



# Knowledge of dental students and dental interns about pediatric dental trauma management in Saudi dental universities

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## ABSTRACT

The aims of this study were to evaluate the level of educational knowledge in the management of dental trauma in children, and to investigate the influence of pediatric dental education on the management of dental trauma among undergraduate dental students and dental interns. This cross-sectional study consisted of 314 dental students and dental interns who answered a questionnaire; questionnaire was based on some common knowledge aspects of dental trauma. Data was collected and entered into the database. Data was analysed through IBM SPSS version 23. Chi-square test was applied to examine the association between pediatric dental trauma management knowledge and level of students. Among all the dental students and dental interns, 260 (82.8%) had correct answer about the correct way to hold extruded teeth. Most of the participants (86.6%) had the knowledge and distinction between the types of Dental Trauma. A 73.9% of participants say that gentle rinsing with tap water is necessary to remove dirt from the root surface of an avulsed tooth. It was clearly answered to a question of Critical factors of success of treatment of avulsed tooth is the time between the accident and his arrival for treatment (75.5%). The current study shows that dental students and dental interns in the private and public Saudi universities have sufficient and necessary knowledge regarding the management of pediatric dental trauma. This means that Saudi universities provide knowledge to dental students regarding dental trauma management and treatment methods.

**Key words:** Dental Trauma, Knowledge, Dental Student, Saudi Arabia.

## 1. INTRODUCTION

Dental trauma is among the most common oral health problems that affecting children [1]. Ages of 8 and 11 years are the most affected and one in three children experience

various forms of dental injuries, the upper front teeth are the most damage [2]. The International Association of Dental Traumatology classified injuries in the Primary Dentition to several types: Concussion, Subluxation (loosening), Intrusive luxation (central dislocation), Extrusive luxation (partial avulsion), Lateral luxation and avulsion [3].

Permanent dentitions are more prevalent traumatic dental injuries (58.6%) than in primary dentition (36.8%) [4]. Most dental injuries occur at school and at home, which may result when children play football, run and ride bicycles, and they can be exposed to many accidents [5]. 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 [6]. Prognosis in traumatic injuries varies depending on the time elapsed. Immediate and appropriate management of traumatically avulsed teeth is critical for the long-term success of treatment [7]. The viability of the remaining periodontal ligament on the root surface is a diagnostic consideration. Knowledge and clinical experience of the doctor are also important factors in the success of the treatment [8].

Avulsion defined as complete displacement of tooth out of socket. The periodontal ligament is severed and fracture of the alveolus may occur [9]. The presence of the tooth or parts of it inside the socket is confirmed by x-rays and Clinical diagnosis [10]. Prevent further injury to the developing successor is the aim of primary teeth treatment. Replanted of primary Avulsed teeth may can causes damage to the germ of developing permanent tooth [11]. While the permanent tooth must be re-implanted as soon as possible, in addition to splint it to optimize healing of the periodontal ligament and neurovascular supply, ankylosis may occur [12]. Flexible splinting is indicated for a period of two weeks. Antibiotic and tetanus prophylaxis coverage should be considered [12].

There are some studies on the knowledge in the management of dental injuries among undergraduate dental students in Saudi dental universities. The aims of this study were to evaluate level of educational knowledge in the management of dental trauma in children, and to investigate the influence of

pediatric dental education on the management of dental trauma among undergraduate dental students and dental interns.

## 2. MATERIALS AND METHODS

A cross-sectional study was conducted on 314 dental students and interns old enough gathering 20-30 years. Participants of the study were undergraduate dental students at Saudi dental Universities from level 9 to intern. The endorsement for this study was allowed by the Institutional Review Board of the College of Dentistry at Riyadh Elm University. Study participants were contacted through the online survey invitation and informed consent was obtained from all participants.

A questionnaire comprising 12 questions was used to gather their basic information and to assess their knowledge about dental trauma. Questionnaire was based on some common knowledge aspects of dental trauma.

