# Public school teachers' knowledge about management of traumatic dental injuries

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#### ABSTRACT

**Introduction:** Dental trauma frequently occurs in childhood, especially at school settings. For this reason, it is important that teachers and school staff know how to react when faced with dental trauma, particularly because the faster the dental intervention, the better the dental prognosis. **Objective:** The aim of this study was to assess public school teachers' knowledge about emergency management of dental trauma. **Methods:** Forty teachers from a Brazilian public school and a day-care center were interviewed. They answered a questionnaire which aimed to identify their profile; their knowledge about first aid, including dental trauma; the most prevalent type of injury; and how to manage them. **Results:** Out of 40 teachers, only 65% had received first aid training, and only 52% had received training in emergency management of dental trauma. A total of 40% had already witnessed cases of dental trauma at school and the majority of them (55%) were unaware of how often they occur. A significant number of people are not sure about how to react when faced with tooth crown fracture and avulsion. **Conclusion:** The present study showed that public school teachers' knowledge about emergency management of dental trauma is insufficient. Educational programs, explanatory lectures and training should be conducted to prepare professionals who are the first to face dental trauma in schools.

**Keywords:** Dental trauma. Knowledge management for health research. School health services.

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### Introduction

Contemporary education goes beyond textbooks, as it is also responsible for children's integral and human development. Up to the age of six, one's education focuses on the human body, as well as on psychological, intellectual and social aspects, thereby complementing the action of children's family and community. Thus, education professionals should be attentive not only to the teaching-learning process, but also to human development and general health care at the school environment.<sup>1</sup>

When general health is the focus of attention, the following topics should be taken into consideration: the type of food sold at school,<sup>2</sup> prevention of non-verbal and physical violence (bullying),<sup>3</sup> stimulus for physical activity,<sup>4</sup> and knowledge of emergency care in cases of accident, convulsion and dental trauma.<sup>5,6</sup>

Concomitantly to school life, contemporary lifestyle exposes children to injuries, especially during sports practice. Furthermore, a wide variety of recreational equipment with potential risk of dental trauma is available, and children are also exposed to violence still present in educational institutions.<sup>7-10</sup>

Dental trauma varies from a simple bump in the mouth and adjacent tissues to fractures of teeth and bones. Whenever it occurs, some emergency measures can be taken so as to avoid major sequelae; however, many educational professionals disregard such knowledge.<sup>11,12,13</sup>

The relationship established between dental and educational professionals in the school environment could increase effectiveness of dental trauma treatment; however, the connection between these professionals is currently loose.<sup>13,14</sup>

Children and adolescents spend a considerable amount of time at school. According to epidemiological studies, that is where accidents frequently occur,<sup>8,9,10,12,15,16,17</sup> as children run, walk, play and fall. This affects the region of the mouth and leads to tooth, maxilla or mandible bone fracture, as well as tooth avulsion, abrasion and cheek, lips and tongue cuts.<sup>15,16,17</sup> The aforementioned facts should not be underestimated, particularly because school is a place under surveillance and, for this reason, educational staff should master emergency measures to help, calm children down and minimize accident sequelae.<sup>5,6,13,14</sup> Thus, the aim of this study was to assess public school teachers' knowledge about emergency management of dental trauma.

### **Material and Methods**

Public school teachers' knowledge about emergency management of dental trauma was assessed by an individual interview performed with 40 teachers from one Brazilian public school and one daycare center. The questionnaire comprised 13 questions aimed to identify the subjects' profile; their knowledge about first aid, including dental trauma; the most prevalent type of injury; and how to manage them.

### **Results**

A total of 40 teachers were interviewed, 95% of which were females aged between 20 and 40 years of age. In terms of professional training, 42.5% of teachers had undergraduate degree while 42.5% of them had a postgraduate degree. Most respondents had an average 5-year work experience and 65% of them reported having first aid training. Nevertheless, only 2.5% had had dental trauma emergency management training and 60% had witnessed cases of dental trauma at school.

