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## Awareness of dentists regarding immediate management of dental avulsion: Knowledge, Attitude, and Practice study

Kamil Zafar, Robia Ghafoor, Farhan Raza Khan, Muhammad Hasan Hameed

### Abstract

**Objective:** To assess the knowledge of practising dentists regarding immediate management of dental avulsion.

**Methods:** The cross-sectional analytical study was conducted in various dental colleges and teaching hospitals of Karachi, Pakistan, in October-November 2016, and comprised dentists working in academic institutions / departments or as general dental practitioners for at least 1 year. The subjects were asked to fill out a self-administered questionnaire. Questions related to knowledge and practice regarding immediate management of dental avulsion was asked and then responses were categorised as good knowledge, moderate and poor knowledge. SPSS 22 was used for data analysis.

**Results:** Of the 282 subjects, 179 (63.5%) were females and 103(36.5%) were males. The overall mean age was 28.33±4.7 years, and 194 (68.8%) had clinical experience of less than 5 years. Of the total, 30(11%) dentists had good knowledge while 130(46%) had moderate and 122(43%) had poor knowledge. Statistically significant association of knowledge regarding tooth avulsion was observed with the specialty ( $p= 0.006$ ) and qualification ( $p=0.001$ ).

**Conclusions:** The knowledge of dentists regarding immediate management of avulsion injuries was inadequate. Knowledge was significantly associated with specialty and qualification of the dentist.

**Keywords:** Dentists, Tooth avulsion, Tooth replantation, Knowledge, Attitude, Pakistan. (JPMA 68: 595; 2018)

### Introduction

During the last few years, the incidence of dental injuries has gone up because of an increase in the number of road accidents, contact sports, assault cases etc.<sup>1</sup> Of all traumatic dental injuries, tooth avulsion is the most serious trauma that accounts for 16% of injuries.<sup>2</sup> The most commonly affected age group is 7-9 years.<sup>3</sup> In children and young adults, maxillary and mandibular incisors are teeth that sustain an avulsion injury.<sup>4</sup> Loss of upper or lower anterior teeth results in poor aesthetics and loss of function that has medical, social and psychological impact on the patients' quality of life.<sup>2</sup>

The prognosis of an avulsed tooth depends on measures taken immediately after the injury. Ideally, the tooth should be replanted back into the socket immediately.<sup>5</sup> Due to space and time limitations, replantation cannot always be carried out immediately. Therefore, a storage medium is required to preserve the vitality of the periodontal ligament cells (PDL) during extra-alveolar time.<sup>6</sup> Various storage mediums, including saliva, normal saline, tap water, milk and culture media, have been investigated for their ability to maintain cell viability.<sup>7</sup> According to the guidelines of

International Association of Dental Traumatology, Hank's balanced salt solution is considered the ideal storage medium as it contains essential nutrients, is non-toxic and can maintain PDL viability for extended period of time.<sup>8</sup> However, it is expensive and might not be readily available at the site of injury. Milk is supposed to be an excellent alternative, as its osmolality and potential of hydrogen (pH) is comparable to living cells and most importantly it's likely to be mostly available around the place of injury.<sup>9</sup>

The knowledge of parents, teachers, children and dentists has an important bearing in the management of tooth avulsion. Various studies have been carried out evaluating the knowledge of teachers and parents about the management of tooth avulsion.<sup>10,11</sup> Studies have also been conducted across different parts of the world to evaluate the knowledge of dentists regarding immediate management of avulsion.<sup>2,12-16</sup> Kostopoulou et al.<sup>17</sup> reported inadequate knowledge of United Kingdom dentists regarding immediate treatment of dento-alveolar trauma. Studies conducted in Chinese and Polish dentists also revealed similar results.<sup>2,18</sup> Local data is scarce on the dentist's knowledge and skills regarding management of dental avulsion. The current study was planned to fill that gap by assessing the knowledge of local dentists regarding immediate management of tooth avulsion.

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## Subjects and Methods

The cross-sectional analytical study was conducted in various dental colleges and teaching hospitals of Karachi, Pakistan, in October-November 2016, and comprised dentists working in academic institutions / departments or as general dental practitioners for at least 1 year. Non-practising and retired dentists were excluded.

After permission was obtained from the ethical review committee of Aga Khan University, Karachi, the sample size was calculated with World Health Organisation (WHO) calculator<sup>19</sup> using data reported in literature.<sup>20</sup> Taking an absolute precision of 5% and confidence interval (CI) of 95%, the sample size was determined and then inflated by 10% to cover for dropouts.

A customised self-administered questionnaire was designed and pre-tested on a sample of 30 subjects. Any ambiguities in the questions or responses were removed before using it on the actual sample. The questionnaire consisted of two parts. Part-I was related to personal professional demographic details, and part-II consisted of 12 multiple choice questions (MCQs) related to the knowledge and practice of dental avulsion. One point was dedicated to each correct response. The knowledge, attitude and practices were categorised as good (10-12), moderate (7-9) and poor ( $\leq 6$ ).

