



Knowledge of Primary School Teachers Regarding Dental Trauma Management in Al-Baha, Saudi Arabia.

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Abstract. Objectives: The primary objective of this cross-sectional study was to evaluate the knowledge of schoolteachers in Al-Baha, Saudi Arabia, regarding traumatic dental injuries and their management. The secondary aim was to examine the impact of gender, age, receiving first aid training, and years of experience on teachers' knowledge in this area. Material and methods: Data was gathered using a self-administered questionnaire with closed-ended structured questions from male and female teachers in primary schools located in Al-Baha City. The questionnaire consisted of two parts: part one collected basic demographic information, while part two focused on questions related to the management of dental traumatic injuries. The total sample size for the study was 162 teachers. Results: The questionnaire was filled in by 162 primary schoolteachers. Merely 8% of the teachers had undergone a first-aid training program, and only 5% received information about dental injury management in such training. Regarding the knowledge of dental traumatic injury management, 72% of the teachers recognized the significance of time in treatment. A small percentage of teachers provided correct answers regarding the appropriate storage medium. Conclusion: Primary schoolteachers' knowledge of dental traumatic injury management is inadequate.

[Manar Alrashidi and Aman Khan. **Knowledge of Primary School Teachers Regarding Dental Trauma Management in Al-Baha, Saudi Arabia.** *Nat Sci* 2023,21(7):13-18].ISSN1545-0740(print);ISSN2375-7167(online).<http://www.sciencepub.net/nature> 02.doi:10.7537/marsnsj210723.02.

Key words: knowledge, dental trauma, children, teachers.

Introduction

Traumatic dental injuries (TDIs) are prevalent in children of all age groups and can lead to tooth displacement, fractures, or tooth loss causing negative impacts on function, esthetics, and psychological well-being of children (1,2).

Approximately one-fourth of children experience dental trauma while at school (3), with males being affected twice as often as females (4,5). This occurrence is most frequent among children aged 8 to 10 years (6). The upper central incisors are the teeth most affected by such trauma (7,8).

Falls, participation in sports, bicycle riding, and car accidents are the primary reasons for dental traumatic injuries (TDIs). Children with Class II division 1 malocclusion, increased overjet, and incompetent lips that do not adequately cover the upper front teeth are more susceptible to experiencing such trauma (4,9,10).

Prompt and appropriate first aid administered by individuals present at the scene of a traumatic incident, including school staff, is vital for traumatized teeth management. Immediate and proper management plays the successful replantation of the avulsed tooth. These factors include the duration of time the tooth remains outside of the oral cavity, as well as the choice of storage medium for the tooth during that period. School teachers have limited knowledge and skills when it comes to

a significant role in determining the prognosis of the injured teeth (11,12). Various international studies have revealed a lack of knowledge among schoolteachers regarding dental trauma. This lack of knowledge has been reported in different Middle Eastern regions as well, as indicated by studies conducted in those areas (12-15).

There have been limited studies conducted on a national level to assess the knowledge regarding the management of dental traumatic injuries (TDIs) among different community members (16-19). Most of these previous studies have consistently identified a lack of knowledge among schoolteachers regarding the appropriate management of TDIs (13,17,20,21).

Avulsion refers to the complete displacement of a tooth from its socket. This condition constitutes a substantial proportion of dental injuries, accounting for as high as 16% of such cases. In this scenario, two critical factors contribute to

managing such conditions. As a consequence, many children arrive at the dental clinic late, leading to a less favourable prognosis.

Therefore, the objective of this study was to evaluate the knowledge of elementary school teachers in Al-Baha

city, Saudi Arabia, regarding the management of dental traumatic injuries.

MATERIALS AND METHODS

This observational cross-sectional study focused on primary schoolteachers in Al Baha city, Kingdom of Saudi Arabia (KSA). four schools were randomly chosen to represent various districts within Al-Baha city. The teachers were invited to participate voluntarily in a questionnaire-based study which was in Arabic. Each participant provided informed written consent in accordance with the ethical principles outlined in the World Medical Association Declaration (22).