Figure 1 evinces teachers' ignorance about the frequency of dental trauma in children at school age. 55% of them answered they do not know about that frequency. Although most teachers answered knowing the types of trauma, 25% of them reported not doing so (Fig 2).

When asked about the best procedure in cases of crown fracture (Fig 3), the majority of respondents answered that parents should be notified (50%), the student should be taken to dental care (40%) and the lost part of the tooth should be found (77.5%).

Figure 4 shows the results regarding the best procedure in cases of tooth avulsion. Most interviewees answered that parents should be notified (45%) and the student should be taken to dental care (47.5%). Furthermore, most teachers also claimed to be important looking for the lost tooth and storing it in water or milk. Nevertheless, a significant number of professionals (27.5%) reported not knowing what to do when avulsion occurs, and no one considered the possibility of immediate reimplantation.

#### Discussion

A significant number of school accidents occur because children are involved in recreational activities during which they run, jump and walk without having enough motor coordination, thereby making them prone to fall and leading to dental trauma, especially tooth fracture and avulsion.<sup>8,9,10,12,15,16,17</sup> Thereby, teachers play an important role in emergency management of dental trauma, which is key to treatment success and longevity, as prognosis is directly related to the time passed between diagnosis and treatment.<sup>11-14</sup>

There is a marked tendency towards women joining the teaching profession.<sup>18</sup> Furthermore, it is known



Figure 1. Level of teachers' knowledge about the frequency of dental trauma in children at school age.



Figure 3. Level of teachers' knowledge about the conduct to be performed in cases of crown fracture.





Figure 4. Level of teachers's knowledge about the conduct to be performed in cases of tooth avulsion.



Figure 2. Level of teacher's knowledge about the most common types of dental trauma.



that teachers should instruct and educate their students globally.<sup>1</sup> For this reason, the search for knowledge beyond graduate and postgraduate programs has been further explored and supported by government policies. These data are corroborated by the present study that showed the majority of respondents to have a postgraduate degree.

Despite receiving instructions on first aid during undergraduate training, teachers proved careless about dental trauma emergency management. Most professionals had received first aid training; however, only a small portion of these people had focused on dental trauma emergency management, as stated in a previous study.<sup>13</sup>

Tooth avulsion and crown fracture are the most prevalent type of trauma in the permanent dentition.<sup>12,15,16,17</sup> In the present study, a significant amount of teachers had witnessed trauma at school; however, most of them were unaware of how frequent they occurred, and some of them did not know about the types of dental trauma.

In cases of crown fracture, bonding the fragment back proves feasible and effective. However, the shorter the time between trauma and treatment, the better prognosis will be.<sup>19</sup> Furthermore, crown fracture exposes dentin tubules to the oral environment, which may lead to minor bacterial contamination that needs treatment to avoid damaging the pulp and, therefore, aggravating the case.<sup>19,20</sup>

After tooth avulsion, immediate tooth reimplantation at the accident scene is the ideal to maintain periodontal ligament cells.<sup>21,22,23</sup> However, in most cases, this is not performed due to lack of knowledge of the general population, caregivers, teachers and school staff. Successful reimplantation prognosis basically relies on the integrity of the periodontal ligament cells, which is directly related to tooth storage medium, extra-alveolar time and non-manipulation of the root.<sup>21,22,23</sup>

Although all respondents answered that the ideal conduct in case of crown fracture and avulsion is notifying parents, finding the tooth/fragment and taking the child to dental care, teachers evinced lack of instruction when faced with emergency management of dental trauma. Thus, it is suggested that training be carried out with these professionals. Educational lectures should be performed, the subject should be included in guidelines for first aid and the interaction between Dentistry and education professionals should be improved.<sup>24</sup> Therewith, emergency measures can be taken in the school environment, thereby increasing the chances of success in cases of dental trauma.

## Conclusion

The present study concluded that public school teachers' knowledge about emergency management of dental trauma is insufficient. Educational programs, explanatory lectures and training should be conducted to prepare professionals who are the first to face dental trauma in schools.

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