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Original Research Article

Knowledge assessment on dental avulsion of private and public school teachers of Curitiba

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Abstract

Introduction: Dental trauma is one of the most important oral health problems during childhood. It occurs frequently in the school environment and it is extremely important that the professors have knowledge on the subject because the management taken after the accident, directly influences on the prognosis. **Objective:** The aim of this study was to evaluate the knowledge level about dental avulsion of teachers who work in the private and public elementary schools in the city of Curitiba (PR, Brazil). **Material and methods:** A questionnaire adapted from Mori et al. (2007) was applied, consisting of three parts, Part I: general demographic data; Part II: basic questions about the importance of emergency management, experience in dental avulsion and the management to be taken in an event of dental avulsion; Part III: Questions about dental avulsion. The chi-square test was used to identify differences in responses for different variables, with significance level of 5%. **Results:** A total of 98 teachers answered the questionnaire (54 private and 44 municipal schools). Most were women (66% in private and 95.5% in municipal schools), with professional experience between 6-10 years and a postgraduate degree (81.1% of teachers in private schools and 79.9% of teachers in municipal schools). The statistical analysis showed a significant difference between the groups in age and about the emergency procedure for dental avulsion. **Conclusion:** It can be concluded that knowledge by the elementary school teachers in cases of dental avulsion is inadequate.

Introduction

Dental trauma is the most important problem of oral health in childhood, occurring frequently in the school environment, at the age range from 8 to 12 years old and in males [1]. Studies show that dental trauma already affects 10% of the population; of this percentage tooth avulsion ranges from 0.5 to 16% [11].

The tooth avulsion occurs when a tooth is completely moved out of its socket, mostly because of a trauma in the face region. The most affected teeth are the maxillary central incisors, both in the primary and permanent dentition [2-4].

In the permanent dentition, in case of dental avulsion, the ideal procedure is to carry out the immediate replantation at the accident site. If this is not possible, the avulsed tooth should immediately be stored in milk solution and the child should be referred to the dentist [2, 10]. The optimal time for performing the replantation is up to 30 minutes after the accident, because the tooth functions are more likely to recover due to the cells and fibers of the periodontal ligament responsible for root integrity and root insertion into the alveolar bone keep its vitality. The prognosis in these cases is mostly favorable [3]. In case deciduous tooth, the replant is not indicated because of the likelihood of ankylosis.

The extra-alveolar time and the storage medium are essential for the success of dental replantation. The occurrence of trauma in the school environment is frequent, it is important that teachers have knowledge on how to proceed in this accident. Several studies were conducted to evaluate the teachers' knowledge on dental avulsion. These studies showed that teachers' knowledge about the most appropriate actions to be taken is inadequate. Most authors also emphasized the need to expand the teachers' knowledge about dental avulsion, because these are often the first adults to have contact with the child after accidentally tooth loss [4, 7, 10].

This study aimed to evaluate the level of knowledge on dental avulsion, access to information, and the dental avulsion management of elementary school teachers working in private and public schools in Curitiba (PR).

Material and methods

This study was submitted and approved by the Institutional Review Board regarding ethical aspects (protocols #652.497 and #1.048.503).

We applied a questionnaire adapted from that of the study of Mori *et al.* (2007) [10]. The questionnaire was applied to teachers who taught students from the sixth to ninth year of municipal and private schools of Curitiba, Brazil. The questionnaire was administered between May and July 2015. The teachers who agreed in participating were not identified and signed a free and informed consent form.

The questionnaire was divided into three parts: I) General demographics – questions about age, gender, education level, and teaching experience; II) basic questions about the importance of emergency management, experience in dental avulsion, and which would be the management in case of dental avulsion; III) questions about dental avulsion. The responses were tabulated and expressed as frequency distributions and percentages. After delivery of the questionnaires, the teachers received a booklet with guidelines on the management in the case of dental avulsion.

