

KNOWLEDGE ABOUT DENTAL TRAUMA MANAGEMENT AMONG SCHOOL TEACHERS IN ILHÉUS, BAHIA

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ABSTRACT

Introduction: Dental trauma is a public health problem affecting children and adolescents. Dental avulsion is the most severe injury resulting from this trauma. Most of the accidents that cause avulsions occur at school or in places close to it, causing damages in patients and their relatives. It has its prognosis aggravated by incorrect conducts taken at the accident place. **Aim:** To evaluate the level of knowledge of elementary school teachers in the Ilhéus-Bahia city on the conduct of traumatic dental avulsion cases. **Methodology:** The schools were randomly selected, it was 6 private and 6 public schools. A questionnaire was applied. Sixty-five teachers participated. The statistical test used was the chi-square with a significance level of 5%. **Results:** most teachers knew what dental avulsion means (58.46%), only 15.63% have ever witnessed any case of the knocked-out tooth. 93.85% know dental replantation, only 4.62% can perform replantation. There were two variables with significant differences when comparing knowledge among school types: the ideal time of replantation ($p = 0.018$) and instructions received previously on the subject ($p = 0.04$). **Conclusion:** Most of the participating teachers had little knowledge about the subject and what measures should be taken.

KEYWORDS: Avulsion; Dental trauma; Teachers.

1. INTRODUCTION

Dento-alveolar trauma is a public health problem¹ sometimes cited as one of the types of urgency that affects most school-aged individuals². The upper incisors are the most susceptible dental units, and the central incisor is more affected³. When these teeth are affected by forces resulting from a collision, they may fracture the crown and root, or suffer traumas in the periodontal tissues causing mild, moderate or severe dislocations to the dental unit.

Avulsion occurs when the dental organ moves completely from its alveolus⁴, and is one of the most severe injuries, commonly accompanied by pain, soft tissue damage and bleeding, generating functional, aesthetic and psychological damage³. The negligence in the way of conducting trauma patients, by those who are in the

moment of the accident and do not have enough information the subject and do not know how to proceed, contributes to the late care of this urgency⁴.

The etiological factors related to alveolus-dental trauma and consequently avulsion are school accidents, traffic accidents, sports, cycling⁵ and even fall due to epilepsy⁶. Patients with maxillary protrusion are more likely to suffer this type of injury if they are affected by some trauma⁷.

According to Lopes and Siqueira Jr (2015)⁴ in the age group between 7 and 10 years old, the incidence of cases is between 1% and 16%. Cases are also found at a high frequency in the group of 6 to 17 years old⁷.

This type of accident often occurs in or near school settings. The treatment for an avulsed permanent tooth is the reimplantation that must be performed as soon as possible to have a higher chance of success⁸. If it is not possible to reimplant, the ideal is to keep the tooth in an appropriate environment until the patient reaches a professional who can treat it properly, because, in the case of delayed reimplantation, the goal is to restore aesthetics, function and also the patient's psychological⁹. The authors concluded that most of the teachers are not aware of dental avulsion nor about emergency procedures for the diagnosis of dental malocclusion.

The relevance of this study is because the dental avulsion is the most severe and has a wide range in individuals mainly of school age, provoking functional, aesthetic and emotional damages in patients as well as in their relatives. It occurs primarily in school environments, and the prognosis is aggravated when the patient receives care with the wrong conducts and still later. It is known that most elementary school teachers do not receive appropriate instruction on the subject.

Therefore, the need for the proper orientation of these education professionals is evident. Therefore, the objective of the present study was to evaluate the level of knowledge of elementary school teachers in public and private schools in the city of Ilhéus, Bahia, on the conduct of dental avulsion trauma.

2. MATERIAL AND METHODS

This study was approved by the research ethics committee of São Leopoldo Mandic under the number of

opinion 2,813,575. The present work is a cross-sectional study in which all elementary school teachers from 12 schools were randomly selected, 6 of whom were private and 6 public from the city of Ilhéus, Bahia. The sample consisted of 65 teachers who agreed to participate in the study by completing the questionnaire and signing the informed consent form. The questionnaire applied was delivered to the schools selected for the elementary level teachers and collected after 7 days. It consisted of 14 questions about dental avulsion and forms of conduct. The schools that participated signed permission to use space and infrastructure. The type of statistical analysis used was chi-square with a significance level of 5%.

3. RESULTS

Data from 65 public and private school teachers were analyzed. The female population ($n = 54$, 83.08%) and public school teachers ($n = 36$; 55.38%) predominated as shown in Figure 1.

