

Knowledge of Primary School Teachers Regarding Dental Trauma Management in Hail Region, Saudi Arabia

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Abstract

Objective: To evaluate the knowledge of elementary school teachers about the management of dental trauma. **Material and Methods:** An observational study, with the cross-sectional design, was conducted among primary school teachers in Hail, Saudi Arabia during January 2017. The questionnaire distributed among 400 primary school teachers from 18 different schools using convenient sampling. Data were gathered and analyzed using SPSS version 20. **Results:** 378 (94.5%) respondents to the questionnaire. It was found that only 37.8% of the primary school teachers were able to distinguish between the primary and permanent teeth. Only 59.5% reported starting the management of a child with trauma immediately. Merely 38.4% believed that it is important to search for the missing tooth or the broken pieces, whereas 31% would re-implant the permanent tooth into the socket by themselves. Regarding the storage media, only 16.6% respond correctly. According to school teachers, the best way of learning the management of dental trauma at school is through videos (36.2%) and phone application (33.9%). **Conclusion:** School teachers lack knowledge regarding the management of dental trauma. We strongly recommend planning for dental trauma educational based on the teacher's perception after pilot testing its effectiveness.

Keywords: Tooth Injuries; Tooth Fractures; Tooth Replantation; School Teachers.

Introduction

Dental trauma is considered a significant dental public health issue because of high prevalence and incidence, its impact on health and wellbeing, although it can be prevented or reduced [1]. Amongst the children daily activities like running, cycling, etc., minor accidents could happen which may lead to dental injury and these injuries may lead to tooth loss, that may results in pain, difficulty in chewing, or even disability that will directly affect the quality of life [2].

An avulsion is one of the major consequences of dental trauma, it is the condition when a tooth is displaced out of its socket completely, and it accounts as high as 16% of the dental injuries. There are two essential factors to have successful replantation in this situation, the drying time as the tooth out of the oral cavity in addition to the storage medium [3]. School teachers lack the knowledge and ability to handle this kind of conditions; many of the children found attended late to the dental clinic, which results in poor prognosis [4]. Children from 7 to 12 years are considered more vulnerable to dental injuries; keeping that in mind, the role of the teacher in managing dental trauma is of primary importance [3].

A study was reported in the Hail region, regarding the handling of a dental trauma at primary schools. It was reported that 74.3% of primary school teachers confronted dental trauma amongst children's however, 55.3% of them were not confident enough to deal with the situation [2]. The present study aimed to measure the teachers' knowledge regarding the management of dental trauma and also aimed at knowing the preferred way of educating teachers managing dental trauma as per their own perception.

Material and Methods

Study Design

This is an observational study having a cross-sectional design. It was conducted among primary school teachers in the Hail region, the North of Saudi Arabia on January 2017.

Sample

According to the latest counting, the number of primary school teachers in the Hail region was 8214 in 2014. The sample size was calculated to achieve a 95% confidence level and to achieve the confidence interval of 5 and a population variance of 50%; the required sample size was 368 using Raosoft sample size calculator (Raosoft, Inc., Seattle, WA, USA).

Data Collection

The self-administered face and content validated questionnaire were distributed among 400 primary school teachers from 18 different schools using non-probability convenient sampling technique. An Arabic questionnaire was divided into two parts, one for the personal information (age, gender, years of experience) while the other to assess the knowledge regarding the management.

Data Analysis

Data were coded and analyzed using Statistical Package for the Social Sciences (SPSS) version 20 (IBM Corp., Armonk, NY, USA). Descriptive statistics were used to calculate the absolute and relative frequencies.

Ethical Aspects

Written informed consent was taken from the participant before the collection of data. The current study was approved by the Research Ethics Committee at the University of Hail (H-2016-034).

Results

The respondents to the questionnaire were 378 (94.5%) out of 400. A percentage of 54.8% were male, and 45.2% were female. Forty-one percent of the participants were in age between 30 and 39 years, and 38.4% in ages between 40 and 49 years. Table 1 shows the whole demographics of respondents.