### 2.1 Statistical analysis

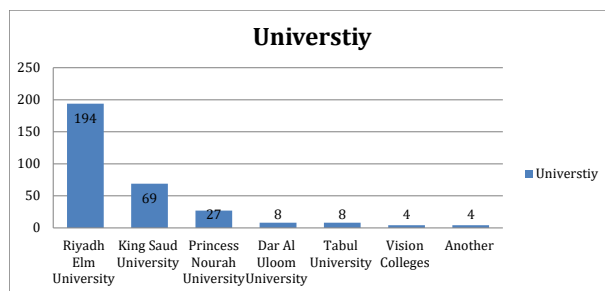
After all participants answered the abovementioned questionnaire, data obtained was organized and subjected to descriptive statistics using SPSS V23. Data obtained by questionnaire was divided into three categories on the basis of university, level and gender. Furthermore categorical data was analyzed at 95% confident interval using a Chi-square test and Fischer exact test.

## 3. RESULTS

Total 314 dental student and dental interns had answered the questionnaires. The study was conducted in a number of Saudi public and private universities. Riyadh Elm University got an overwhelming majority in the number of responses by 61.8 % followed by King Saud University 22 %. Distribution of dental students by university is shown in the table 1.

**Table 1: Distribution of Dental Students by University**

University	N	%
Riyadh Elm University	194	61.8 %
King Saud University	69	22 %
Princess Nourah University	27	8.6 %
Dar Al Uloom University	8	2.5 %
Tabuk University	8	2.5 %
Vision Colleges	4	1.3 %
Another	4	1.3%
Total	314	100 %

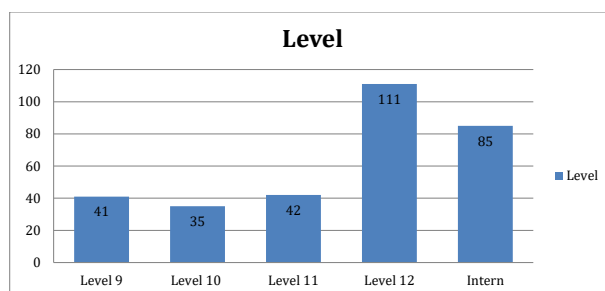


**Figure 1: Distribution of Dental Students by University**

Inclusion criteria to determine the target group, which includes only dental students between the ninth level until dental internship. The majority of the participants were from the level 12 (35.4 %), followed by the dental interns (27.1 %). Distribution of dental students by level is shown in the table 2.

**Table 2: Distribution of Dental Students by Level**

Level	N	%
Level 9	41	31.1 %
Level 10	35	11.1 %
Level 11	42	13.4 %
Level 12	111	35.4 %
Intern	85	27.1 %
Total	314	100 %

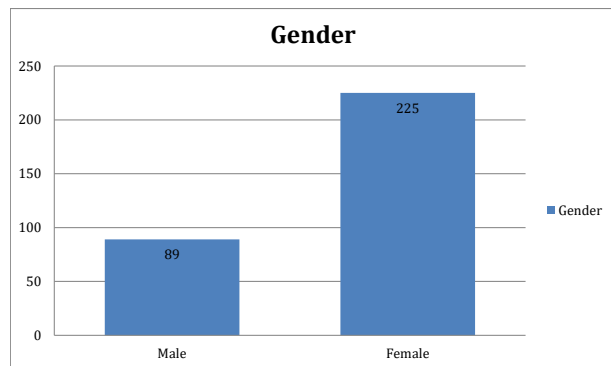


**Figure 2: Distribution of Dental Students by Level**

The vast majority of the participants were females, with a rate of more than 71%, and the part of the male participants was less than 29%. Distribution of dental students by gender is shown in the table 3.

**Table 3: Distribution of Dental Students by Gender**

Level	n	%
Male	89	28.3 %
Female	225	71.7 %
Total	314	100 %



**Figure 3: Distribution of Dental Students by Gender**

Chi-square test that was applied to examine the association between pediatric dental trauma management knowledge and level of students (level 9, level 10, level 11, level 12, and intern). Table 4 shows that there is a significant association between pediatric dental trauma management knowledge and level of students because  $p < .05$ .

