

## Original Research Article

# Behavior of parents and educators following traumatic injury to young permanent teeth of children in Joinville, Santa Catarina

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### Abstract

**Introduction:** Traumatic dental injuries are a major public health problem, especially in the age range of 7 to 15 years, when young permanent teeth are established. **Objective:** To evaluate the behavior of parents of children who attend public or private school and their educators, in cases of traumatic injury to young permanent teeth and to evaluate whether they sought emergency guidance, in the city of Joinville, Santa Catarina, Brazil. Evaluation was carried out via a questionnaire for asking the parents and teachers about their knowledge of dental trauma. **Material and methods:** A total of 248 parents and 22 teachers participated in the study. Out of all the participants that completed the questionnaire with questions on previous trauma experience, avulsion behavior, avulsed tooth storage medium, and time elapsed from dental trauma until care, 49.6% of had higher education. The data were tabulated on a Microsoft Office Excel 365 worksheet, and the chi-square statistical test was applied. **Results:** The research showed that 91.8% of parents and 8.2% of educators from both public and private schools had minimal knowledge regarding dental trauma. Many of the participants (73.2%) were unaware of what dental reimplantation was and lacked knowledge regarding storage choices for a dental element. Instead, 68% preferred to take the child to a dental surgeon to receive emergency care. **Conclusion:** The knowledge parents and educators of public and private schools have about dental trauma is limited. Education on this subject needs to be promoted for enabling parents and educators to make informed decisions to ensure the best prognosis after traumatic dental injury.

## Introduction

Dental trauma that affects the dentoalveolar complex and the oral soft tissues is an important public health problem due to its high prevalence and the range of individuals affected in different age groups, localities, and environments, as well as the possibility of aesthetic damage, with both functional and emotional sequelae, for patients and their relatives [2]. Dental trauma can occur in the first years of life but increases as children become more independent and is commonplace at school age. Trauma is likely to occur during home-based activities or in the school environment. It is therefore of paramount importance that both parents and educators have the knowledge to properly carry out the initial first aid following trauma to a tooth and know when to seek guidance for dental care. Inappropriate procedures can directly compromise treatment and have undesirable consequences, such as increased costs and tooth loss, and consequently affect the social and biological development of the child or adolescent [6]. Any lesions may affect the teeth, supporting structures, and adjacent soft tissues. This could interfere with the ability to smile and negatively affect self-esteem, thus contributing to the development of psychosocial problems [8]. Dental injuries due to trauma have become a health problem due to their high incidence and need for a complex approach, often necessitating emergency management [3]. Dental trauma can range from a small enamel fracture to a maxillofacial fracture, may involve supporting structures, and may include displacement or avulsion of the teeth [9]. The avulsion of permanent teeth is one of the most serious lesions that can occur, and its prognosis is directly linked to the measures taken at the site of the accident. Reimplantation is the procedure of choice in these cases but is not always performed correctly and safely [5]. This type of trauma is characterized by total displacement of the tooth out of the alveolus. The avulsed tooth should be handled by the dental crown, avoiding contact with the root, and stored in milk, saline, or saliva. Immediate repositioning is the best way to maintain the vitality of the tooth in question, as well as the dental surgeon's follow-up appointment to evaluate the integrity of the pulp [7]. Dental surgeons should be able to provide advice to society regarding first aid for dental trauma. In addition to raising awareness for parents and teachers, campaigns with maximum dissemination to all audiences should be carried out to ensure that the general population is aware of the steps to be taken in case an accident or trauma involves the mouth or teeth [1].

The objective of this study was to evaluate the behavior of parents and educators, from both public and private schools, following traumatic injury to young permanent teeth, in the city of Joinville, Santa Catarina, through the application of a questionnaire.

## Material and methods

This study was approved by the ethics committee from the University of the Region of Joinville, Univille, with an opinion 2,541,263. A descriptive cross-sectional and quantitative approach was taken to form a structured questionnaire with nine questions, containing the necessary variables to carry out the study.