In order to guarantee that the questionnaire was understandable for the participants, a pilot study was carried out with teachers who were not part of the main sample. The schoolteachers received an electronic self-administered, anonymous, closed-ended questionnaire, which had been previously validated.

Descriptive analysis was conducted, presenting the frequencies and percentages of the responses. Additionally, a Chi-square test was performed to examine the relationship between knowledge and several variables. A significance level of $P \leq 0.05$ was used to determine statistical significance in the study.

RESULTS:

Out of the total of 190 questionnaires distributed, 162 participants fully completed all the items on the questionnaires, while 28 questionnaires were excluded due to missing answers. The basic demographic information was presented in the form of numbers and percentages (table 1).

The questionnaire consisted of two sections. The first section gathered information on basic demographics data, attendance of first aid training and the ability to distinguish primary teeth from permanent teeth (table 1).

The second section of the questionnaire focused on questions related to the management of various dental traumatic injuries (TDIs). For each question, a score of 1 was assigned for a correct answer, while a score of 0 was given for an incorrect answer. Each questionnaire was then given a total score, representing the percentage of correct answers. A score above 70% indicated good knowledge, a score between 50% and 69% indicated acceptable knowledge, and a score below 50% indicated poor knowledge.

The collected data were analyzed using the Statistical Package for the Social Sciences software version 17.0 (SPSS Statistics, IBM, New York, USA).

Table 1: Demographic data of the study sample demographics/characteristics

Variable	No.	Percentage.
Gender	Female	94 (58%)
	Male	68 (42%)
Age groups (years).	Younger than 35	63 (39%)
	36-50	86 (53%)
	Older than 50	13 (8%)
Years of experience.	1-10	57 (35.2%)
	11-25	78 (48.2%)
	26 or more	27 (16.6%)
Received first-aid training.	Yes	13 (8%)
	No	149 (92%)
Learned dental injury management in first-aid training.	Yes	8 (5%)
	No	154 (95%)

The responses to the knowledge questions in the second part of the questionnaire are displayed in Table 2. Regarding whether they should save the broken tooth in case 1, only quadrant of the participants answered the question correctly. Nearly half of the respondents answered correctly regarding the place of treatment of the dental traumatic injuries and the appropriate time of treatment.

Seventy-eight percent of teachers reported that they would send the child with a broken tooth immediately to the dentist. Regarding the management of avulsed teeth, only 4% of the teachers reported that the avulsed tooth should be repositioned, and the child should be sent to a dentist. More than two-third of the sample stated that the time plays an important role in management of avulsed permanent teeth. Finally, a small percentage (5.6%) of teachers provided correct responses to questions regarding the appropriate storage medium for preserving avulsed teeth.

Table 2: Knowledge toward the management of dental traumatic injuries

Questions		
Case 1: an 11-year-old child fell and broke an upper front tooth (Figure 1).		
Q1. Should the broken piece of the tooth be saved?	Yes*	40(25%)
	No	99(61%)
	I do not know	23(14%)
Q2. The immediate action should be:	Send the child immediately to the dentist*	127(78%)
	Let the child rest	28(17%)
	I do not know	7(5%)
Case II: a 10-year-old child fell down and the upper front tooth was knocked out (Figure 2).		
Q1. What will be your immediate action?	Replant the tooth and send the child to the dentist immediately. *	6(4%)
	Save the tooth in a storage medium and send the child to the dentist immediately.	55(34%)
	Stop the bleeding and let the child rest.	86(53%)
	I do not know	15(9%)
Q2. Does time play an important role in saving a tooth?	Yes*	117(72.3%)
	No	35(21.6%)
	I do not know	10(6.1%)
Q3. Which storage medium is suitable for storing the knocked-out tooth?	Tap water	53(32.7%)
	Tissue paper	37(22.8%)
	Milk*	33(20.4%)
	Patient saliva	39(24.1%)

Most of the responding teachers had poor knowledge about the management of TDIs and few had an acceptable knowledge (figure 3).