**Table 4 :Correct Responses to Pediatric Dental Trauma Management by Dental Students**

Correct Response	Level 9 %	Level 10 %	Level 11 %	Level 12 %	Intern %	Total %	p
Q1 Hold it from the Crown	28 (8.9)	30 (9.5)	34 (10.8)	103 (32.8)	65 (20.7)	260 (82.8)	.019
Q2 Go to the nearest dentist with tooth extraction	21 (6.9)	18 (5.7)	23 (7.3)	95 (30.2)	41 (13.0)	198 (63.1)	.009
Q3 Anterior permanent teeth	16 (5.1)	20 (6.4)	24 (7.6)	91 (28.9)	47 (15.0)	198 (63.1)	.000
Q4 Complete displacement of a tooth from its socket in alveolar bone owing to trauma	29 (9.2)	29 (9.2)	34 (10.8)	106 (33.7)	74 (23.6)	272 (86.6)	.023
Q5 Hanks balanced salt solution	11 (3.5)	15 (4.8)	18 (5.7)	82 (26.1)	38 (12.1)	164 (52.2)	.000
Q6 Less than 30 min	27 (8.6)	27 (8.6)	33 (10.5)	100 (31.8)	58 (18.5)	245 (78.0)	.008
Q7 2-4 weeks	22 (7.0)	17 (5.4)	22 (7.0)	86 (27.4)	25 (8.0)	152 (48.8)	.000
Q8 Rinse it with tap water only	20 (6.4)	26 (8.3)	28 (8.9)	96 (30.5)	41 (13.0)	165 (51.9)	.007
Q9 The time between the accident and his arrival for treatment	25 (8.0)	26 (8.3)	27 (8.6)	100 (31.8)	59 (18.8)	217 (67.5)	.000

Note:  $p < .05$

Among all dental students and dental interns, 260 (82.8%) had correct answer about the correct way to hold extruded teeth. When asked what is the first thing to do when you have a dental accident the great answer is go to the nearest dentist with tooth extraction. The percentage was (63.1%) exactly the

same as the answer to the question of which teeth are most likely to suffer from dental trauma.

Most of the participants (86.6%) had the knowledge and distinction between the types of Dental Trauma. 52.2% chose that Hanks balanced salt solution is the best medium for preserving the tooth, while 16.2% answered that saliva is the most appropriate. There was almost unanimity (78%) that tooth replanted should be as soon as possible (Less than 30 min). There was a difference in opinions about the period of splint the teeth together, 32.8% say 1-2 weeks while 54.8% told 2-4 weeks and the few (10.2%) said that it should not be splinted. A 73.9% of participants say that gentle rinsing with tap water is necessary to remove dirt from the root surface of an avulsed tooth. It was clearly the answer to a question of Critical factors of success of treatment of avulsed tooth is the time between the accident and his arrival for treatment (75.5%).

#### 4. DISCUSSION

This study was designed to examine the knowledge of dental students and dental interns about pediatric dental trauma management in Saudi dental universities. Questionnaire comprised of 9 questions which were based on some common knowledge aspects of dental trauma. Findings revealed that there is a significant association between pediatric dental trauma management knowledge and level of students (level 9, level 10, level 11, level 12, and intern). Higher level of students shows high level of knowledge in comparison to the lower level students. Results show that majority of the participants (83 %) had the correct answer about the correct way to hold extruded teeth. This study is aligned with a previous study conducted by Nikolic et al. (2018) on a small sample (84) of pediatricians, 76 % participants choose the right answer [13]. More than half students (63 %) answered that go to the nearest dentist whenever they have a dental accident. This result is aligned with the previous studies (Nikolic et al., 2018; Trivedy et al., 2012) [13,14]. Similarly (63 %) students answered most of dental trauma accident related to anterior permanent teeth. More than (86 %) students had the knowledge and the ability to make distinction between the types of dental trauma. About half of the students (52 %) answered Hanks balanced salt solution is the best medium for preserving the tooth. These results are aligned with the previous study of Mustafa (2017) which was conducted on general dental practitioners [15]. (78 %) students answered that splint the teeth together for 2-4 weeks. About (74 %) students answered that management of the root surface in avulsed tooth is to rinse it with tap water only. According to the study of Fujita, Shiono, & Maki, (2014) 55 % students gave the right answer that rinse avulsed tooth with tap water [16]. Similarly (75 %) of the students answered that the

time between the accident and his arrival for treatment is the critical factor of success of avulsed tooth.

## 5. CONCLUSION

The results of the study showed significant knowledge among dental students at various level (level 9, level 10, level 11, level 12) and interns about pediatric dental trauma management. This means that Saudi universities provide knowledge to dental students regarding dental trauma management and treatment methods. However, we recommend the universities to give special attention to the dental students and interns. They should be provided with additional education on this subject during pre-graduate and post-graduate programs. Universities should focus on the improvement of basic knowledge of dental trauma management of dental students and interns. It is necessary for the future dental practitioners.

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