

## AWARENESS OF MANAGEMENT OF DENTAL TRAUMA (AVULSION) AMONG SCHOOL TEACHERS

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### ABSTRACT

**Aim:** The aim of this study was to assess and compare the awareness of dental trauma in schoolteachers of government and private school. **Materials and Methods:** A total of 1000 school teachers from government and private schools in Bangalore city, Karnataka, India were included in the study. A self administered questionnaire constituting of 17 questions was used to assess the knowledge and awareness among the school teachers. **Results:** 7% of the government school teachers and 27% private school teachers had prior knowledge of management of dental trauma. 21% government and 47% of private schoolteachers, respectively, admitted the possibility of an avulsed tooth to be replanted. Milk was the mostly preferred storage media by both sector teachers. After educational programme 73% of government school teachers and 81% of private school teachers feel capable of immediate management of knocked out tooth by themselves. **Conclusion:** This study concluded that awareness of management of dental trauma increased from 46% to 81% in government school teachers and from 56% to 83% in private school teachers after educational campaign on dental trauma management, thus indicating a definite need for a more effective communication between dental professionals and school teachers to handle dental emergencies. Educational campaign on dental trauma significantly increased the knowledge of school

teachers in the emergency management of dental avulsion.

**KEYWORDS:** Avulsion; dental trauma; school; teacher

### INTRODUCTION

Children suffer many accidents in their usual activities, such as running, skating, and bicycle riding. Many accidents that occur at school can result in dental trauma.<sup>[1,2]</sup> Traumatic dental injuries have been one of the most important oral health problems in childhood.<sup>[3]</sup> The prevalence of dental injuries is 60% out of which over 48% involve maxillary teeth. Over 16% was in the school environment and 19% of the injuries were due to fall.<sup>[4]</sup> The consequences can vary from simple tooth fractures to tooth avulsion. The frequency of tooth avulsion following traumatic injuries ranges from 0.5 to 16% of traumatic injuries in the permanent dentition and from 7 to 13% in the primary dentition.<sup>[5]</sup> The teeth most commonly avulsed in both the primary and the permanent dentition are the maxillary central and lateral incisors. Tooth avulsion is three times more frequent in boys than girls because of their active participation in sports and games and occurs most commonly from 7 to 9 years of age when permanent incisors are erupting.<sup>[5]</sup> Prognosis of an avulsed tooth depends upon prompt and appropriate management. As school teachers are usually present at the site of the accident, this study was done to assess the awareness of dental trauma among the school teachers.

## MATERIAL AND METHODS

The present study was conducted in both government and private sector schools of Bangalore city. A total of 1000 school teachers, 500 from government schools and 500 from private schools who volunteered to participate formed the source of data for the study. The study was conducted in two phases:

1. Preliminary survey
2. Educational programme followed by re-administration of questionnaires

A self administered questionnaire comprising of 17 questions<sup>[7]</sup> was designed and distributed among 1000 school professionals in Bangalore city. The questionnaire was divided into three parts. Part I contained questions related to general data about the teachers' age, gender, level of education & work experience. Part II assessed their present awareness of dental trauma. Part III contained specific questions on tooth avulsion. The responses for each question were counted and expressed as percentages. In the second part of the study an educational programme was conducted on management of avulsed tooth. After the educational programme questionnaires were distributed again. The data obtained from Questionnaires was tabulated & subjected to statistical analysis by using Mann-Whitney test & Wilcoxon Signed-Ranks test.

## RESULTS

On the basis of the data obtained from the questionnaires of one thousand school teachers it was shown that 78% of the participants were women aged between 20–40 years, only 18% government school teachers had 31% of private school teachers higher education and 39% have been working in the school for 6-10 years. Data obtained from Part II of the questionnaire assessed the awareness and training of teachers with respect to emergency management and 82% showed the lack of experience with it. Part III, with questions on tooth avulsion, demonstrated that 86% of government & 79% of private school teachers did not know what is knocked out tooth. In cases of tooth avulsion, 90% government school teachers and 94% private school teachers would look for a dentist immediately 59% of government & 53% of private school teachers would not replant the tooth. Before going to the dentist 84% government & 91% private school teachers would wash the tooth. Tap water was the

most used solution (89% & 92%). Milk was the mostly preferred storage media by both sector teachers. 80% of government & 63% of private school were not aware about mouth guards to prevent sports injuries [Table 1 & Table 2].

