

The status of knowledge, attitude and practice towards emergency management of avulsed tooth among dental students: A single center cross-sectional study

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Abstract

Objective: To evaluate the awareness of emergency trauma management and the potential role of dentists in handling tooth avulsion injuries.

Method: The cross-sectional study was conducted at the Dental Outpatients Department of Jinnah Medical and Dental College, Karachi, from December 2020 to March 2021, and comprised dentists and final year dental students of either gender. Data was collected using a 17-item questionnaire to assess the awareness level regarding the knowledge of traumatic dental emergencies and the role of a dentist in handling a traumatic tooth injury. Data was analysed using SPSS 20.

Result: Of the 170 subjects, 52(30.5%) were males and 118(69.4%) were females. Overall, 139(81.8%) subjects had prior knowledge regarding avulsion, 164(96.5%) were aware of the term avulsed tooth, 106(62.4%) considered milk to be the best transport media for an avulsed tooth, 159(93.5%) knew the significance of extra-oral time, and all 170(100%) subjects said they wanted to study more about dental traumatic injuries.

Conclusion: There was adequate knowledge about the term avulsion, transport media and extra-oral time, and there was evidence of interest about learning more among the subjects.

Keywords: Avulsion, Emergency handling, Dental trauma, TDIs, Traumatic dental injuries, Knowledge, Appropriate management, Expert. (JPMA 72: 721; 2022)

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Introduction

Trauma to dento-alveolar tissues is considered the most serious oral and dental health problem, particularly in youngsters and teenagers.¹ Studies have revealed that trauma to oral cavity and anterior teeth is most likely to occur in the age group of 8 to 11 years. The upper anterior teeth are more vulnerable to trauma due to their prominent labial positioning. The common reasons for trauma include accidental falls during sports or at home, car accidents and interpersonal violence. The blow to the anterior aspect of the face often affect the most important maxillary front teeth that tend to have high aesthetic value though they are also involved in phonetics and mastication. Trauma involving these teeth can adversely affect the mental health of growing young individuals. In this young, age group, the periodontal ligaments tend to be weak and the supporting bone has not achieved its optimum density, making these structures most susceptible to injuries during early age.²⁻⁹

The type of traumatic dento-alveolar injury that is most common in the early age is tooth avulsion. Avulsion is defined as complete displacement of a tooth from its

socket due to trauma which can be accidental or non-accidental.¹⁰

Dentists play a crucial role in the management of these injuries. A poorly managed traumatic dental injury, like dental avulsion, will lead to unsatisfactory outcome, which will require multiple procedures, time and significant cost to correct. Several studies have shown that most of the dentists have inadequate information concerning the immediate management of patients with traumatic dental injuries.¹¹⁻¹³

The most appropriate management of the avulsed tooth is its immediate re-implantation into its socket. Delay in providing timely and appropriate treatment, and improper handling may result in less than satisfactory outcome, and can also affect the prognosis of the avulsed tooth, leading to root resorption or ankylosis. Handling a dental avulsion injury is complex and involves multiple factors, such as stage of root development, involvement of dental pulp, extra-alveolar time (time where tooth is not inside the socket) and the storage media used. According to the International Association of Dental Traumatology (IADT), the best transport medium is special storage solutions, such as Hank's balanced salt solution (HBSS), milk, or patient's own saliva, and extra alveolar period should not exceed >60 minutes. Correct management and handling within the first 15 minutes post-injury is important for the long-lasting success of the

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treatment.¹⁴⁻¹⁷

The current study was planned to evaluate the awareness of emergency trauma management and the potential role of dentists in handling tooth avulsion injuries.

Subjects and Methods

The cross-sectional study was conducted at the Dental Outpatients Department (OPD) of Jinnah Medical and Dental College (JMDC), Karachi, from December 2020 to March 2021. After approval from the institutional ethics review committee, the sample size was calculated using the World Health Organisation (WHO) calculator on the basis of literature², while taking absolute precision 5% and confidence interval (CI) 95%. The sample was raised using non-probability convenience sampling technique. Those included were both male and female final year dental students, house-officers and demonstrators/lecturers working at JMDC Table No.1. Dental undergraduates who were in their 1st, 2nd and 3rd years were excluded as handling of dental traumatic injuries was taught in the last semester of the curriculum year. Also, those who did not give consent were excluded.

