








## Awareness of Parents About the Emergency Management of Avulsed Tooth in Eastern Province and Riyadh

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### ABSTRACT

**Objective:** To assess the level of parents knowledge about the emergency management of tooth avulsion in Eastern Province and Riyadh.

**Methods:** A cross-sectional study was carried out by means of a questionnaire-based internet survey in which 1201 parents from Eastern Province and Riyadh participated. The questionnaire contained 10 closed-ended questions and was used to assess the knowledge of parents about the emergency management of avulsed teeth in Eastern Province and Riyadh. Chi-square test was used for data analysis.

**Results:** In response to closed-ended questions, the statistically significant result was obtained for the history of child dental trauma in which 35% ( $P=0.04$ ) of parents reported history of dental trauma in their children. These parents were belong to Eastern province (51%) and Riyadh (49%). Furthermore, only 31.3% of the parents were aware of possible storage media for transportation of avulsed tooth while 68.7% (49.5% in Eastern Province and 50.5% in Riyadh) were unaware ( $P=0.02$ ) of it.

**Conclusion:** That the majority of the parents were unaware of emergency management for tooth avulsion in two densely populated regions of Saudi Arabia. Education of parents should be initiated at a national level.

**Keywords:** Aesthetics, dental trauma, storage media and parent education

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### HIGHLIGHTS

- Parents are the first to encounter the child at the time of injury, so their knowledge about immediate management intervention and storage media is essential to improve the prognosis of the avulsed tooth.
- Results of this study showed that parents were unaware of emergency management of avulsed tooth in two densely populated regions of Saudi Arabia.

### INTRODUCTION

Dental trauma is one of the most critical oral injuries that occur in childhood (1). It may result in psychological disturbance to the child due to loss of aesthetics and delay in replantation of the avulsed tooth can lead to infraocclusion due to ankylosis (2, 3). Children in their usual activities such as playing soccer, running, and bicycle riding can suffer many accidents, which may result in dental trauma (1). School

and home are the most common locations where dental trauma occurs (1). The most severe form of dental trauma is avulsion of permanent teeth in which quick replantation is needed to avoid external inflammatory resorption in future (4). Tooth avulsion is defined as the complete displacement of tooth from its socket after traumatic injury. This is one of the common tooth injuries at growing age, involving mostly maxillary anterior teeth and observed around in 0.5% to 16% of children (5).

Maxillary central incisors are the crucial teeth for smile, speech, psychological, and mental health of children (6, 7). Early loss of tooth in childhood age leads to compromised aesthetics unappealing face, altered speech, lower self-esteem, and reduced confidence of the child (8). Moreover, the situation is even worse as it's difficult to provide fixed prostheses at this age and mostly patient leave with no option than removable prosthesis.

Immediate replantation of an avulsed permanent tooth is the treatment of choice and the prognosis of the avulsed tooth depends on timely intervention and storage media (9, 10). Most of the

time, parents are the first to encounter the child at the time of injury (11), so their knowledge about quick intervention and storage media is of utmost essential to decide the outcome of avulsed tooth (12).

Previous studies in different countries have highlighted that parents have poor knowledge of first aid measures for avulsed teeth regardless of their level of education (12, 13). Therefore, it is worthwhile to assess the knowledge level of the parents about the important steps to be taken immediately after tooth avulsion in Eastern Province and Riyadh.

## MATERIALS AND METHODS

A cross-sectional study was carried out by means of questionnaire-based internet survey in which 1201 parents from Eastern Province and Riyadh participated after obtaining informed consent. Using PASS (NCSS, Kaysville, Utah, USA) version 11, one sample proportion test with 95% confidence interval, 80% power of the test, and the result from previously published study, it has been reported 67.2% of the parents were not aware of the steps to be taken after tooth avulsion (14) and the sample size is calculated to be 675 which raised up to 1.201.

The study comprised of 10 validated, closed ended questions and these were used to assess the knowledge of parents about the emergency management of avulsed teeth in Eastern Province and Riyadh (ANNEXURE 1). The validated questionnaire was designed after a thorough review of the literature previously published on the same topic in other parts of the world. The hypothetical listed as actual questions included were search for a tooth after trauma, visit to a dentist, storage media, where to go first after dental trauma, tooth likely to be, what to do with the tooth after trauma, and educational program.

The designed questionnaire was pretested on 30 parents in order to obtain information about their understanding and interpretation of questions, identify any grammatical mistakes, logical sequencing of drafted questions, and typographic errors. After pretesting some parts of the questionnaire amended as per need. Information obtained from these 30 parents was not included in the main study.

### Statistical analysis

Statistical association was performed between gender and surgical experience versus stress level using chi-square test. A p-value of 0.05 or less was considered statistically significant.

