (74.8%)
	If you would take to dentist, how would you do it? a. Wet cotton (56.5%) b. Ice (20.6%) c. Any Liquid (22.9%)
	If you use liquid to transport the tooth, which liquid would you use? a. Water (48.1%) b. Milk (16.8%) c. Antiseptics (35.1%)

	If tooth falls off from mouth whether you can replace the tooth back into mouth or not? a. Yes (18.3%) b. No (81.7%)
	Can you differentiate between milk and permanent teeth? a. Yes (58.8%) b. No (41.2%)
	What the immediate management is of knocked out tooth? a. It is useless; ignore it (10.7%) b. Try to find out the time of injury, wrap it in gauze or tissue paper and bring it for examination & treatment (45%) c. Put in liquid medium and bring it for examination (17.6%) d. Don't know (26.7%)
	What is the Immediate management of displaced teeth? a. Do not touch; let it remain in its new position (21.4%) b. Try to put back in original position (8.4%) c. Ask patient to carefully clench one's teeth if possible (9.2%) d. Don't know (61.1%)
	Should knocked out milk teeth be put back in to its original position? a. Yes (5.3%) b. No (94.7%)
	Should knocked out permanent teeth be put back in to its original position? a. Yes (38.9%) b. No (61.1%)
	How urgently do you think it is to seek a dentist help, if a permanent tooth has been knocked out? a. Immediately (77.9%) b. Within 30 minutes (9.2%) c. One hour (9.2%) d. No urgency at all (3.8%)
	If you decide to take tooth to dentist but the tooth had fallen onto ground and was covered in dirt, what would you do? a. Rinse it under tap water gently (59.5%) b. Clean it with tooth brush (8.4%) c. Don't know (32.1%)
	Do you think that you need further training to manage such cases during school hours? a. Yes (93.9%) b. No (6.1%)
	Have you ever dealt with dental injuries during school hours? a. Yes (22.1%) b. No (77.9%)
16.	Did you then take the patient to the dentist? a. Yes (100%) b. No (0%)
17.	Within what duration you took the patient to the dentist? a. In less than 30 minutes (72%) b. More than 30 minutes (21%) c. After 24 hours (7%)
18.	How did you transport the teeth to the dentist? a. Wet gauze (28%) b. Cotton (43%) c. Any liquid (20%) d. Dry (9%)

Mean knowledge score was 3.757 out of 7 depicting a lack in knowledge regarding management of traumatic dental injuries.

The knowledge scores of the teachers was also compared within the groups based on the subjects taught in school with the help of non parametric tests. It also did not have any significant effect on score (p >0.05).

Table 3. Scores for each question in the knowledge section.

Questions used to assess knowledge component				
		Correct	Incorrect	Don't know
1	Medium for storage of avulsed teeth	22 (16.8%)	109 (83.2%)	00
2	Immediate management of avulsed teeth	23 (17.6%)	63 (55.7%)	35 (26.7%)
3	Immediate management of displaced teeth	12 (9.2%)	39 (29.7%)	80 (61.1%)
4	Management of avulsed primary teeth	124 (94.7%)	07 (5.3%)	00
5	Management of avulsed permanent teeth	51 (38.1%)	80 (61.9%)	00
6	Time for treatment	102 (77.9%)	29 (22.1%)	00
7	Management of avulsed teeth covered with dirt	78 (59.5%)	11 (8.4%)	42 (32.1%)

Table 4. Summary statistics of scores.

Mean	Standard Error of Mean	Mode	Standard Deviation	Range	
				Minimum	Maximum
3.757	0.08539	4.00	0.97737	2.00	6.00

Discussion

The incidence of dental traumatic injuries is quite high. The bimodal peak has been shown to be between 2-4 years and 8-12 years. During these ages, the prevalence of injury to anterior teeth is maximum [1]. School teachers are likely to be in contact with the child soon after the injury hence, it's their knowledge of the emergency management procedures which is crucial for the better prognosis of the succeeding treatment [16].

A rather disturbing finding that evolved from our survey was that only 29% of the teachers had undergone first aid training. An even more disturbing fact was that first aid training is not an integral part of the school teachers training. This is in contrast with study conducted by Young et al in Hong Kong where 50% of the primary and secondary school teachers had first aid training and 46% in a study conducted by Al – Jundi et al. [2,17].

It is surprising to note that not only teachers in under – developed and developing nations but also the developed countries fail to educate and train their educationalist regarding management of dental avulsion. In our study, only 5% of the respondents had training regarding management of traumatic dental injuries which is in concordance with the study conducted by Al Jundi et al, Young et al and Zakirulla M [2,17,18].

In the present study only 17% selected milk as a transport medium when asked to preferentially select a liquid medium. The majority preferred using water as the medium and around 35% of them responded about using any antiseptic solution as the storage and transport medium. The intention of using antiseptic solution may be to kill the germs on the root surface; however they do not realize that the viable cells of the tooth would also be damaged simultaneously. In a similar study conducted by Young et al. [17] 22% responded that they would use milk as a transport medium whereas 40% replied that they would use gauze/tissue for the purpose. This is in contrast to the study by Blakytyn [19] where around 60% correctly identified milk as a suitable transport medium. In a similar study by Kaur [19] only 0.6% of teachers correctly opted for milk as suitable storage and transport medium. This is definitely regrettable as the simple method of storing the avulsed tooth in milk would enhance the prognosis of the tooth when implanted [20]. Milk has favourable osmolarity and composition for maintaining the viability of periodontal

ligament cells and is recommended for temporary storage of avulsed tooth before re-implantation. In addition to its being readily available, it preserves the vitality of cell for up to 3 hours [21].

The knowledge of teachers regarding tooth cleaning methods before re-implantation was also inadequate. Around 32% of the respondents were not aware of the correct and preferred method. Whilst 8.2% replied that they would clean it with a tooth brush, unaware that they would be severely decreasing the prognosis of the avulsed tooth to be re-implanted. The ideal method is to rinse gently under running tap water [16]. Around 82% of the teachers responded that they would not be able to attempt re-implantation by themselves. The reason for reluctance could be attributed to lack of knowledge and requisite training in emergency management of traumatic dental injuries. In this study only a meagre 5.3% had training in emergency management of traumatic dental injuries which is quite alarming with the increase in dental trauma episodes among school children. Therefore, teachers must be aware of emergency management and how to proceed in cases related to dental injuries.

Permanent teeth should be re-implanted and deciduous teeth should not be re-implanted. Therefore, to carry out the most suitable emergency management it is necessary to distinguish between the two types. However in the present study around 59% were confident that they could distinguish between the two dentitions which are comparatively low to a similar study conducted in Hong Kong by Young et al where the response was around 71% [17]. It is therefore, recommended that the future educational programs and materials should include the information regarding how to distinguish between the two different sets of dentition. Many such programs and seminars regarding dental trauma management would definitely have an impact on the teachers as revealed in some studies conducted in United Kingdom [22], Israel [23] and Kuwait [24].

Conclusion

Knowledge regarding emergency management of traumatic dental injuries among the school teachers of Durg city, Chhattisgarh is insufficient and an educational campaign dedicated to this topic is highly suggested for school teachers. Dental trauma management needs to be added to first aid training and also a part of teachers training program.

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