

Knowledge and Awareness Regarding Avulsion and Its Immediate Treatment in School Teachers in Bangalore City (South)

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Abstract:

Background: Dental traumas are most common in children in school environment. Teachers often come across such emergency situations. The purpose of this study was to evaluate awareness of teachers regarding traumas & emergency management.

Material and Methods: A total of 123 teachers participated in this survey. Questionnaire forms were distributed among teachers. The data was collected and analysed.

Results: Results showed that 97.5% of teachers received no orientation regarding this, 33.3% of them felt they cannot identify the tooth, 52% opined they would not pick up the tooth, 62.6% felt they should clean with water, 44.7% said they would take the child to dental office, 38.2% would seek professional help immediately, 63.4% of them said they would not be able to replace the tooth back & 40.7% of them felt they prefer water to store the tooth.

Conclusion: Overall the knowledge in this regard is grossly inadequate. Their answers were based on intuition rather than information. This study suggests urgent need for campaigns & training programs for instructors who are usually the first to witness traumas in schools.

Key Words: Avulsion, awareness, dental trauma, emergency management

Introduction

Traumatic dental injuries are more common among children.¹ Studies show that about 50% of children have their primary or permanent dentition affected by traumatic injuries during their school life.²

Epidemiological data reported that 34.9% of boys and 23% of girls might be assumed to have sustained damage to their teeth by the age of 14 years.^{2,3}

Among the different types of dental traumas, avulsion leads to greatest functional and esthetic impairment due to its poor prognosis. Avulsion represents 0.5-16% of cases of dental traumas.³ Many times teachers are called upon to guide them. Hence, if they have prior knowledge of dealing with such emergencies, it would be of great value in saving teeth. In order to assess their awareness, this study was undertaken so as to know the need of the orientation programs.

Materials and Methods

A total of 200 questionnaire forms were distributed among teachers who have good knowledge of English. 123 teachers from randomly selected elementary schools in Bangalore South city participated in this study.

Questionnaire design

The questionnaire was divided into two parts. Part I included basic demographic information on age, gender, years of teaching experience, prior orientation regarding dental trauma and whether he/she had ever witnessed an accident resulting in an avulsed tooth (Table 1). Part II consisted of questions regarding management of dental avulsion (Table 2). The data were collected and analyzed using SPSS software.

Results

Of 123 instructors, 90 respondents were women and 33 were males with age groups varying from 20 to 60 years. The response of participants to Part II of the questionnaire (Table 3) showed that a total of 52% ($n = 64$) stated that they can identify, whether it is a primary tooth or permanent tooth,

Table 1: Demographic details.

Sex	Male () Female ()
Age (years)	20-29 () 30-39 () 40-49 () >50
Years of teaching experience (years)	(1) ≤1 (2) 1-5 (3) 5-10 (4) 10-15 (5) ≥15
Have you ever received any training on Dental accidents?	Yes () No ()
In your school, have you seen an incident causing complete removal of teeth from the mouth?	Yes () No ()
How many times have you seen this?	_____

33.3% (n = 41) stated that they cannot identify and 14.6% (n = 18) were unsure. In case of avulsed tooth falling on the ground, 48% (n = 59) would pick it up and 52% (n = 64) would not pick it. About 62.6% (n = 77) would clean the teeth with water after picking it and 13% (n = 16) would clean it with a cloth/paper, and 24.4% (n = 30) would not clean the tooth.

A large proportion of participants 44.7% (n = 55) stated they would take the student with a lost tooth to the dental clinic. 35% (n = 43) stated they would go to the student's home. 17.9% (n = 22) would opt to take the child to a health care center and 1.6% (n = 2) to some other place. 38.2% (n = 47) stated they would seek professional help immediately. 13.8% (n = 17) would seek help within 30 min 27.6% (n = 34) would seek help within a few hours. 20.3% (n = 25) would seek help the next day. Vast majority of teachers 63.4% (n = 78) stated that they would not be able to replant the avulsed tooth in its position, only 19.5% (n = 24) would be able to replant the

tooth, 17.1% (n = 21) were unsure about it. 40.7% (n = 50) of the participants would prefer to keep the tooth in water 22.8% (n = 28) would use milk. 16.3% (n = 20) would use salt water, only 5.7% (n = 7) prefer saliva to transport tooth and 13% (n = 16) would prefer to leave it dry.

