



## Knowledge Regarding Emergency Management of Avulsed Tooth Among Dental Students in Karachi

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### Abstract

**BACKGROUND:** Despite the guidelines, provided by the International Association of Dental Traumatology and the American Academy of Pediatric Dentistry, concerning emergency management of tooth avulsion of primary and permanent teeth in children, there is little awareness among dental students in Karachi related to dental trauma. The study aimed to assess awareness and educational knowledge level related to emergency management of dental trauma among dental students.

**MATERIALS AND METHODS:** This study consists of a cross-sectional survey involving undergraduate dental students of three different local dental colleges in Karachi, Pakistan. A total of 208 pre-tested questionnaires was used, comprising students' demographic data, previous training in traumatic dental injury, and knowledge assessment regarding tooth avulsion and its emergency management.

**RESULTS:** The result shows that there was a significant association between educational level and knowledge of the students regarding training in dental trauma and exposure to a dental emergency, with an overall 96.2% response rate. First-year students have significantly less training and exposure to tooth avulsed trauma accidents when compared to final-year students. Even though final-year students were far better in answering correctly still significantly higher number of students answered incorrectly to scenario-based questions when compared to first-year students.

**CONCLUSION:** These study results show that the education regarding first aid training for dental traumas occurring outside the vicinity of dental clinics and hospitals in Karachi are inadequate, emphasizing towards the implementation of guidelines for dental injury and its management using a variety of learning methods like problem-based education and powering the curriculum regarding the dental trauma.

**Keywords:** Avulsed tooth, Dental trauma, Dental students

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### Introduction :

Tooth detachment from its location due to accidental or non-accidental means is known as avulsion(1), it is one of the complex types of trauma in dentistry(2). 8 to 11 year is the age in which majority tooth trauma occurs and is due to accidental falling(3, 4). It depicts 1-16% of dental accidents, with the highest prevalence in maxillary central incisor(5, 6). Many researches gives sufficient knowledge about the school and the home being the commonest place for tooth injuries to occur(7).

Concerning proper crisis, supervision separation presents a great challenge. Prognosis of an avulsed tooth relies on three important factors; Time during which the tooth was out of the socket, media in which it was stored, and development of root(8). A series of guidelines for tooth avulsion was published by the International Association for Dental Traumatology (IADT). These guidelines outline the proper approach for the immediate care of avulsed teeth, helping dentists and other health care professionals to make a decision regarding avulsion cas-

es(9).

Several studies have assessed the knowledge of various populations such as dentists, school teachers, and physicians regarding teeth avulsion emergency management (10-13). After a dental trauma patient expect a competent management plan from a dentist(14), but many studies have shown that there is insufficient knowledge regarding the immediate management of patients with traumatic dental injuries(8)

Local data on the assessment of knowledge of dentists in this aspect is insufficient. Our goal of the study is to assess the knowledge and skill of a dentist for the management of avulsed tooth in Pakistan.

## MATERIALS AND METHODS:

This study consists of a cross-sectional survey involving undergraduate dental students of three different local dental colleges in Karachi, Pakistan. The duration of the study was from February 2018 to November 2018. The Random sampling method was employed using Open Source Epidemiologic Statistics for Public Health (OpenEpi; n=208 with a 95% confidence level). A total of 208 pre-tested questionnaire forms, which was a modified version of the study by Yoko Fujita were distributed, out of which 200 were returned, among first-year (23 males & 77 females) and final-year (22 males & 78 females) dental students. First-year students had just entered the dental university after graduation from pre-medical colleges and were attending general medical courses; thus, they had little knowledge about dentistry at the time of this survey while the dental trauma course is included in the final-year curriculum, which was also participating in clinical practice at the university hospital at the time of the survey.

The close-ended questionnaire was divided into three parts. The first part comprised of personal profile data of participants, second part assessed the knowledge and experience of students' regarding dental trauma and the third part evaluated the attitude and emergency management of dental trauma with emphasis on tooth avulsion.