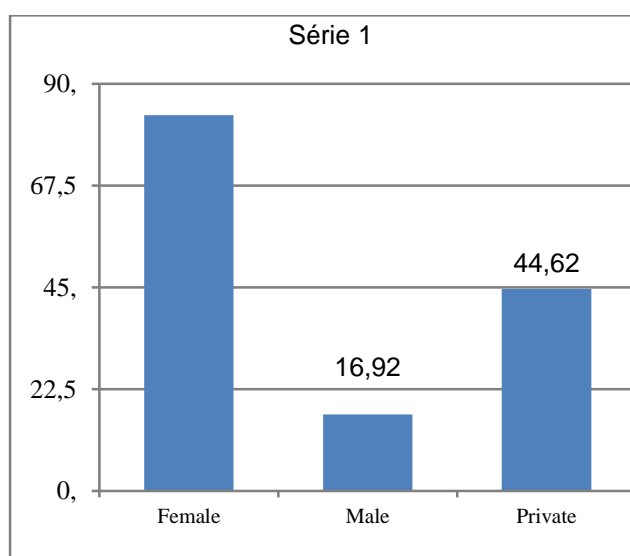


Figure 1- Percentage characterization of the study population by gender and type of financing of the educational establishment, Ilhéus-BA, 2018.

The results of the research showed that, concerning the topic, most knew what dental avulsion meant 58.46%, while 41.54% of the participating teachers were not aware of the subject. However, only 15.63% have already witnessed some occurrence of this type of traumatic injury during their careers. Regarding previous knowledge about dental reimplantation, 93.85% of the teachers knew the subject while only 6.16% did not know. Of all the participants, 76.92% found it possible to perform the dental reimplantation successfully, but only 4.62% felt able to perform reimplantation, 23.08% did not believe in the possibility of reimplantation. This study also showed that 89.23% of the teachers considered that receiving instructions regarding the topic was extremely relevant. Table 1 presents the results of the questionnaire. It is observed a significant lack of knowledge of these professionals about the subject.

Table 1- Knowledge of teachers of public and private schools concerning avulsion and dental reimplantation, Ilhéus-BA, 2018.

Variable	n	%
Moment of dental repositioning		
Up to 30 minutes after trauma	6	10,91
From 1 to 2 hours after trauma	3	5,45
24-72 hours after trauma	4	7,27
Immediately after the trauma	19	34,55
Do not know	2	41,82
What is the attitude after dental avulsion		
Catching the tooth by the crown		
Pick up the tooth anywhere	29	44,62
Do not know	30	46,15
	6	9,23
Location of tooth storage		
Container with tap water	7	10,77
Container with milk	5	7,69
Container with a saline solution	11	16,92
Dry paper napkin	11	16,92
Do not know	31	47,69
What to do if the tooth is dirty		
Brush it by wiping crown and root	2	3,08
Rinse it with saline solution	13	20,00
Rinse it with tap water	23	35,38
Wash it with milk	2	3,08
Leave it as it is	2	3,08
Do not know	23	35,38
Location to be provided first aid		
Public hospital	5	7,69
Faculty of Dentistry	1	1,54
Basic Health Unit	5	7,69
Private dentist	2	3,08
Another place	2	3,08
Dentist near the site	28	43,08
Specialist dentist	22	33,85

When comparing public and private school teachers, only two criteria presented a statistically significant difference: the moment of dental repositioning and the possible instructions previously received on the subject. In private school, 48% reported the need to reimplant immediately after the trauma and 20% up to 30 minutes after the trauma. In public school, these percentages corresponded to 23.33% and 3.33% respectively. About previously received information about the subject, 3.45% of private school teachers had previously accessed the instructions, while no public school teacher reported having had access to any information. There was no difference in the other variables between public and private schools

4. DISCUSSION

The results of this study showed insufficient knowledge about the emergency measures that should be taken for dental avulsion by primary school teachers in the municipality of Ilhéus-Bahia. In this paper, we present the results obtained in the literature, and the results obtained in this study are similar to those reported in other studies in Brazil and other countries^{10,11}, it is understood that the teachers' lack of knowledge about the subject is a problem that is due to their lack of orientation. As noted in the studies of similar designs already cited, the present study also found that the majority of participants were women.

Most of the participants in this study (58.46%) knew what the issue was, but only 15.63% had already witnessed such trauma. In contrast to this, Granville-Garcia *et al.* (2007)¹² in their research with physical education teachers in Caruaru-PE, found that only 20.3% knew what avulsion was, and 44.4% reported having seen accidents that caused this type of dental trauma. Regarding the incidence of avulsion, the authors Lopes & Siqueira Jr (2015)⁴, affirm that there is a variation from 1% to 16% of all traumas that affect permanent teeth, not being a frequent injury, as also found in this research.

Prasanna *et al.* (2011)¹¹ in their study in India showed that 32% of their participants had some previous knowledge about dental reimplantation. Whereas in this study we obtained that 93.85% knew what the reimplantation was and most believed that it was possible to perform this procedure which is surprising because it shows that although they had not previously received instructions on the subject, they had some general knowledge of the subject.