## DISCUSSION

The present study used a questionnaire to survey the level knowledge of school teachers regarding the emergency management of avulsed teeth in the Bangalore city of Karnataka, India. No study had so far been conducted in the region with the same objective. The results of the study showed insufficient knowledge regarding tooth avulsion and its first aid treatment among primary school teachers of Bangalore city, these results were comparable with previous similar studies. From the results of the present study, more than half of teachers did not know what knocked-out tooth or tooth replantation means. This is very surprising, since tooth avulsion occurs commonly in school children between 7 and 11 years old. However, the teachers themselves cannot be blamed for, since hardly any campaigning or exposure regarding tooth avulsion had been done in Bangalore. In contrast, in a study conducted by C Blakytyn et al in city of Cardiff at least one third of the teachers had received information dealing with avulsed tooth from campaign launched in 1989.<sup>[9]</sup> Successful prognosis for avulsed tooth is based on immediate replantation with minimal further damage to cells of the root surfaces. In this study, 21% teachers had the knowledge of replacement of knocked-out tooth back to the socket while the other 79% did not. This might be due to unawareness of the teachers regarding replantation of avulsed tooth. However, in a study conducted by Hamilton et al only 10.7% of the respondents knew that the knocked-out tooth can be replaced back into its socket but they feared being sued for replanting the tooth incorrectly<sup>[11]</sup>. Time is one of the important factor for avulsed tooth to preserve their vitality after replantation. In the present study, only 26% of the teachers answered that the tooth be replanted immediately. In 1990, Andersson and Bodin investigated human teeth reimplanted after 15 min and noted that the majority of teeth had their integrity preserved. This demonstrates that a shorter extraoral time is better to preserve teeth, as there are fewer areas of root resorption.<sup>[8]</sup>

**Table 1: Awareness Questions**

1.	Do you have a formal 'training' for 'Emergency Management'?
2.	Does your training include 'first aid'?
3.	Have you attended any other course on 'management of dental trauma'?
4.	Do you know what is knocked out tooth?
5.	Do you know what replantation of teeth is?
6.	Can the knocked out tooth be saved?
7.	If your child/student came to you with a knocked out tooth in his hand, which would be the first place you would contact or seek treatment?
8.	How urgent do you think it is to seek professional help if a tooth has been knocked out?
9.	Would you replant (put back) the tooth back into the socket?
10.	Do you think that a baby tooth that has been knocked out should be (replanted) put back into the socket?
11.	If you decide to replant a tooth back into its socket that had fallen onto the ground and was covered in dirt, what would you do?
12.	If you did not replant (put back) the tooth, how would you transport it to the dentist?
13.	If you used a liquid to wash the tooth, what liquid would you use?
14.	If you used a liquid to transport the tooth, what liquid would you use?
15.	Have you heard of mouth guards used for prevention of sports injuries?
16.	Would you like to receive information on management of dental trauma?
17.	Do you feel capable of immediate management of KNOCKED OUT tooth by yourselves?

**Table 2: Subject responses to the questionnaire**

Question	Option	Govt (n=500)				Pvt (n=500)			
		Before		After		Before		After	
		n	%	n	%	N	%	n	%
Q1	Yes	88	18%	88	18%	146	29%	146	29%
	No	412	82%	412	82%	354	71%	354	71%
Q2	Yes	83	17%	83	17%	150	30%	150	30%
	No	417	83%	417	83%	350	70%	350	70%
Q3	Yes	35	7%	35	8%	115	23%	115	23%
	No	465	93%	465	93%	385	77%	385	77%
Q4	Yes	69	14%	406	81%	103	21%	464	93%
	No	431	86%	94	19%	397	79%	36	7%
Q5	Yes	48	10%	392	78%	133	27%	451	90%
	No	452	90%	108	22%	367	73%	49	10%
Q6	Yes	203	41%	413	83%	287	57%	469	94%
	No	297	59%	87	17%	213	43%	31	6%
Q7	Dentist	395	79%	418	84%	444	89%	465	93%
	General Hospital	12	2%	0	0%	7	1%	0	0%
	Dental Hospital	93	19%	82	16%	49	10%	35	7%
Q8	Immediately	131	26%	449	90%	314	63%	468	94%
	Within half an hour	327	65%	51	10%	159	32%	32	6%
	Within few hours	42	8%	0	0%	27	5%	0	0%
Q9	Yes	104	21%	410	82%	237	47%	462	92%
	No	396	79%	90	18%	263	53%	38	8%
Q10	Yes	72	14%	414	83%	144	29%	452	90%
	No	188	38%	69	14%	159	32%	40	8%
	Don't know	240	48%	17	3%	197	39%	8	2%