Discussion

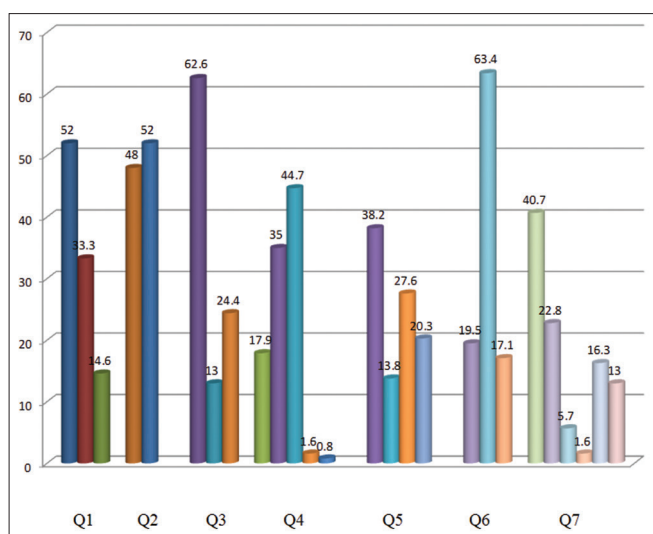
The present study was designed for teachers from schools situated in Bangalore city south zone. The results of the questionnaire showed that 97.5% of the respondents have not received any orientation regarding avulsion of tooth and only 2.4% had previous training regarding avulsion of tooth, which is very abysmal. This is in line with other studies reported worldwide.⁴⁻⁶ This shows that campaigns are not included in their training curricula.

The next aspect was that 33.3% of respondents expressed they cannot distinguish between permanent and primary teeth. This is necessary for them as deciduous tooth does not require any replantation as it may damage permanent tooth.⁷ Perhaps the most disturbing finding of our study was 52% of teachers would not pick up the tooth after avulsion, which shows they are not aware of replantation. This has a tremendous impact on child's psychological state for tooth loss.

A majority of instructors (62.6%) opined that tooth should be cleaned with water and 13% of them preferred to clean with cloth or paper, which reflects the fact that they are not aware of proper handling of tooth as it may damage the periodontal fibers. It has been proven that success of replantation depends on integrity and viability of fibers.⁸

In this study, only 19.5% of subjects felt they can perform replantation which is very low. This is in accordance with the study conducted by Lin *et al.*⁹ in Hong Kong where it was 17.5%. Similar results were observed by Touré *et al.*⁵ in Morocco, who showed 15.8%. Zakirulla *et al.*⁶ stated that replantation while still at the accident site is preferable, but may be difficult due to fear, ignorance, pain, possible bleeding, soft tissue lacerations, and lacked sufficient expertise. 44.7% of participants were of opinion that child should be taken to dental office rather than other places, which is statistically significant (P = 0.082). This is in similar lines with study by Zakirulla *et al.*⁶ in Saudi Arabia, who showed 47%, but a study by Pagliarin *et al.*⁸ showed 80.2%, whose figures were much higher. Possible explanation expressed by authors could be that this group felt dentists can take the correct action than any other healthcare professionals.

Present study revealed that 38.2% would seek help immediately. Similar findings were observed in a study conducted by Hamilton *et al.*¹⁰, who showed 38.6%. This is very relevant as Flores *et al.*¹¹ stated that the single most important factor in the outcome of treatment is minimum extra-oral time. Every effort should be made to replant it within first 15-20 min time. This will reduce inflammatory root resorption.¹²



Graph 1: Response of the participants to the questionnaire

Table 2: Questionnaire sample.	
While playing, a 10-year-old boy has lost his front tooth completely from his mouth	
1) Can you identify the tooth as milk tooth or permanent tooth?	
a) Yes b) No c) Unsure	
2) If the tooth has fallen on the ground, what would you do?	
a) Pick it up b) Would not pick it up	
3) What would you do if you picked up the tooth?	
a) Clean with water b) Clean with cloth or paper c) Would not clean	
4) If a student comes to you with a lost tooth, what would you do?	
a) Take him to hospital b) Student's home c) Dental clinic d) Other place e) Specify	
5) In your opinion when should student seek doctor's advice in this situation?	
a) Immediately b) Within 30 minutes c) Within few hours d) Next day	
6) Would you be able to put the tooth back into its original position in the mouth?	
a) Yes b) No c) Unsure	
7) If you have decided not to put it back, what would you use to store lost tooth until student goes to the doctor?	
a) Water b) Milk c) Child's saliva d) Fruit juice e) Spirit f) Saltwater g) Coconut water h) Leave it to dry	

Table 3: Response of the participants.

