ASSESSING THE EFFECTIVENESS OF A SCHOOL BASED ORAL HEALTH PROMOTION AMONGST SCHOOL TEACHERS WITH REGARD TO MANAGEMENT OF TOOTH AVULSIONRajesh Kumar¹, Abi M. Thomas²**HOW TO CITE THIS ARTICLE:**

Rajesh Kumar, Abi M. Thomas. "Assessing the Effectiveness of a School Based Oral Health Promotion amongst School Teachers with Regard to Management of Tooth Avulsion". Journal of Evolution of Medical and Dental Sciences 2014; Vol. 3, Issue 18, May 05; Page: 5016-5022, DOI: 10.14260/jemds/2014/2547

ABSTRACT: BACKGROUND: School teachers play a crucial role in managing traumatic dental injuries because they are in close proximity to children and are frequently called upon to assist any traumatic incidents. Previous studies reveal that school personnel have little knowledge about emergency management of dental injuries. This raises concerns as the loss of a permanent tooth has detrimental effect on growing children. **MATERIAL AND METHODS:** The present study was conducted to assess the knowledge of 200 school teachers (100 urban and 100 rural), using a questionnaire comprising of 11 questions related to the management of cases of tooth avulsion before and after an informative lecture on the same. **RESULT:** Before the dental health education, only 63.5% of school teachers were aware of the possibility of replanting avulsed teeth and 24.5% were aware of the emergency protocol at the time of dental injuries. After the informative lecture 96.5% of the school teachers were aware of the importance of saving avulsed permanent teeth and their emergency management. **CONCLUSION:** There is an urgent need to bring up the knowledge level of school teachers with regard to the management of the tooth avulsion and to reinforce the same periodically for the long term tooth avulsion injuries amongst children.

KEYWORDS: School teachers, Trauma, Avulsion.

INTRODUCTION: Traumatic injuries to permanent teeth between 7 to 10 years commonly results in avulsion and maxillary central incisors are the one commonly affected.^{1, 2} This is due to the relatively resilient alveolar bone, due to the conical tapering anatomy of the root and being the most anteriorly placed tooth in the face. The permanent anterior teeth are not only important for esthetics but are also essential for speech [phonetics], mastication, health of supporting tissues and psychological and mental health of children.

Therefore, apart from implementing preventive strategies for the occurrence of avulsion in children, every possible step should be meticulously planned for successful replantation of avulsed permanent teeth.

Management of avulsion of the permanent dentition often presents a challenge as successful replantation depends upon how early tooth is replanted and, care has been taken to maintain and preserve the vitality of periodontal ligament fibres and storage media used prior to reimplantation.

Clinical studies have shown that the prognosis is best for teeth replanted within 5 minutes after avulsion.³ Hence, immediate replantation⁴⁻⁶ or storage of avulsed tooth in solutions compatible with cell viability until it is replanted is very crucial. Milk has been indicated as the preferred storage media as it is readily available and preserves cell viability. Keeping the tooth dry compromises the periodontal ligament cells and prognosis is poor.

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Avulsion injuries are very common in schools and home. School teachers should be aware of the protocol and the importance of giving emergency care because of their proximity to children which can save time and doing the correct protocol in helping successful reimplantation. Therefore it is important that school teachers should have the relevant knowledge to handle any such emergency related to dental injuries in school among children.

Many studies done previously amongst school teachers to evaluate their knowledge regarding giving first aid measures after dental injuries showed lack of knowledge. Therefore, the purpose of the study was to assess the knowledge level of school teachers, both urban and rural, with regard to emergency management of tooth avulsion and to check the effectiveness of dental health education to improve the emergency dental care at school premises and elsewhere.

MATERIALS AND METHODOLOGY: This interventional study based on before and after non randomized trial principle was conducted amongst school teachers at Ludhiana, out of which 50% teachers were from the rural areas and rest were from the urban areas.

Total number of school teachers was 200, out of which 100 teachers were from the urban and 100 teachers were from the schools in rural areas of Ludhiana.