The statistically analysis was accomplished with the aid of SPSS software version 13.0 for Windows (SPSS, Chicago, IL, USA). The chi-square test was used to identify differences in responses for different variables, with significance level of $p = 0.05$.

Results

A total of 98 professors answered the questionnaires, as follows: 54 of private schools and 44 of public schools. The part I showed that most of the respondents were females (66% of private schools and 95.5% of public schools), with expertise between 6-10 years and post-graduation (81.1% of private schools and 79.9% of public schools). The statistical analysis showed a significant difference between groups regarding age. A greater number of professors were at the age range of 20-30 years in the private schools, while the age range of 31-40 years in public schools was the most prevalent ($p = 0.005$). The table I shows the professors' profile.

Table I - Demographic characteristics of professors according to the school type (n = 98)

Demographic data	Private schools		Public schools		p
	n	(%)	n	(%)	
Respondents	54	100	44	100	
Age (years)					
20-30	20	37.0	3	6.8	0.005
31-40	17	31.5	17	38.6	
41-50	12	22.2	15	34.1	
51-60	5	9.3	9	20.5	
Gender					
Female	35	66.0	42	95.5	
Male	18	34.0	2	4.5	
Expertise					
< 1 year	1	1.9	0	0	0.413
1-5 years	14	26.4	6	13.6	
6-10 years	15	28.3	11	25.0	
11-15 years	8	15.1	10	22.7	
16-20 years	7	13.2	5	11.4	
> 21 years	8	15.1	12	27.3	
Post-graduation					
Yes	43	81.1	35	79.5	0.801
No	10	18.9	9	20.5	

The part II assessed the experience and management of teachers in cases of dental avulsion. Sixty-three percent of private school and 79.5% of municipal school teachers never witnessed a dental avulsion. Yet, most consider important to have knowledge on the management that should be followed in such cases. When asked about the emergency procedures for a dental avulsion, there was a statistically significant difference between the teachers' approach. Most private school teachers would take the child to emergency dental service, while public school teachers would call the child's parents ($p = 0.040$). Only 7.5% of teachers in private schools

and 9.1% of municipal schools marked that the dental replantation option for this question, it would be the ideal option.

On part III, the teachers were asked about the management of the avulsed tooth. There was no significant difference in the teachers' approach. Because most teachers would not make the dental replantation, they would wash the tooth with water and would store in a gauze or with little liquid amount. The liquid of choice by most teachers was the water. The ideal solution would be milk, but only 11.3% of teachers in private schools and 13.6% of teachers in public schools would use this solution (table II).

Table II - Experience and knowledge of professors in dental avulsion according to the school type

Questions	Responses	Private schools n (%)	Public schools n (%)	P value
Have you ever seen a tooth avulsion?	Yes	19 (36.5)	9 (20.5)	0.097
	No	33 (63.5)	35 (79.5)	
Do you consider important to have knowledge on the approach that should be taken in cases of dental avulsion?	Yes	49 (92.5)	42 (95.5)	0.560
	No	4 (7.5)	2 (4.5)	
What would you do with the child in case of dental avulsion?	Emergency dental service	26 (49.1)	15 (34.1)	0.040
	Search for the dentist	6 (11.3)	0	
	Call the child's parents	15 (28.3)	24 (54.5)	
	I would replant the tooth	4 (7.5)	4 (9.1)	
	Nothing	2 (3.8)	1 (2.3)	
Would you replant the avulsed tooth?	Yes	21 (39.6)	16 (36.4)	0.809
	No	32 (60.4)	28 (63.6)	
Would you wash the avulsed tooth?	Yes	31 (58.5)	21 (47.7)	0.242
	No	22 (41.5)	23 (52.3)	
If you were to wash the avulsed tooth, which solution would you use?	Water	22 (44)	24 (54.5)	0.778
	Water and soap	1 (2)	1 (2.3)	
	Water and salt	0	1 (2.3)	
	Milk	1 (2)	3 (6.8)	
	Saline	5 (10)	5 (11.3)	
	Did not answer	21 (42)	10 (22.7)	
If you did not replant, did you need to keep in some medium?	Yes	44 (81.5)	38 (86.4)	0.351
	No	10 (18.5)	6 (13.6)	
Which medium	Ice	15 (28.8)	13 (29.5)	0.729
	Piece of paper	3 (5.8)	2 (4.5)	
	Plastic	1 (1.9)	1 (2.3)	
	Gauze	16 (30.8)	12 (27.3)	
	Inside the child's mouth	1 (1.9)	4 (9.1)	
	In some liquid	16 (30.8)	12 (27.3)	
If you were kept in the liquid, which one did you chose?	Water	17 (32.1)	20 (45.5)	0.498
	Water and ice	3 (5.7)	3 (6.8)	
	Alcohol	1 (1.9)	2 (4.5)	
	Milk	6 (11.3)	6 (13.6)	
	Saline	10 (18.9)	5 (11.4)	
	Did not answer	16 (30.2)	8 (18.2)	