To assess the reliability of the questionnaire, we repeated one question twice in the form, and the reliability was good i.e. 90%. SPSS 22 was used for data analysis. Descriptive analysis was done by calculating frequency and percentages of categorical and qualitative data respectively. Chi square test was applied to determine a relationship of knowledge of avulsion management with the specialty, qualification and years of practice of the respondent. Level of significance was kept at  $\leq 0.05$ .

## Results

Of the 333 questionnaires distributed, 302(91%) were received. A further 20(6%) forms were excluded due to incomplete data. As such, 282(85%) questionnaires

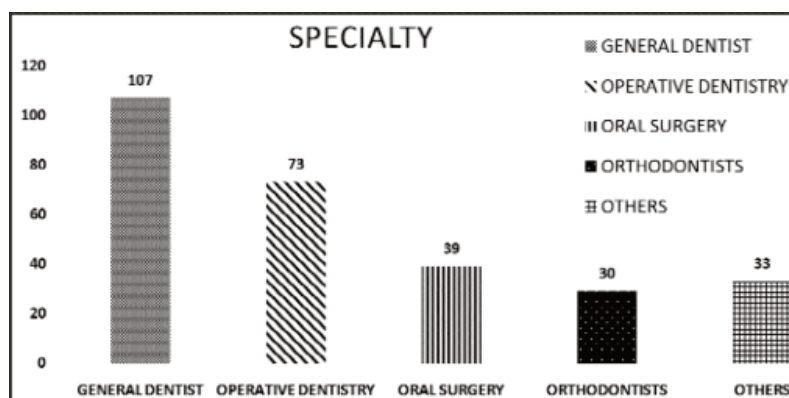


Figure-1: Specialty of practice.

Table-1: Association of knowledge regarding avulsion with specialty of the dentist.

Specialty	Knowledge			Chi-square value	df	p-value
	Good n (%)	Moderate n (%)	Poor n (%)			
Operative Dentistry	17 (23%)	35 (47.9%)	21 (28.7%)	27.841	12	0.006
General dental practitioner	8 (7.5%)	49 (45.8%)	50 (46.7%)			
Orthodontics	2 (6.6%)	11 (36.6%)	17 (56.6%)			
Oral Surgery	2 (5.1%)	22 (56.4%)	15 (38.5%)			
Others	1 (3%)	13 (39.4%)	19 (57.5%)			

Chi-square test at 0.05 level of significance.  
n=282.

Table-2: Association of knowledge regarding dental avulsion with qualification of dentists.

Qualification	Knowledge			Chi-square value	df	p-value
	Good n (%)	Moderate n (%)	Poor n (%)			
General dental practitioner	16 (8.8%)	78 (42.8%)	88 (48.4%)	27.53	6	0.001
Specialists	6 (50%)	5 (50%)	1 (10%)			
Residents	8 (10.2%)	43 (55.2%)	27 (34.6%)			
Others	0	4 (40%)	6 (60%)			

Chi-square test at 0.05 level of significance  
n=282.

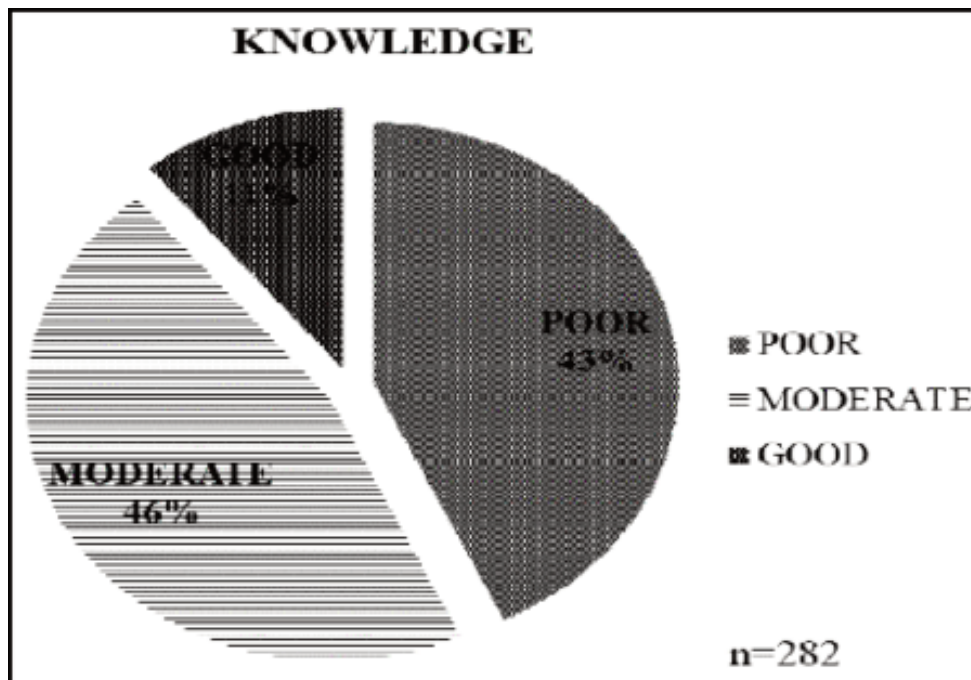


Figure-2: Knowledge of dentists.