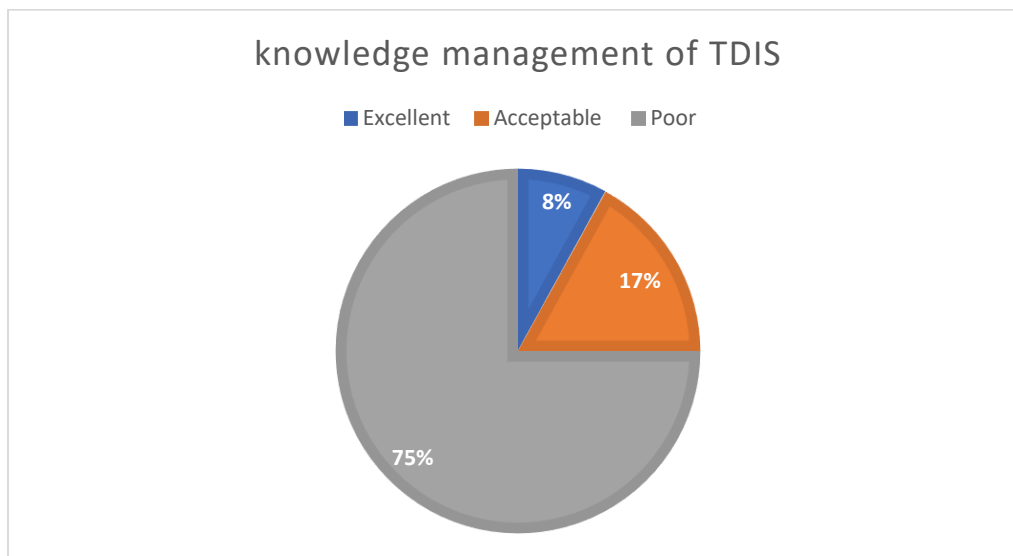


Figure 3: Knowledge distribution among the study sample.

Chi-square test was conducted to correlate the level of knowledge with gender, age, years of experience, and receiving first aid training including management the dental trauma. The association of knowledge with those variables was statistically insignificant, showing $P = 0.101$, $P = 0.1$, $P = 0.23$ and 0.803 , respectively.

Discussion:

The objective of this study, conducted through questionnaires, was to evaluate the knowledge of schoolteachers in Al-Baha, KSA, regarding the management of dental traumatic injuries (TDIs). The present investigation indicated insufficient knowledge among schoolteachers concerning the management of TDIs. These results align with findings from several international (12-15, 23) and national studies (16-19, 24, 25).

The study found that age did not have a significant impact on teachers' knowledge of TDIs management, which contrasts with the findings reported by Alluqmani (24) and Alsadhan (25). However, the study revealed that gender and years of experience did not have a statistically significant relationship with knowledge, consistent with the results reported by Alluqmani et al (24) and Alsadhan et al (25). In contrast, a different outcome was observed in Brazil, where female teachers exhibited a higher level of knowledge compared to their male counterparts (28).

The current investigation indicated that the majority of teachers (95%) had not received training on the management of TDIs during first-aid training.

Moreover, a significant proportion of teachers (92%) had not undergone any first aid training specifically for TDIs management. These results are consistent with

findings from other studies (14, 24), where 85.7% and 93.8% of teachers had also not received training for handling dental trauma, respectively. In case 1 questions, merely 25% of the teachers demonstrated proficiency in managing fractured teeth by recognizing the need to save the fractured part, which is consistent with the findings of Alsadhan et al.'s study (25).

In the present study, 78% of participants opted to send the child to the dental office immediately after the incidence. The time elapsed since avulsion is a crucial factor in the management of TDIs. In our study, 72.3% of the teachers acknowledged the significance of time in managing TDIs, a finding consistent with other studies (16, 26). More than 75% of the teachers did not choose the correct suitable storage medium for an avulsed tooth. Only 20.4% of teachers opted for milk, and 24.1% chose the injured person's saliva, which are the recommended physiological storage media according to the dental trauma guide (29). **Conclusion** Knowledge regarding traumatic dental injuries and their management among schoolteachers in Al-Baha was found to be inadequate. There was no significant association between teachers' age, gender, years of experience, and receiving first aid training with their knowledge concerning the management of traumatic dental injuries in schools.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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7/5/2023