Table 1. Distribution of participants according to demographic data and professional experience.

Variables	N	%
Gender		
Male	207	54.8
Female	171	45.2
Age (Years)		
20 – 29	38	10.1
30 – 39	155	41.0
40 – 49	145	38.4
50 and More	40	10.6
Years of Experience		
0 – 5	60	15.9
6 – 10	57	15.1
11 – 15	75	19.8
16 – 20	56	14.8
20 and More	130	34.4

We found that only 37.8% of the primary school teachers think they are able to distinguish between the primary and permanent teeth while the rest (62.2%) are either unsure or unable.

Regarding management of the situation, 16.1% of the teachers will send the child to home letting the parents decide what to do, 46.6% will take the child to the nearest hospital and 33.9% to the nearest dental clinic. Only 3.4% did not know what to do.

Regarding the appropriate time to deal with the accident, 59.5% reported that they would start the management immediately. Only 38.4% think that it is important to search for the missing tooth or the broken piece, and 31% would replant the permanent tooth into the socket by themselves (Table 2). Regarding the storage media, 16.7% respond correctly (Figure 1).

Table 2. Reimplant the avulsed tooth depending on the type of dentition.

Dentition	Reimplant the Avulsed Tooth				Total	
	Correct Response		Incorrect Response		N	%
	N	%	N	%		
Primary Tooth	271	71.7	107	28.3	387	100.0
Permanent Tooth	117	31.0	270	69.0	387	100.0

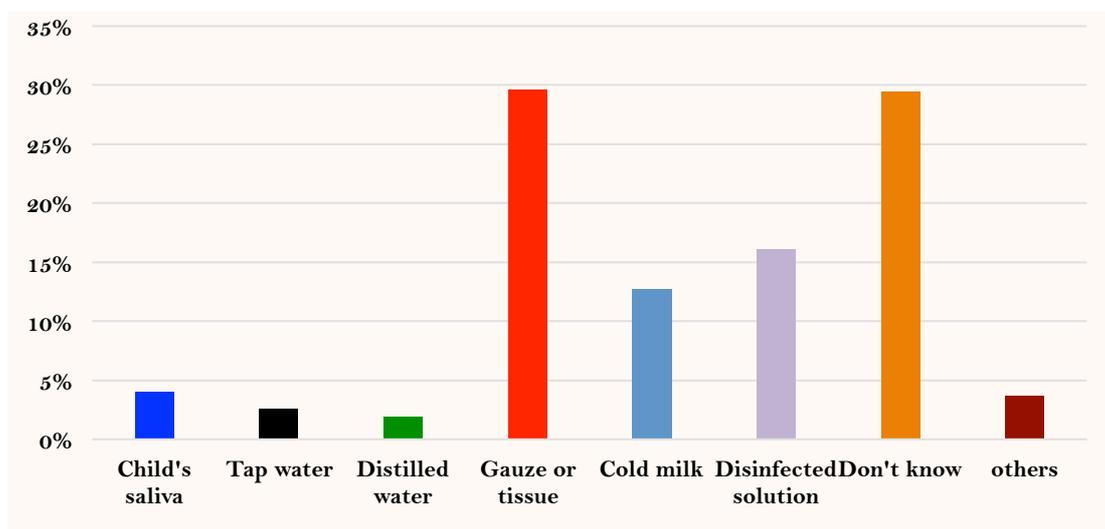


Figure 1. Distribution of tooth storage media.

It was perceived by school teachers that dental trauma educational learning videos (36.2%) and phone application (33.9%) could be the best ways to receive the knowledge of improving understanding of dental trauma. Other routes included lectures (23.5%) and brochures (6.3%).