A questionnaire containing 11 questions was prepared, about 200 questionnaires written both in English and Hindi languages assessing the knowledge level with regard to emergency management of tooth avulsion were personally distributed to the school teachers by the chief investigator and were collected back with their response.

After one month a lecture was given by the chief investigator to the same teachers on tooth avulsion and its emergency management and discussion on the topic. Followed by this the same questionnaire was given to all the teachers and their responses were reassessed.

Questionnaire used in this Survey:

A Survey of School Teachers Awareness regarding Management of Tooth Avulsion

- Name of the teacher _____
- Name of the School _____

Q1. Do you know there are two types of dentitions?

- Yes/No

Q2. Have any of your students ever had an accident where a permanent tooth has been knocked out?

- Yes/No

Q3. Do you think the permanent tooth that has been knocked out should be replaced?

- Yes/No

Q4. If your student came to you with one tooth in his/her hand following an accident whom do you contact first?

- Doctors
- Dentists
- Nearby hospital

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Q5. How urgent do you think is it essential to seek professional help if a permanent tooth has been knocked out?

- Very urgent- immediately
- Within 30 mins
- Within a couple of hours
- After a few days

Q6. Would you replace a knocked out permanent tooth back to the place from which it came?

- Yes/No

Q7. If you decide to replace the knocked out tooth back to the place, but it had fallen onto the ground and was covered with dirt, what would you do?

- Scrub the tooth gently with a brush
- Wash the tooth in salt water
- Wash in milk
- Wash the tooth in water
- Do nothing

Q8. If you did not replace the tooth back to the place, how would you transport it to the doctors?

- Water
- Milk
- Antiseptic solution
- Child's own mouth
- Paper or cotton roll

Q9. If the permanent tooth that has been knocked out was broken, what would you do?

- Still replace the tooth
- Take it to the dentist
- Do nothing

Q10. Have you received advice/ you are aware on what to do in the event of an accident, where a permanent tooth has been knocked out?

- Yes/No

Q11. Do you know the importance of saving an avulsed tooth?

- Yes/No

RESULTS: Two hundred teachers of both urban and rural schools participated in this study and following were the responses obtained from them after attempting the questionnaire given before and after the educative lecture. After assessing the Table A. for the responses given by school teachers, following key points were noted.

- When asked about the possibility of replanting the avulsed tooth, majority of the school teachers were not aware that permanent tooth should be replanted, however informative lecture improved their knowledge regarding reimplantation.
- Teachers were not aware that in case of avulsion injury the best option is to contact a dental surgeon.

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- Very less number of teachers knew the importance of urgency of reimplantation and how it can affect the success of reimplantation.
- After receiving the lecture there was also a significant increase in the number of school teachers who were ready to reimplant tooth themselves.
- Majority of School teachers were not aware of proper handling and cleaning of fallen tooth. Teachers were also not aware about the importance of transport media for an avulsed tooth, majority of them thought that the best transport media was paper or cotton roll. Informative lecture on this issue enlightened their knowledge and their preference of media to be used to clean avulsed tooth was milk or saline.

DISCUSSION: An avulsed tooth demands the most urgent management for its better prognosis and prevention of replacement resorption. Avulsed tooth should be properly handled and cleaned and, immediately replanted back to its socket but for any reason if it cannot be replanted within 5 minutes of the injury then it should be stored in appropriate physiological storage media like Viaspan, Hanks Balanced Salt Solution and cold milk.⁷⁻⁹

Tooth avulsion is a very common event in children and emergency care procedure is crucial for case prognosis. Most of the injuries occur at school time and school teachers present at the moment of accident can provide first aid measures.

Previous studies have demonstrated about lack of knowledge of school teachers in handling traumatic dental injuries. Studies also reveal the importance of educating the school professionals regarding this.¹⁰⁻¹³

In this present study, a campaign for providing information about 'Avulsion of the tooth' to the school teachers of both rural and urban school teachers of Ludhiana (India) was done.

The purpose of the campaign was to know their level of knowledge regarding tooth avulsion and to alert school professionals on the importance of immediate treatment procedure and instruct them on how to handle these situations.