## RESULTS

A total of 1200 parents participated in the study in which 47.5% were from Eastern Province and 52.5% were from Riyadh. More than half of the parents were around 20–40 years of age. So far as the educational level of parents are concerned, 68.4% of the parents obtained college degree while 27% of the parents finished high school however only 4% completed middle and 1% ended up in elementary school. Thirty-five percent of parents had children who had experienced dental trauma of their child in which 51% were from Eastern Province and 49% were from Riyadh (Table 1).

Responses to Hypothetical Questions of parents are as follow (Tables 1 and 2);

Search for a tooth: 61.7% of the parents replied that they would search for a tooth.

Time to visit the dentist: When enquired about the timing of tooth replantation, only 37% of the respondents think that replantation should be done within 20 minutes, whereas around quarter (23.3%) believe that replantation within an hour should suffice. 22.6% replied no need to visit a dentist and 17.1% opted for next day replantation (Fig. 1).

Storage media: 31.3% of the parents agreed to place tooth in transportation media and the majority were from Riyadh.

Where you go first after dental trauma: In response to this question about 40% of the parents prefer to visit a dentist while 26% opted for going to hospital and others chose to go home.

Tooth likely to be: 60% of the parents had understood that this is a baby tooth.

What to do with the tooth after trauma: 67% of the parents didn't know what to do (Fig. 2).

Educational program: In reply to initiation of an educational program about dental trauma 93.8% of the parents were convinced.

## DISCUSSION

The results of the study showed that parents in Eastern Province and Riyadh have inadequate knowledge regarding the

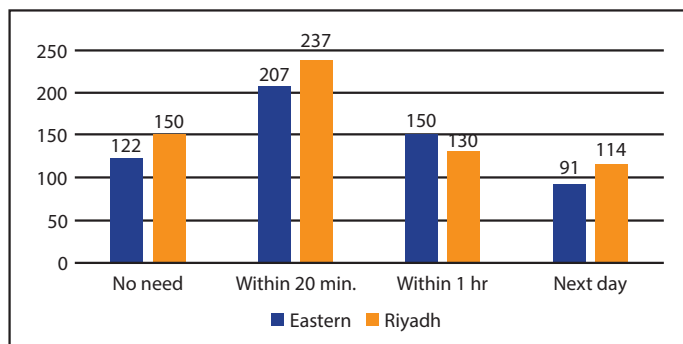
**TABLE 1.** Descriptive statistics for demographics

Characteristics	n=1201 (%)
Age in years (Mean±SD)	1.33±0.821
City	
Eastern Province	570 (47.5%)
Riyadh	631 (52.5%)
Gender	
Male	872 (72.6%)
Female	329 (27.4%)
Age	
10-<20	132 (11%)
20-<40	685 (57%)
40-<50	244 (20.3%)
≥50	140 (11.7%)
Education level	
College degree	821 (68.4%)
High school	324 (27%)
Middle school	43 (4%)
Elementary school	13 (1%)
Dental trauma	420 (35%)
Search tooth	741 (61.7%)
Time to see dentist/Urgency to see dentist	
No need to visit a dentist	272 (22.6%)
Within 20 minutes	444 (37.0%)
Within an hour	280 (23.3%)
Next day	205 (17.1%)
Replant tooth	588 (49%)
Transport within media (Any)	376 (31.3%)
Educational program	1127 (93.8%)

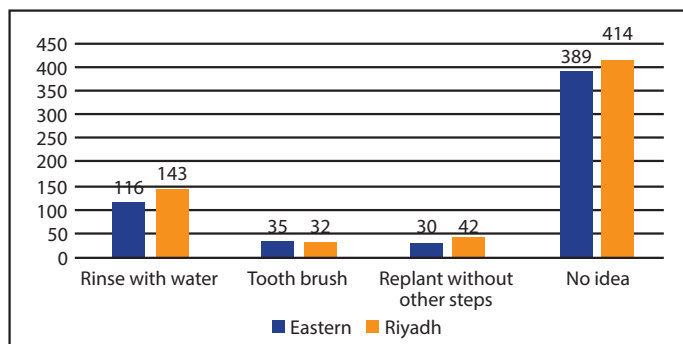
**TABLE 2.** Relationship of city with age, education, trauma, media