In the present study, 22% government & 31% private teachers responded that they would clean the tooth in saline water. However, 13% government & 16% private school teachers of

them reported that they will brush the tooth root and crown to ensure the cleanliness of the tooth. Similar response was obtained in a study conducted by Hamilton *et al.*, where 2.2%

	Scrub the tooth gently with a tooth brush	65	13%	66	13%	81	16%	34	7%
Q11	Rinse the tooth under tooth water	111	22%	403	81%	154	31%	457	91%
	Put the tooth straight back into the socket	0	0%	2	0%	21	4%	0	0%
	Don't know	324	64%	29	6%	244	49%	9	2%
Q12	Ice	84	17%	22	4%	68	14%	13	3%
	Any Liquid	248	50%	368	74%	288	58%	409	82%
	Child's mouth	14	2%	107	21%	24	5%	78	16%
	Paper tissue or clean handkerchief	88	18%	3	1%	75	15%	0	0%
	Plastic Wrap	66	13%	0	0%	45	9%	0	0%
Q13	Tap Water	355	71%	446	89%	342	68%	459	92%
	Fresh Milk	36	7%	0	0%	10	2%	4	1%
	Fruit Juice	2	0%	0	0%	1	0%	1	0%
	Alcohol	0	0%	0	0%	0	0%	0	0%
	Normal Saline	32	6%	54	11%	77	15%	36	7%
	Ice Water	13	3%	0	0%	17	3%	0	0%
	Antiseptic Solution	62	12%	0	0%	53	11%	0	0%
	Tap Water	309	62%	79	16%	180	36%	0	0%
Q14	Fresh Milk	33	7%	397	79%	144	29%	451	90%
	Fruit Juice	0	0%	0	0%	0	0%	0	0%
	Alcohol	0	0%	0	0%	0	0%	0	0%
	Normal Saline	63	13%	0	0%	73	15%	40	8%
	Ice Water	18	4%	5	1%	15	3%	0	0%
	Antiseptic Solution	77	15%	19	4%	88	18%	9	2%
Q15	Yes	100	20%	432	86%	183	37%	471	94%
	No	400	80%	68	14%	317	63%	29	6%
Q16	Yes	500	100%	500	100%	500	100%	500	100%
	No	0	0%	0	0%	0	0%	0	0%
Q17		<b>Govt</b>		<b>Pvt</b>				<b>Total</b>	
		<b>n</b>	<b>%</b>	<b>n</b>	<b>%</b>				
	Yes	364	73%	403	81%			767	
	No	136	27%	97	19%			233	
	<b>Total</b>	<b>500</b>	<b>100%</b>	<b>500</b>	<b>100%</b>			<b>1000</b>	

respondents wanted to scrub the tooth prior tooth replantation. According to Raphael and Gregory, in their study they found that 15% respondents would scrub a tooth that was dirty before replanting it, unaware that they would severely decrease the chance of successful replantation.<sup>[11]</sup> On review of literature, the appropriate storage media to permit periodontal and pulpal healing are milk, saline water and saliva. In present study, only 20% teachers had the knowledge to store the

avulsed tooth in appropriate media such as milk and saline water. In a study by Raphael and Gregory, only 5% respondents knew that 'milk' was medium of choice for both washing and transporting avulsed tooth.<sup>[7]</sup> Regarding procedures to be followed in case of tooth avulsion, most teachers would take the child to the dentist nearby. Some studies have reported 50 to 60% of teachers would seek an emergency service nearby. A vast majority of teachers

showed keen interest in knowing about the emergency management of knocked out tooth compared with few others who did not. This may be because the teachers had good educational background, hence they were more enthusiastic in receiving knowledge about the emergency management of knocked-out tooth and they also had experienced such situations in their schools as the children spend most of the time in schools.

### CONCLUSION

On the basis of information collected from this study, it can be concluded that, there is statistically significant lack of knowledge in the management of avulsed tooth in school teachers of Bangalore city. After educational program on dental trauma management awareness increased from 46% to 81% in government school teachers and from 56% to 83% in private school teachers. 73% government & 81% private school teachers were capable of managing avulsion emergencies by themselves. As one of the child supervisors, all the school teachers should have the basic knowledge to recognize and assess the oral health problems of school children. Educational programs would be necessary to improve their awareness regarding the causative factors, prevention and the conservation of avulsed tooth to prevent its consequences in child's future.

### CONFLICT OF INTEREST & SOURCE OF FUNDING

The author declares that there is no source of funding and there is no conflict of interest among all authors.

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