It is known that several authors recommend that dental reimplantation is performed immediately so that a successful prognosis can be obtained^{8,9}. In this study, only 4.62% of the teachers considered themselves capable of performing the dental reimplantation, which would undoubtedly contribute to a worse prognosis, due to their lack of preparation. In Poland, a case¹³ for immediate dental reimplantation performed by a 12-year-old boy at the accident site was reported, which shows the ease of performing the reimplantation technique. 89.23% stated that this type of instruction is essential for a primary school teacher.

Regarding the ideal moment for dental repositioning, 41.82% did not know how to respond. It is known that time is essential when talking about avulsion. According to Lopes & Siqueira Jr (2015)⁴, it is more indicated that the reimplantation of the avulsed unit is done until the first 20 minutes, and for Andreasen & Andreasen (2001)⁸ the ideal is to be done immediately. However, 1 hour is still considered as the maximum tolerable time in which treatment success is assured. Al-Jundi (2005)¹⁴ suggests that this time should be between 20 and 30 minutes.

In this study, 46.15% stated that an avulsed tooth should be taken by any part, thus ignoring the periodontal ligament is clear since it should preferably be taken by the crown as recommended by Andersson *et al.* (2012)⁹.

As immediate reimplantation is not always possible, the idea is to keep the dental unit in a storage medium that has osmolarity and pH, so that the vitality of the cells of the periodontal ligament is maintained. This medium must be moist and possess some characteristics such as antimicrobial capacity, high availability, low cost, be able to eliminate foreign bodies adhered to the tooth, maintain the viability of the periodontal fibers, among others, as the cells begin to die from dehydration during the period extra-oral¹⁵.

However, 47.69% did not know the best storage place. According to Lopes & Siqueira Jr (2015)⁴, the storage media suggested in order of preference are milk, saliva, saline, and water. Water being the least desirable because it is a hypotonic environment and therefore causes rapid cell lysis and increases inflammation during reimplantation. Andreasen & Andreasen (2001)⁸ have shown Hank's Balanced Solution as the ideal storage medium because it is the most effective within at least 30 minutes when compared to milk and other substances, being that it presents greater capacity of maintenance of cellular integrity.

In most cases of avulsion, the dental unit falls to the floor and becomes dirty, so knowledge about what to do in these cases is extremely relevant. In the case of finding the dirty tooth, 35.38% said they would wash with tap water, 3.08% would brush the crown and root. Prasanna *et al.* (2011)¹¹, showed different results, in which 43% of the teachers answered that they would wash the tooth with saline, milk or tap water, however, 6% of them reported that they would brush the root and crown to ensure tooth cleaning.

Regarding the location to be provided first aid most participants (43.08%) said they would take the victim to a nearby dentist and 33.85% would take a specialist dentist. According to the first data, Prasanna *et al.* (2011)¹¹ found that 60% would take the student to a local dentist, but only 1% would take to specialists. Also, in the present study, a small part of the teachers (7.69%) would take the patient to a public hospital or to a Basic Health unit. In contrast De Lima *et al.* (2012)¹⁶ found that 29% of the participants would take the student to a health center.

When comparing the level of knowledge among the teachers participating in public and private schools, it was possible to notice that there were not great discrepancies in the answers, however, concerning the moment of dental repositioning, a value of $p = 0.018$ was obtained. In the private school, 48% stated that dental reimplantation should be done immediately after the trauma and 20% within 30 minutes, but in the public school, 23.33% said that the reimplantation should be immediate while only 3.33% believed that the same could be done within 30 minutes after the trauma. Berti *et al.* (2011)¹⁰ reported that 81.57% of the public school teachers would reimplant immediately after the trauma, a very different and even impressive result. However, Marcano-Caldera *et al.* (2018)¹⁷ in their study in Colombia did not find significant differences between the private and public school.

There was a considerable difference in response to having received some instruction previously on the subject. 3.45% of private school teachers reported having access to instructions, while no public school teacher had access ($p = 0.04$). Therefore, this study presents only two points in which there was a divergence between types of school. Haragushiku *et al.* in 2010¹⁸ did a study in Curitiba also comparing the knowledge among teachers of public and private schools. They obtained differences in other variables, only 27% of private teachers and 11% of public knew the procedures to be taken in cases of avulsion teeth, and more than 95% of all teachers did not feel able to perform the dental reimplantation as in the present study in which the number was 95.38%.

5. CONCLUSION

The results found in this study showed that most of the teachers participating in elementary schools in Ilhéus-BA had little knowledge about the subject of dental avulsion and what measures should be taken in these cases. This study presented only two variables that showed significant differences concerning the level of teachers' knowledge among school types. The first one refers to the ideal reimplantation moment ($p = 0.018$) and the second concerns possible instructions previously received on the subject ($p = 0.04$). The great need for dissemination of information about the subject to this public is vital. The first conducts in cases of avulsion contribute to the improvement of the prognosis of the students affected by this type of traumatic injury.

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