Discussion

The study aimed to measure the knowledge and evaluate the ability of primary school teachers regarding dental injuries at school. As the child spends most of his day at school, and that involves running, playing, and accident falling, increasing the chance of dental injuries [5]. So the responsibility of the teachers to deal with the situation is of crucial importance. A study in near past showed that 74.3% out of 378 of the primary school teachers in Hail city faced a child with a dental injury in their school hours and 55.3% of them said that they were not confident enough to handle the incident [2] which consider high percentage compared to a study conducted in 2011, Abha city, Saudi Arabia where only 15 (15%) out of 100 of school teachers said they had previous experience and 85% reported that they did not have any previous experience of traumatic dental injuries [6].

In Riyadh city, the percentage reached 22.7% out of 277 school teachers who at least have seen one dental trauma case throughout their career [7]. Another study conducted last year in South Jaipur, India, where only 31.8% out of 280 of school teachers faced a child dental trauma [5]. The high frequency of dental trauma among local primary school students showed the need to develop higher safety standards and more secured playfields and evaluate the teacher's knowledge regarding

the management of dental trauma to determine the weak spots and suggest further research on how to improve it.

The primary school students in Saudi Arabia have an age range of 6-12 years. At that age, the type of dentition is mixed. Thus, the major factor is the teachers have to know besides immediate response and reaction to manage tooth avulsion is to distinguish between primary and permanent teeth as both dentitions have different management. The present study shows that only 37.8% of the primary school teachers thought they are able to distinguish between the primary and permanent teeth; means they can't decide when to re-implant the tooth or not. In agreement, similar two study show low level of knowledge and management of tooth avulsion and re-implantation among school teachers in Saudi Arabia [6,7] while majority 174 (61%) out of 292 of primary school teachers in UAE think that stopping the bleeding by compressing a cloth over the injury was the correct immediate action for primary and permanent teeth [5].

In the case of tooth avulsion, finding the avulsed tooth is the first rational action that has to be made. Unfortunately, only 145 (38.4%) think that it is important to search for the missing tooth or the broken piece as this study shows which the same when compared to other similar studies [8,9]. Furthermore, only 63 (16.7%) respond correctly regarding the storage media by choosing either cold milk or child's saliva. Milk as a storage medium is the most practical transport medium of the avulsed tooth because of its ready availability and compatibility for PDL cells only when it's cold and fresh [10]. Despite the risk of swallowing, the avulsed child's saliva is an acceptable storage medium for short (less than 90 min) to prevent damage to the PDL membrane [11]. Carrying the avulsed tooth in dry gauze or tissue will reduce the prognosis severely. Storage in tap water should be the last resort because of its hypotonicity, which would lead to necrosis of periodontal membrane cells [11].

In order to conduct effective school health education programs, finding the proper and most preferable type of education method is essential [12,13]. As the present study shows poor results of primary school teacher's knowledge regarding dental trauma management in the Hail region. The questionnaire involves questions about the best route to receive information to establish suitable methods of learning to reach the desired objectives of future educational programs in the region. Only 36.2% of school teachers prefer learning videos as a route of information, while the least preferred route was printed brochures (6.3%). The first and the second preferable route to receive information were learning videos and smartphone applications by (36% and 33.9%) respectively, while lectures and brochures came less preferable route to receive information among primary school teaches. That shows the e-learning is overcome the traditional method of learning may be the reasons behind that are the e-learning is easy to access anytime, easy to deliver, more audience coverage... etc. However, the optimum method of delivering information is by a combination of e-learning and traditional learning to eliminate any individual interest variation.

Conclusion

School teachers' lacks knowledge regarding the management of dental trauma in Hail, Saudi Arabia. We strongly recommend planning for dental trauma educational based on teachers' perception after pilot testing its effectiveness.

Authors' Contributions: YSA, AAS, SA, NFA, AAA, MAAA, and OSA contributed to the conception and data design, analysis, and interpretation and wrote the manuscript. AAS and SK designed the study and critically revised the manuscript. SA, NFA, AAA, MAA, OSA performed the experiments.

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