Statistics were done using SPSS version 21 (IBM Corporation, Chicago, IL, USA) for data entry and descriptive analysis including frequencies and percentages. A Chi-square test was used to compare groups. A value of  $P < 0.05$  was considered statistically significant.

## Results:

Out of the 208 dental students who participated in this survey, 200 returned the questionnaire with an overall 96.2% response rate.

The number and percentage of dental students' demographic details are represented in Table 1. Around 22.5% were male and 77.5% were female participants. The mean age of the participants was found to be  $20.56 \pm 2.239$ .

Table 2 shows that only 4% of first-year and 32% of final-year had first-aid training. Among all students, 35 (17.5%) had experienced dental trauma at least once, with a statistical significance of  $p < 0.005$ . Concerning emergency management of dental trauma, around 65 (32.5%) of the participants knew about it, showing a significant association ( $p < 0.000$ ).

In general, there was a variation in the answer to students' attitude

Variables	Total
Age:	
18-20	100 (50%)
21-23	82 (41%)
24-26	18 (9%)
Academic Year:	
First-Year	50(50%)
Final-Year	50 (50%)
Gender:	
Male	45 (22.5%)
Female	155 (77.5%)

**Table 1:** Demographic data n (%)

Variables	Academic Year		p-value	Total
	First year	Final year		
First aid knowledge	4 (%)	32 (%)	0.000	36 (18%)
Experience of dental trauma	10 (%)	25 (%)	0.005	35 (17.5%)
Knowledge regarding emergency management of dental trauma	5 (%)	60 (%)	0.000	65 (32.5%)

**Table 2:** Results of dental trauma knowledge and management n (%)

toward dental trauma as shown in Table 3. There was an acceptable response (89%) in relation to chronology. However, there were significantly fewer (20%) final-year students who answered correctly regarding immediate action for an avulsed tooth by taking to dentist, as compared to first-year students showing a significance level of  $p < 0.000$ . Also significantly ( $p < 0.000$ ) higher number of final-year knew regarding the possibility of re-implantation of an avulsed tooth when compared to first-year. Only 33 (16.5%) of the students knew regarding

the washing of an avulsed tooth covered with mud with tap water before re-implantation. Regarding the best way to transport the tooth to the dentist, 7% of first-year and 58% of the final-year gave the correct response. Likewise, significantly ( $p < 0.000$ ) higher number of final-year students (81%) responded correctly about the mode of transportation of an avulsed tooth in fresh milk when compared to first-year students (5%).

Variables	Academic Year			Total
	First-year	Final-year	p-value	
Chronology of maxillary anterior teeth in 9-year old	84 (%)	94 (%)	0.024	178 (89%)
Immediate action by taking to the dentist with an avulsed tooth	47 (%)	20(%)	0.000	67 (33.5%)
Possibility of re-implantation of an avulsed tooth	5 (%)	76 (%)	0.000	81 (40.5%)
Attitude to re-implant an avulsed tooth covered in mud	34 (%)	64 (%)	0.000	98 (49%)
Attitude of washing a dirty avulsed tooth with tap water	14 (%)	19 (%)	0.000	33 (16.5%)
Method of transportation of an avulsed tooth	7 (%)	58 (%)	0.000	65 (32.5%)
Media of transportation	5 (%)	81 (%)	0.000	86 (43%)

**Table 3:** Results of correct response regarding dental trauma n (%)

## Discussion:

Dento-alveolar trauma is among the most frequently occurred injuries during the growth period of individuals. Appropriate emergency management is of extreme significance for the success and good prognosis of dental trauma. Treatment guidelines for dental trauma are required to support Dental specialists and other Healthcare laborers to give the best possible and powerful consideration for youngsters if there should be an occurrence of trauma(9). As a result is very obligatory to increase the grasp and update the knowledge about dental trauma for those Professionals. If those guidelines were applied following traumatic injury both short and long term results would be improved(9).