Data collection was performed from March 14, 2018 to May 16, 2018, with a sample of 270 people (248 parents and 22 teachers). These participants volunteered to take part in the study and signed the Free and Informed Consent Term. The data collection was carried out in four schools, two public (Sylvio Sniecikowski Municipal School and Laura Andrade Municipal School) and two private schools (Univille College and Cenecista José Elias Moreira College). All the schools belonged to the municipality of Joinville, Santa Catarina, Brazil. This was to ensure that the information collected on the knowledge relating to dental trauma in public and private schools was from the same location. The data were stored on Microsoft Office Excel 365 2016 worksheet. Descriptive tables were elaborated, and the statistical test used was the chi-square test.

## Results

Of the 647 parents, who had their children regularly enrolled in pre-selected public or private municipal educational institutions, as well as their teachers who worked within the chosen schools, only 270 (41.73%) formed the sample of this research. Of these 270 participants in the sample, 198 (73.3%) were mothers, 50 (18.5%) were parents, and 22 (8.2%) were educators. Regarding schooling, 17.3% of the participants had completed elementary education, 33.1% had completed high school, and 49.6% had completed higher education (table I). When questioned about previous experience of dental trauma, 37% of private school participants answered that they had never had contact with dental trauma, and only 8.9% said they had witnessed such an event. In public schools, the number of participants who answered that they

had not experienced dental trauma was 45.6%, while 8.5% had (table II). When asked about the storage medium for a dental fragment, 16.7% of the participants from private schools could not suggest a suitable storage medium for the fragment, 15.6% chose saline solution, 5.2% reported that they would store the fragment in a napkin, 3% in saliva, 3% in milk, and 2.6% in water. In public schools, 27.4% of the participants did not know an adequate storage medium, 15.2% reported that they would put the fragment in a physiological saline for storage, 5.9% in napkins, 3.7% in water, 1.1% in milk, and 0.7% in saliva (table III). With regard to emergency services, where victims of an accident who experienced avulsion of permanent teeth can be taken, 38.3% of the participants in private schools reported that they would take the adolescent to a dental surgeon (Basic Health Unit or Private Practice), 5.9% would go to the dentist the following day, and 15.2% of the participants from the public schools would go for an emergency medical consultation. None of the participants would leave without care (table IV).

Table I - Schooling

Schooling of participants	(%)
Fundamental	17,30%
Medium	33,10%
Higher	49,60%

Table II - Experience of trauma

Prior dental trauma experience	Private (%)		Public (%)	
	Yes	No	Yes	No
	8,90%	37,0%	8,50%	45,6%

Table III - Storage Media

Storage medium for dental fragments	Private School (%)	Public School (%)
Saliva	3,00%	0,70%
Saline	15,60%	15,20%
Napkin	5,20%	5,90%
Milk	3,00%	1,10%
Water	2,60%	3,70%
Don't know	16,70%	27,40%

Table IV - Place of care

Service sought after the occurrence of dental trauma	Private School (%)	Public School (%)
Immediate medical consultation	1,90%	15,20%
Immediate consultation with a dental surgeon	38,30%	29,70%
Remain at school and consult with a dental surgeon the following day	5,90%	8,20%
No service	0,00%	0,70%

## Discussion

In the present study, 49.6% of the participants were enrolled for or had already completed higher education. According to the study by Ornellas *et al.* [8], it was shown that those with a higher education are more likely to know how to act following an accident involving dental trauma. In contrast, Oliveira *et al.* [7] stated that no statistically significant association was found between parent/guardian knowledge, socioeconomic status, and schooling level. In the study by Alves *et al.* [2], regarding the victims' first-aid experience following a dental trauma, only 16.7% reported having previous experience. When comparing the study by Alves *et al.* [2] with the present study involving public and private schools, the results do not show agreement. Only 8.9% had experience with dental trauma in private schools and 8.5% in public schools.

When answering questions regarding the best storage medium for a dental fragment, it was shown that 44.1% of the interviewees did not know how to store a part of a fractured tooth and 30.7% reported that they would store it in physiological saline, similar to the findings mentioned by Pradhan *et al.* [9]. The majority (53.1%) did not know the necessary means to transport the traumatized tooth. Bittencourt *et al.* [4] reported that when the tooth is kept in a dry environment, the periodontal ligament loses its vitality quickly, and thus, the tooth should be stored in an aqueous medium or saliva. Only 3.7% of the participants in this study chose saliva as the storage medium. Saliva keeps the tooth moist and allows storage for up to two hours, but is not ideal due to osmolarity, incompatible pH, and the presence of bacteria.

