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## Scientific article

# Knowledge of managing avulsed tooth among general dental practitioners in Malaysia



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### ABSTRACT

**Background:** Dental and maxillofacial injuries are one of the areas of concern highlighted in the Malaysian National Oral Health Plan 2011–2020. General dental practitioners (GDPs) have the responsibility of diagnosing and assessing dental trauma and determining the prognosis and outcomes of trauma along with its management. The purpose of this study was to evaluate the knowledge base and preferred methods of general dental practitioners regarding the management of avulsed tooth.

**Methods:** A random convenient sampling methodology was employed for sample selection. A pre-tested 11-item questionnaire was validated on the dental officers. The survey was distributed to 182 GDPs attending the annual Malaysian Dental Association conference in January 2010. The data obtained was statistically analyzed using descriptive analysis and logistic regression was employed to predict the probability of achieving high scores.

**Results:** A total of 182 general dental practitioners participated in the study, with the majority being female ( $n=153$ , 75%). The place of practice significantly affected the knowledge score. In the group that scored more than 80 points ( $n=84$ , 46%), 76% of them worked with government hospitals. Age, work duration and number of traumatised teeth previously treated had no significant effect. The odds ratio for place of practice indicates that respondents who work in government hospitals are 3.6 times more likely to score more than 80 points compared to those who worked in private clinics ( $OR=3.615$ ,  $P=0.001$ ).  
**Conclusion:** The knowledge level on the management of avulsed tooth among general dental practitioners in Malaysia needs to be improved. Strategies in improvement of the Malaysian dental educational system, continuous dental educational activities and utilisation of guidelines on trauma management should be recommended to increase the knowledge level of avulsed tooth management to ensure good treatment outcomes.

**Clinical implication:** Trauma prevention and further education regarding the management of avulsed tooth is an essential requirement to improve general dental practitioners knowledge and clinical skills.

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## Introduction

Tooth avulsion is defined as a total displacement of a tooth from its socket [1]. Avulsion of teeth is one of the most serious dental injuries [1], representing about 16% of all dental injuries [2]. Maxillary central incisors are the teeth most commonly prone to avulsion [1]. Da Silva et al. reported that the incidence of dental trauma over one year period of evaluation in Brazil was 15.29%, of which luxation and avulsions were the most frequent injuries [3].

Prevalence of dental injuries to the anterior teeth ranged from 2.6% to 6.1%, as reported by earlier studies conducted in Malaysia [4,5]. Data from the National Oral Health Plan (NOH Plan) 2011–2020 stated that the prevalence of dental injuries in the year 2007 for 12- and 16-year-old patients were 5.4% and 4.4%, respectively [6]. Therefore, the NOH Plan identified dental and maxillofacial injuries as one of the primary areas of concern and strategies are listed in this report to prevent, and improve the management of, dental injuries by dentists [6]. These injuries may be related to increased participation in sports and recreational activities associated with active lifestyles and ignorance of, or disregard for, wearing injury-prevention devices [5]. Based on a recent survey, more than 40% of university athletes in Malaysia claimed they sustained dental injuries while playing sports [7]. When dental trauma occurs, these injuries may have a detrimental psychological effect on the athletes and their colleagues [8].

General dental practitioners (GDPs) have the responsibility of diagnosing and treating dental trauma, as well as to inform both the patient and the parents of the prognosis and outcome of this treatment. It is well established that immediate measures taken at the place of accident after the tooth avulsion occurs are essential to ensuring a good prognosis and treatment outcome of the replantation [1]. As such, it is important that appropriate instructions are given by the dentists to the people at the emergency site for immediate replantation of avulsed tooth. Several studies were carried out to assess the knowledge of oral health professionals in various countries on the emergency management of avulsed tooth and their overall knowledge has been reported to be limited, requiring improvement [9–12]. General dental practitioners should be well educated in this field [12]. However, surveys from other countries indicated that the knowledge level was low. For example, in Kathmandu, 68.6% of dentists thought that primary avulsed tooth should be replanted [13], as opposed to the International Association of Dental Traumatology (IADT) guideline, which states that primary teeth should not be replanted [13]. Hence, there is a need to assess general dental practitioners' knowledge regarding the management of avulsed tooth due to trauma. The purpose of this study was to evaluate the knowledge base of managing tooth avulsion injuries among general dental practitioners in Malaysia.

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## Methods

This study was approved by the UKM Faculty of Dentistry Ethical Research Committee. A questionnaire was developed consisting of two parts: Part A – demographic data, and Part B – management of dental trauma. Seven multiple choice

questions on knowledge of managing avulsed tooth and four questions on the preferred methods of management of avulsed tooth among general dental practitioners were constructed. The questionnaire was validated and pre-tested on the dental officers in the University Kebangsaan Malaysia before they were distributed to the respondents.

The respondents were recruited from a random convenient sampling of general dental practitioners who attended the Malaysian Dental Association's conference in January 2010. An information sheet was prepared to explain the objective and importance of the study together with a consent form to participate in the proposed study. All respondents gave their written consent before completing the questionnaires. The data was recorded and analyzed using the Statistical Package for the Social Sciences, software version 20.0 for Windows (IBM; SPSS Inc., Chicago, IL, USA). Descriptive analysis was used to describe the percentage of responses and logistic regression analysis was employed to assess the significance of each background variable (gender, age, place of practice, practice duration and number of traumatised teeth previously treated) in predicting the probability of achieving high scores. The level of significance was set at  $P < 0.05$ .

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## Results

### Demographic characteristics

A total of 182 general dental practitioners participated in this study. The respondents comprised of 75% females ( $n=135$ ) and 25% males ( $n=46$ ). The age of the respondents ranged from 25 to 61 years old, with a mean age of  $35.8 \pm 8.8$  years. The duration of the practice varied from 0.5 to 33 years, with a mean duration of  $9.8 \pm 8.1$  years. Slightly more than half of the respondents ( $n=105$ ; 58%) worked in government dental clinics, while 42% ( $n=76$ ) were private practitioners. The number of avulsed teeth treated in the past 2 months ranged from 0 to 12 teeth, with a mean number of  $1 \pm 2.4$ .

### Percentage distributions of the responses to questions on knowledge of managing avulsed tooth

Percentage distributions of responses for each question are shown in Table 1. The majority of the respondents correctly answered saliva and milk ( $n=156$ ; 85.7%, and  $n=145$ ; 79.7% respectively) as the appropriate transport medium for an avulsed tooth. A higher percentage of respondents gave the correct response of rinsing the dirty avulsed tooth ( $n=153$ ; 84.1%) and treating the socket with gentle irrigation and aspiration with saline before replantation of an avulsed tooth into the socket ( $n=151$ ; 83%). Regarding the type of splint which was used to stabilise the replanted tooth, 45.6% of respondents gave the correct response of using a flexible splint and 64.8% of them answered correctly of using a splinting duration of 7–10 days. Most respondents answered correctly regarding the possible sequelae of replantation of avulsed tooth, citing resorption ( $n=163$ ; 89.6%), followed by pulpal necrosis ( $n=146$ ; 80.2%) and ankylosis ( $n=119$ ; 65.4%).

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