Characteristics	City			P value
	Eastern province (n=570)	Riyadh (n=631)	Total	
<b>Age</b>				
10-<20	70 (53.0%)	62 (47.0%)	132	0.0001**
20-<40	352 (51.4%)	333 (47.0%)	685	
40-<50	103 (42.2%)	141 (57.8%)	244	
≥50	45 (32.1%)	95 (67.9%)	140	
<b>Education level</b>				
College degree	371 (45.2%)	450 (54.8%)	13	0.14
High school	169 (52.2%)	155 (47.8%)	43	
Middle school	23 (53.5%)	20 (46.5%)	324	
Elementary school	7 (53.8%)	6 (46.2%)	821	
<b>Dental trauma</b>				
Yes	214 (51.0%)	206 (49.0%)	470	0.04*
No	356 (45.6%)	425 (54.4%)	781	
<b>Visit a dentist</b>				
No need to visit a dentist	122 (44.9%)	150 (55.1%)	272	0.12
Within 20 minutes	207 (46.6%)	237 (53.4%)	444	
Within an hour	150 (53.6%)	130 (46.4%)	280	
Next day	91 (44.4%)	114 (55.6%)	205	
<b>Media transportation</b>				
Yes	162 (43.10%)	214 (56.9%)	376	0.02*
No	408 (49.50%)	417 (50.5%)	825	
<b>Parents interest in sitting an education program</b>				
Yes	536 (47.6%)	591 (52.4%)	1127	0.40
No	340 (45.9%)	400 (54.1%)	740	

\*\*Significant at 1%, \*Significant at 5%



**Figure 1.** Parents response to visit to a dentist in two cities



**Figure 2.** Parents response to what to do before placing tooth back

emergency steps to be taken immediately after tooth avulsion. In fact, 67% of the parents do not know what to do after trauma and this is alarming, as the prognosis of the avulsed

tooth mainly relies on first-aid knowledge of a person present at the time of the incident because prompt replantation of the avulsed tooth or storage in appropriate media can affect the prognosis.

The finding of the study is in agreement with the other studies in Egypt, Kuwait, Jordan, and UAE, in which inadequate knowledge of parents was reported (15–17). A recent survey conducted in Al Baha city of Saudi Arabia showed similar results but their sample size was smaller to this study (18).

35% of the parents experienced dental trauma to their children in these regions of Saudi Arabia, which is exceptionally high and statistically significant. There are different types of storage media available for safety of tooth such as Hank Balanced Salt Solution (HBSS), milk, Propolis (19), when inquired about storage media, 68.7% of the parents had no idea where to place the tooth for transportation, which indicate that there is a dire need to run dental education programs through social and print media. In this study, 67% of the parents have completed a college degree; hence, it is evident that the level of education is not related to the knowledge of how to manage dental trauma.

Certain factors such as increased overjet, risk-taking children, emotionally stressful children, obesity, autism, and children being bullied increase the likelihood of dental trauma (20, 21). However, in this study, these factors were not assessed. Further studies are required after the implementation of dental injuries education programs for parents and possibly teachers to determine the retention of the education.

## CONCLUSION

The majority of parents from two densely populated regions of Saudi Arabia had poor knowledge of the emergency management of tooth avulsion. Therefore, parent's education program should be initiated at national level.

## Disclosures

**Conflict of interest:** Authors deny any conflict of interest.

**Ethics Committee Approval:** The study was approved by Ethical Review Committee of College of Dentistry, King Faisal University.

**Peer-review:** Externally peer-reviewed.

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**ANNEXURE 1**

Awareness of parents about the emergency management of avulsed tooth in Eastern Province and Riyadh

Child Age \_\_\_ Gender \_\_\_ Educational level \_\_\_ Socioeconomic status \_\_\_

**1. Have you ever experience, any dental trauma of your child?**

- a. Yes
- b. No

Suppose a 10 years old child playing football in a ground, unfortunately ball hit his front tooth and its knock out, in that situation what will you do.

**1. Will you search the tooth on the ground?**

- a. Yes
- b. No

**2. If Child does not lose consciousness and he is not feeling dizziness, where will you take the child first?**

- a. To Medical Hospital
- b. To Home
- c. To a Dentist

**3. What do you think, how urgent it is to visit a Dentist?**

- a. Within 20 minutes
- b. Within an hour
- c. Next day
- d. No need to visit a dentist

**4. What do you think; the tooth is likely to be?**

- a. Baby tooth
- b. Permanent tooth

**5. If the tooth is permanent, do you think it can be placed back into its original position?**

- a. Yes
- b. No

**6. Can you put back knock out tooth in to its original position?**

- a. Yes
- b. No

**7. If yes, what would you do before placing it back to its original position?**

- a. rinse it with water
- b. brush it with a tooth brush
- c. put it back in the socket without doing any thing
- d. Don't know what to do

**8. Do you know any media for transportation of knock out tooth?**

- a. Yes
- b. No

**9. If yes, then what is the best media for the transportation of knock out tooth?**

- a. Water
- b. Milk
- c. Saliva
- d. HBSS
- e. Don't Know

**10. Do you think it is important to have an educational program about dental trauma in school going age?**

- a. Yes
- b. No