Further, 6.3% reported that they would choose water to store the tooth. However, water is the least suitable means for storing the avulsed tooth because it is a hypotonic medium that results in rapid cell destruction. Bittencourt *et al.* [4] reported that pasteurized bovine milk is currently the most recommended and accessible storage medium, with an osmolarity and pH compatible with vital cells. Milk is relatively free of bacteria and so maintains the integrity of the ligament for up to 3 hours. However, in the present study, only 4.1% of the participants chose this medium, showing that this information is not commonly known. Comparison of the data regarding the demand for dental care following dental trauma are compared between private and public schools revealed that 38.3% of the participants from private schools would seek a dental surgeon and 29.7% would from public schools. Out of all the public school participants, 15.2% would take the injured individual to a medical appointment, not giving priority to the oral region. In the study by Alves *et al.* [2], 85.1% of the study respondents considered it necessary to seek care from a dental surgeon regardless of the trauma. While 13.4% of the educators only considered it necessary to consult a dental surgeon in more severe cases, 53.3% reported that they would not seek any type of treatment and 16.7% believed medical attention would be required. The results reported by Alves *et al.* [2] are similar to the data presented in this study; 0.7% of participants from a public school reported that they would not seek any care following a dental trauma, while 17.1% would seek only medical consultation.

## Conclusion

On the basis of the results of the present study, it can be concluded that there is no statistical difference in the knowledge regarding dental trauma and measures to be adopted following an incident between parents and educators from either public or private schools. However, both parents and educators have shown interest in acquiring knowledge about first-aid procedures in cases of dental trauma.

## References

1. Almeida SB, Leonardi DP, Tomazinho SFF, Coelho BS, Giovanini AF, Pizzato E et al. The relationship of a clinical protocol and emergency treatment success of dental trauma running head: clinical protocol in dental trauma. RSBO. 2013;1(4):313-7.
2. Alves LSB, Freitas VJG, Rosendo RA, Gominho LF, Pinto-Sarmento TCA. Avaliação do conhecimento de professores do ensino fundamental da rede particular sobre atendimento imediato de vítima de traumatismo dental. RFO. 2015;20(3):302-7.
3. Bakarčić D, Hrvatin S, Maroević M, Ivančić Jokić N. First aid management in emergency care of dental injuries – knowledge among teachers in Rijeka, Croatia. Acta Clinica Croatica. 2017;56(1):110-6.
4. Bittencourt AM, Pessoa OF, Silva JM. Avaliação do conhecimento de professores em relação ao manejo da avulsão dentária em crianças. Rev Odontol Unesp. 2008;37(1):15-9.
5. Flores MT, Andersson L, Andreasen JO, Bakland LK, Malmgren B, Barnett F et al. Guidelines for the management of traumatic dental injuries. II. Avulsion of permanent teeth. Dental Traumatol. 2007;23(3):130-6.
6. Fritola M, Couto ACF, Spinardi D, Junkes MC, Fraiz FC, Ferreira FM. Folheto educativo melhora o conhecimento de pais frente ao traumatismo alvéolo-dentário? Arq Odontol. 2014;50(4):178-84.
7. Oliveira M, Dias VO, Santos KKF, Rodrigues QF, Paiva ER, Martins RC. Análise do conhecimento dos pais/responsáveis pelas crianças atendidas na clínica infantil da Unimontes sobre traumatismos dentários. Pesq Bras Odontoped Clín Integr. 2013;13(2):189-6.
8. Ornellas PO, Domingos HAS, Gomes CC, Antunes LS, Antunes LAA. Conhecimento e atitudes com relação ao atendimento emergencial das injúrias dentárias traumáticas. J Health Sci. 2016;18(2):85-91.
9. Pradhan M, Umesh R, Shrestha A, Joshi U, Upadhyay S. Knowledge about emergency management of dental trauma among school teachers of Bhaktapur Nepal. JKM. 2015;4(3):77-82.