After taking informed consent from the subjects, data was collected using a self-administrated 17-item English-language questionnaire whose validity was examined by a committee comprising an endodontist, an orthodontist and a maxillofacial surgeon. On the basis of the feedback, the questionnaire was modified accordingly. The final version was sent to a group of general dentists to assess whether questions were understandable and fell within the established framework.

The questionnaire was partially adapted from previous studies [Eby Varghese JN, Law LL, Samson RS, Soe HH¹⁹ and Bahammam LA]²¹.

It was tested for validation in a pilot study of 100 participants who were later included in the final sample.

The questionnaire checked the awareness of the knowledge and practices related to the emergency handling of an avulsed tooth. Data was analysed using SPSS 20. Descriptive analysis was conducted and frequencies and percentages of the responses were calculated.

Results

Of the 170 subjects, 52(30.5%) were males and 118(69.4%) were females. Overall, 164(96.5%) subjects were aware of the term avulsed tooth (Figure-1). Further, 106(62.4%) subjects considered milk to be the best transport media for an avulsed tooth (Table).

Table: Participant distribution and responses regarding the saving, cleaning and storage of the avulsed tooth (n=170).

Variables	Frequency	Percentage
Participant Distribution		
House Officers	37	21.80%
Demonstrator/Lecturers	29	17.10%
Final Year Students	104	61.17%
Gender		
Male	52	30.60%
Female	118	69.40%
Questions	Responses	Percentage
What would you do with the tooth if it is knocked out of the socket?		
Save it	170	100%
Discard it	0	0%
If you planned to save it but the tooth has fallen on the ground and is dirty, what would you do?		
You clean it	166	97.60%
You don't clean it	4	2.40%
If you decide to clean the tooth, how would you hold it?		
From crown	164	96.50%
From root	3	1.80%
From any part	3	1.80%
According to you what will be appropriate method to clean the knocked out tooth?		
Wipe the tooth with a tissue paper.	24	14.10%
Clean the tooth with a toothbrush.	6	6%
Rinse the tooth gently under running tap water for a few seconds without scrubbing	140	82.40%
What would be the most suitable medium for storage?		
Milk	106	62.40%
Isotonic saline	25	14.70%
Saliva	39	22.90%

Overall, 139(81.8%) subjects had prior knowledge regarding avulsion, 27(15.9%) had faced dental avulsion (Figure-2), and 159(93.5%) knew the significance of extra-

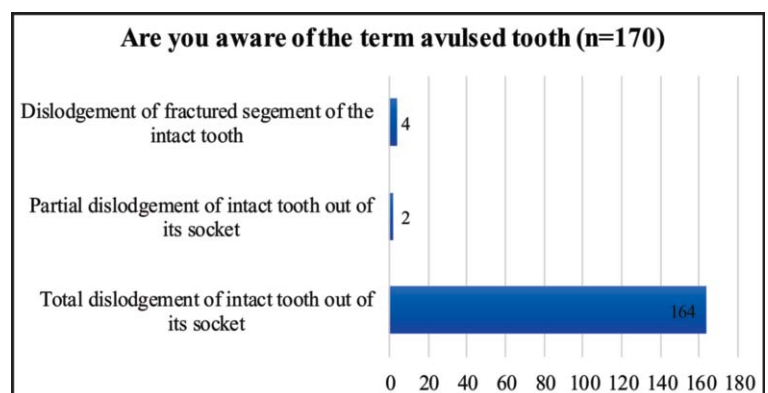


Figure-1: Avulsion awareness among dentists and dental students (n=170).