were analysed. Of them, 179(63.5%) subjects were females and 103(36.5%) were males. The overall mean age was 28.33±4.7 years. Besides, 194 (68.8%) had clinical experience of less than 5 years, 74(26%) between 5-10 years and 14(5%) had experience of over 10 years. General dentists 107(38%) comprised the majority of the sample, followed by dentists belonging to operative dentistry 73(25.96%). The rest were from other specialties (Figure-1). Overall, 30(11%) dentists had good knowledge, while 130(46%) had moderate and 122(43%) had poor knowledge (Figure-2).

Statistically significant association of knowledge regarding tooth avulsion was observed with the specialty (p= 0.006) and qualification (p=0.001) (Tables-1, 2). There was no significant association of knowledge with the years of practice (p=0.180).

**Discussion**

The response rate in the current study was 85% which is comparable to two earlier surveys<sup>18,20</sup> that showed response rate of 89% and 94%. One study even had a response rates of 47.5%.<sup>2</sup> The better response rate for the present study was probably because of specific visits to dental colleges and efforts to collect the forms filled in.

The present study showed that the overall knowledge of

dentists in Karachi regarding immediate management of dental avulsion injuries was sub-optimal. A small proportion of general dentists (7.5%), orthodontists (6.6%) and oral surgeons (5.1%) demonstrated good knowledge regarding management of avulsion (Table-1). General dentists and orthodontists had relatively poor level of knowledge regarding dental avulsion compared to dentists belonging to other specialties. A considerable proportion of dentists in the discipline of operative dentistry had good knowledge (Table-2). This is in line with studies which concluded inadequate knowledge of general dental practitioners.<sup>14-17</sup> The reason

for this inadequate knowledge of general dental practitioners could be their lack of expertise in trauma management. However, other studies have reported adequate knowledge of general dentists regarding emergency management of dental avulsion.<sup>12,21</sup> Whereas, according to one study,<sup>22</sup> both general dentists and specialists possessed deficient knowledge of dento-alveolar trauma management. In the present study, we found positive influence of additional specialist training on the knowledge level of dentists, which is in agreement with other studies.<sup>18,23,24</sup> This reflects a need to emphasise on post-graduation and specialist training in trauma management.

Comparing the current results with other surveys, it was observed that almost all studies have reported low level of knowledge among dentists except one study which reported adequate level of knowledge in Iranian dentists.<sup>20</sup> The most probable reason for lack of adequate knowledge in our dental community could be lack of emphasis on trauma in undergraduate dental curriculum and lack of specialised education and training sessions on dental trauma management.

It is assumed that the experience of practitioner is associated with better knowledge and plays a crucial role in managing trauma injuries. Studies endorse that with increased years of clinical practice, the knowledge of

dentists regarding dental avulsion injuries improve.<sup>25</sup> However, the present study did not find any such association. Relatively good knowledge of young dentists could be due to their recent graduation and up-to-date knowledge.

Successful treatment of tooth avulsion is dependent on different factors, including extra-oral dry time (EODT), storage medium, pulpal and periodontal necrosis, tooth development and associated bone fracture.<sup>26</sup> Among all the factors, EODT and storage medium are considered the most critical factors that affects the outcome of an avulsed tooth. Results of the current study showed that only 50% of dentists were aware that EODT is a critical factor for optimal healing of an avulsed tooth and 80% dentists recognised less than 60 minutes as a critical time. This is contrary to the findings of a study<sup>27</sup> that reported better knowledge of dentists in terms EODT. However, in that study the knowledge of dentists was poor regarding the critical time for replanting the tooth.

The strengths of the current study were appropriate response rate, multiple relevant questions and a good reliability of 90%. However, it is very difficult to compare studies because of varying criteria and methodology (different questions asked, categorised and assessed differently etc.) adopted to evaluate knowledge of dentists regarding immediate management of avulsion and, thus, we recommend utilising a standardised survey protocol.

In terms of limitations, the questionnaire used in the current study was not a validated one. As these results are from Karachi only, these cannot be generalised to all dentists in the country. There could also be a chance of reporting bias as people could have answered what they don't follow in actual practice.

We recommend an overall improvement of undergraduate and postgraduate education on dental traumatology. Specialised courses/continuing dental education programmes should be arranged for dentists, physicians, nursing staff etc. Awareness campaigns such as 'Save a tooth' should be launched to educate school teachers and parents as well.

## Conclusions

The knowledge of dentists in Karachi, Pakistan, was found to be deficient regarding immediate management of dental avulsion injury. Knowledge was significantly associated with specialty of practice and years of additional training.

**Disclaimer:** None.

**Conflict of Interest:** None.

**Source of Funding:** None.

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