This cross-sectional study was directed to evaluate the degree of the knowledge and mentality toward dental trauma, with particular emphasis on dental avulsion among clinical dental students of first and final year BDS. The current study showed that only 4% of students from the first and 32% of students from the final year had to go through to the dental training regarding first aid knowledge on the avulsed tooth. Results from first-year dental students show insufficient knowledge regarding emergency management of tooth avulsion reflecting lack of information about this topic in Primary schools, Secondary schools, and even in the early years of studying Dentistry. Since children are normally traumatized in school or home, then it is very essential to promote knowledge related to the immediate management of avulsed tooth among teachers and parents. Although when final-year BDS Students knowledge compared to first-year students they were more knowledgeable as they go through this topic in final-year syllabus but still their knowledge was deficient regarding management. Similar results were obtained by Fujita et al(4) and Al-Shamiri et al(15).

This might be expected to due to their clinical inexperience of trauma cases as most of the institutes do not provide emergency trauma department.

Regarding the immediate emergency management of a case involving a 9-year-old girl, a large number of first-year students surprisingly gave the right answer "take the child to a dental clinic immediately". This might be due to the possibility that among them only 5% know the possibility that an avulsed tooth can be reimplanted back to its socket but with certain precautions and time management. On the other hand, final year students know that an avulsed tooth can be reimplanted back and around 76% among them gave the right answer "tooth can be reimplanted to its socket".The guidelines for the management of dental trauma published by the International Association for Dental Traumatology (IADT) and the American Academy of Pediatric Dentistry (AAPD) suggested the immediate replantation of a tooth to obtain the best possible results(16). However, other studies have reported that such an approach is fruitless for many reasons, including the lack of knowledge about how to replant an avulsed tooth(17, 18). In this way, we accept that the prompt transportation of the tooth to a dental specialist, as opposed to replantation of the tooth, was an increasingly suitable decision in undergraduate students.

In scenario about the method of transportation of tooth 48% of first-year students believed that an avulsed tooth must be transported in a sealed plastic bag correlating that they did not know that there is an increasing risk of ankylosis after an extraoral drying time of 20 min of an avulsed tooth (19, 20)and only 5 % among them gave the right answer. These results reflect the degree of knowledge about dental

emergencies among common people. We accept that dentist should consider these findings and give more guidance to the common people regarding immediate management.

Rodd et al (20) revealed that past investigations in the United Kingdom have featured the lack of certainty and capability of dealing with emergency trauma management among dental students and also, dental specialists that demands more noteworthy accentuation in the under grade educational plan. Vasconcellos et al. (21) also demonstrated that general dentists in Brazil need to increase their knowledge of avulsion and dental trauma prevention.

Consistent with these studies, the consequences of the current study demonstrate that students nearing graduation must improve their insight level in dental trauma management whereas lack of knowledge about emergency management of avulsed tooth among students of first-year BDS may arise due to their deficiency in the community and primary and secondary school teachers and even lack of knowledge of mothers and parents (22-24).

Every one of these investigations presumed that there is a need for information about the dental injury, particularly avulsion and its management among teachers and parents. Since youngsters are generally traumatized in school or home, at that point it is significant to have awareness campaigns and courses to expand the information of teachers and parents. One must improve the information level of undergrad dental students in first aid for dental trauma utilizing instructive strategies, such as problem-based learning or e-learning.

### CONCLUSION:

Through this study, it is concluded that there is insufficient knowledge regarding immediate management of avulsed tooth among first-year students of BDS which shows clearly that no importance is given to this topic in Primary schools, Secondary schools by the Teachers and no awareness campaigns has been conducted as a result they don't know how to deal with this emergency. On the other hand, final year students are more knowledgeable as they go through this topic in their curriculum but still their knowledge was deficient regarding management due to their clinical inexperience of trauma cases as most of the institutes do not provide emergency trauma department.

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