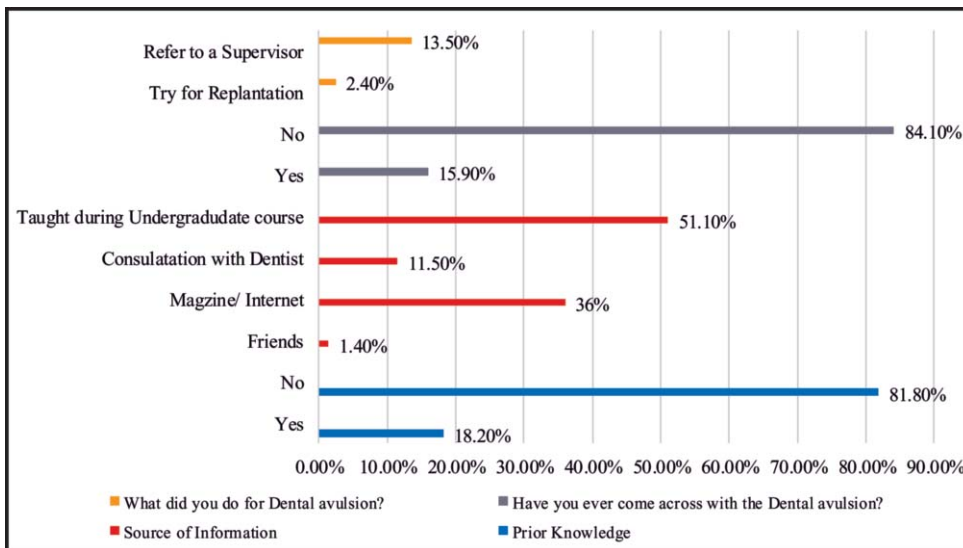


Figure-2: Knowledge and sources of information regarding avulsed tooth (n=170).

oral time.

Regarding the management of dental trauma, 159(93.5%) participants thought expert help should be sought within 30 minutes in case of tooth avulsion. There were 117(68.8%) subjects who agreed that dental trauma handling in clinical practice was very important, while 52(30.6%) categorised it as important and only 1(0.6%) graded it as "good to know". All 170(100%) subjects said they wanted to study more about dental traumatic injuries.

Discussion

Traumatic dental injuries can be presented as isolated injuries or as part of overall orofacial or body injury. In most cases, these injuries are first attended by medical experts in the emergency department (ED). Many studies have been done to assess the knowledge of dental and non-dental professionals regarding the handling of traumatic dental injuries, particularly avulsion.¹⁸

The current study provides evidence about the prevailing level of knowledge related to emergency management of avulsed tooth among dentists in a dental OPD.

The participants demonstrated a high level of knowledge regarding emergency handling of dental trauma. Our results were better than those reported earlier.^{19,20}

In the study,²¹ 31.1% participants did not know what an avulsed tooth, while in another study,²² most participants did not know the significance of tooth avulsion. In the current study 96.5% participants were aware of the meaning of tooth avulsion.

In one study¹⁹ 37.5% participants mentioned magazine

and internet as the main source of information, and 96.8% also mentioned that dental trauma emergency handling was not part of their curriculum. This is similar to the current findings where 36% participants mentioned magazine and internet as the sources of information, and 51.1% mentioned that dental trauma emergency handling was part of their undergraduate curriculum.

In one study,²¹ 59% participants had come across avulsion compared to only 15.9% in the current study.

Earlier studies²¹⁻²³ reported awareness about the need to hold the avulsed tooth by the crown, but in the present study the corresponding percentage was much higher at 96.50%. With respect to the awareness about cleaning the tooth if it was dirty earlier studies reported 48.4%,²¹ 84.7%²² and 77.14%²³ of their respective participants washing the tooth under running water. The present study reported 82.4%.

Selecting the best transport medium is very important when it comes to successful management of avulsion. Ulusoy et al.²⁴ reported that 31.9% of their participants chose milk as the best medium compared to 62.4% in the present study.

Time is also an important factor in the management of an avulsed tooth. A study,²⁵ reported that 50 experts considered <30 min as the critical time for avulsed tooth replantation, while 59.3% of interns/general dental practitioners considered <60 minutes as the critical time. In the present study, 93.5% participants considered time within 30 minutes as being critical, while 9.53% thought seeking professional help within a few hours was good enough.

A study¹⁹ reported that 48.4% participants did not want this topic to be covered in their undergraduate studies. In contrast the current study found 100% participants keen on learning more about traumatic dental injuries in the dental curriculum, which was in line with another study.²¹

One of the limitations of the current study was its single-centre status. To address this shortcoming, future studies should take a multi-centre approach, which will be helpful in elucidating a more precise and valid assessment about

the awareness of dental avulsion amongst the dental fraternity.

Conclusion

There was adequate prior knowledge about the term avulsion, transport media and extra-oral time among the dental subjects who showed interest in acquiring further knowledge.

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Conflict of Interest: None.

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