	Age group				Total	Chi-square	P value
	20-29	30-39	40-49	50 and above			
Question 1							
Yes						2.633	0.853
N	11	29	15	9	64		
%	50.00	49.20	55.60	60.00	52.00		
No							
N	9	19	8	5	41		
%	40.90	32.20	29.60	33.30	33.30		
Unsure							
N	2	11	4	1	18		
%	9.10	18.60	14.80	6.70	14.60		
Total							
N	22	59	27	15	123		
%	100	100	100	100	100		
Question 2							
Pick up						1.944	0.584
N	9	27	16	7	59		
%	40.90	45.80	59.30	46.70	48.00		
Wouldn't pick up							
N	13	32	11	8	64		
%	59.10	54.20	40.70	53.30	52.00		
Total							
N	22	59	27	15	123		
%	100	100	100	100	100		
Question 3							
Clean with water						9.884	0.130
N	13	33	22	9	77		
%	59.10	55.90	81.50	60.00	62.60		
Clean with paper or cloth							
N	4	6	4	2	16		
%	18.20	10.20	14.80	13.30	13.00		
Would not clean							
N	5	20	1	4	30		
%	22.70	33.90	3.70	26.70	24.40		
Total							
N	22	59	27	15	123		
%	100	100	100	100	100		
Question 4							
Take him to hospital						19.279	0.082
N	1	11	7	3	22		
%	4.50	18.60	25.90	20.00	17.90		
Students home							
N	13	20	7	3	43		
%	59.10	33.90	25.90	20.00	35.00		
Dental clinic							
N	8	27	13	7	55		
%	36.40	45.80	48.10	46.70	44.70		
Other place							
N	0	1	0	1	2		
%	0.00	1.70	0.00	6.70	1.60		
Others							
N	0	0	0	1	1		
%	0.00	0.00	0.00	6.70	0.80		
Total							
N	22	59	27	15	123		
%	100	100	100	100	100		
Question 5							
Immediately						7.064	0.630
N	8	25	10	4	47		
%	36.40	42.40	37.00	26.70	38.20		
Within 30 min							

(Cond...)

Table 3: (Continued...).

	Age group				Total	Chi-square	P value
	20-29	30-39	40-49	50 and above			
N	2	6	6	3	17		
%	9.10	10.20	22.20	20.00	13.80		
Within few hours							
N	7	17	4	6	34		
%	31.80	28.80	14.80	40.00	27.60		
Next day							
N	5	11	7	2	25		
%	22.70	18.60	25.90	13.30	20.30		
Total							
N	22	59	27	15	123		
%	100	100	100	100	100		
Question 6							
Yes							
N	2	12	7	3	24	4.966	0.458
%	9.10	20.30	25.90	20.00	19.50		
No							
N	14	36	18	10	78		
%	63.60	61.00	66.70	66.70	63.40		
Unsure							
N	6	11	2	2	21		
%	27.30	18.60	7.40	13.30	17.10		
Total							
N	22	59	27	15	123		
%	100	100	100	100	100		
Question 7							
Water							
N	9	24	9	8	50	32.396	0.006
%	40.90	40.70	33.30	53.30	40.70		
Milk							
N	6	16	6	0	28		
%	27.30	27.10	22.20	0.00	22.80		
Child's saliva							
N	2	1	2	2	7		
%	9.10	1.70	7.40	13.30	5.70		
Spirit							
N	0	0	0	2	2		
%	0.00	0.00	0.00	13.30	1.60		
Salt water							
N	2	8	9	1	20		
%	9.10	13.60	33.30	6.70	16.30		
Leave it to dry							
N	3	10	1	2	16		
%	13.60	16.90	3.70	13.30	13.00		
Total							
N	22	59	27	15	123		
%	100	100	100	100	100		

When immediate replantation is not possible tooth should be stored in optimum media to maintain vitality of periodontal cells. In our study, 40.7% of subjects preferred water and 22.8% milk as storage media. Touré *et al.*⁵ showed 40.8% opted water, 21.9% milk. Furthermore, our results were comparable with that of results conducted by Zakirulla *et al.*⁶ who showed 46% water and 28% milk.

According to trope the appropriate biological media for storage of an avulsed tooth until the replantation keep the vitality of the periodontal ligament cells, reduce the inflammatory response,

and prevent sequelae as ankylosis and root resorption. Milk is most desirable, easily available, and free from bacteria. Its pH and osmolality are not harmful to periodontal cells.¹³

The crucial factors that play a role in good prognosis of replantation are least damage to the root, minimum extra-oral time, optimum storage media, which teachers should be made aware of. Present study suggests that their awareness is very low. Awareness about storage media for avulsed teeth among common people help in better prognosis of replanted teeth.¹⁴ Majority of studies worldwide also reflect the similar

inadequate knowledge among teachers, thus the need of including training in school health programs.

Conclusion

Avulsion has a great impact on social and emotional well-being of the child. By training the trainers, this can be averted considering the fact that teachers are called upon to tend to dental injuries in schools.

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