Discussion

Dental trauma is more prevalent in the age range from 8 to 12 years and often occurs in the school environment, so teachers are responsible for the first child care in these cases [1]. For these reasons, one of the objectives of this study was to evaluate the knowledge of teachers who work with children at this age group on the management in the case of dental avulsion.

Several studies evaluated the teachers' knowledge on dental avulsion management [2-5, 7, 8, 10, 13]. Research shows inadequate knowledge about the action to be taken by teachers in this situation; similar results were observed in this study. This shows that the problem is not only local but also worldwide, and a plan to educate these professionals on how to act facing dental trauma should be discussed and carried out. Most teachers surveyed have post-graduation (81.1% of private schools and 79.5% of municipal schools), but regardless of the degree of qualification, knowledge of dental avulsion not influence the answers.

Although most teachers have not seen a dental avulsion, most consider important to have knowledge about the action to be taken, showing that teachers recognize the importance of knowing how to act in case of a dental avulsion. In this study, after the application of the questionnaire, teachers received a booklet with instructions of what to do in case of a dental avulsion.

When teachers were asked about what they would do in a dental avulsion situation, no statistical differences between public and private school teachers occurred. Most teachers of municipal schools would call the child's parents, and the private schools would take the child to the emergency dental service. A similar result was observed in the study Curylofo *et al.* (2012) [4], in that these two options are the most prevalent as well. Noteworthy is the fact that both in the aforementioned and this present study, a small percentage of teachers said that would make the dental replantation, which would be the ideal procedure. Haragushiku *et al.* (2010) [7] also assessed the conduct of private and public school teachers in the city of Curitiba and observed an inadequate knowledge of the teachers on the management in the case of dental avulsion.

Because most teachers would not make the dental replant, the most cited options for the storage of the avulsed tooth were ice, gauze, or a little liquid. In the study Mori *et al.* (2007) [10] gauze and a little liquid were also among the preferred choices of most teachers. In the study of Berti *et al.* (2011) [2] the option in a dry medium, such

as gauze, was also one of the most cited. These results demonstrate the lack of teacher knowledge on the subject.

Among the teachers who stored the tooth in some liquid, most would use water. Similar results were found in studies of Mori *et al.* (2007) [10], Haragushiku *et al.* (2010) [7], Hanan and Costa (2010) [6], and Berti *et al.* (2011) [2]. The ideal solution is milk, cited by only 11.3% of private school teachers and 13.6% of public school teachers.

Importantly, the results obtained in this study were not representative of the teacher population in the city of Curitiba, because only a sample of those teachers was included in the study, however, comparing the results with those reported in the literature, it can be observed the outcomes were similar.

Conclusion

The study found that most of the teachers who participated in the survey did not have the correct knowledge on of dental avulsion management. Thus, it can be concluded that, it is of great importance to instruct the professors aiming at the best care for the child, resulting in a good prognosis.

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