The results were positive after school teachers received informative lecture followed by a discussion about how to handle case of avulsion before taking it to dental professional.

School teachers realized how crucial is to reimplant tooth back to its socket in case of an avulsed tooth, as 100 percent of the participants answered positively to this question after the lecture. Milk was the preferred solution for both rural(88%), urban(91%) as compared to the study conducted with the same teachers before this lecture, at that time (58%)rural and((61%) urban wanted to use cotton or paper roll as a transport media without realizing that how 'Dry storage' would jeopardize the chances of an successful reimplantation.

Raphael and Gregory,¹⁴ in Australia, demonstrated the lack of diffusion of information on tooth avulsion. Hamilton et al.¹⁵ in England, showed an unpreparedness of the respondents in cases of tooth avulsion. In 2001, Sae-Lim and Lim¹⁶ highlighted the lack of knowledge of Singapore teachers on the emergency management of tooth avulsion. Chan et al.¹² noted that their results were similar to other authors. These studies demonstrate an unpreparedness of the community in cases of tooth avulsion.

The most encouraging aspect of this survey was the observation that school teachers were keen to learn more about emergency management protocol in cases of avulsed tooth and other traumatic dental injuries.

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CONCLUSION: From the present survey, it appeared that educational programmes would be necessary to improve public awareness of the immediate management of traumatized teeth, with emphasis on the following:

1. Availability of after-office-hour emergency services.
2. Storage media for avulsed teeth.
3. Critical timing for reimplantation of avulsed teeth.
4. Current concepts of management of fractured teeth.

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	A	B	Before lecture	After lecture	Before/ After	
	QUESTIONS	RESPONSE			χ^2	P value
1	TYPES OF DENTITION	YES	142	200	67.836	<0.001***
		NO	58			
2	PREVIOUS EXPERIENCE	YES	93	96	0.090	0.764 ^{NS}
		NO	107	104		
3	POSSIBILTY OF REPLANTING				70.807	<0.001***
		YES	127	194		
		NO	73	6		
4	FIRST PLACE OF CONTACT	DOCTORS	42		217.761	<0.001***
		DENTIST	59	200		
		HOSPITAL	99			
5	URGENCY OF REPLANTATION				90.798	<0.001***
		IMMEDIATELY	126	200		
		WITHIN 30min	34			
		WITHIN HOURS	30			
		FEW DAYS	10			
6	ATTEMPTING THEMSELVES	YES	113	160	25.485	<0.001***
		NO	87	40		
7	CLEANING EXPERIENCE	BRUSH	13		198.723	<0.001***
		SALT WATER	55	103		
		MILK	17	97		
		WATER	55			
		DO NOTHING	60			
8	TRANSPORT MEDIA	WATER	21	2	301.174	<0.001***
		MILK	17	179		
		ANTISEPTIC SOLUTION	31	0		
		CHILD" MOUTH	12	19		
		PAPER/COTTON ROLL	119	0		
9	AVULSED WITH FRACTURE				76.434	<0.001***
		REPLACE	20	78		
		DENTISTS	139	122		
		NOTHING	41	0		
10	KNOWLEDGE ABOUT EMERGENCY PROTOCOL.	YES	49	200	242.570	<0.001***
		NO.	151	0		
11	IMPORTANCE OF SAVING AVULSED TOOTH	YES	193	200	7.125	0.008*
		NO.	7	0		

Table 1

NS: $p > 0.05$ Not Significant; * $p < 0.05$: Significant at 5% significance level; *** $p < 0.001$: Highly Significant.

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AUTHORS:

1. Rajesh Kumar
2. Abi M. Thomas

PARTICULARS OF CONTRIBUTORS:

1. Assistant Professor, Pediatric Dentistry, Christian Dental College, CMC Hospital, Ludhiana.
2. Principal and HOD, Pediatric Dentistry, Christian Dental College, CMC Hospital, Ludhiana.

NAME ADDRESS EMAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Rajesh Kumar,
Department of Pedodontia,
Christian Dental College,
CMC Hospital, Ludhiana- 141008,
Punjab.
E-mail: docrajesh80@gmail.com

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