



PREVALENCE OF DENTAL TRAUMA IN PEDIATRIC PATIENTS IN MEXICO: A RETROSPECTIVE STUDY

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ABSTRACT

Aim: Traumatic dental injuries (TDIs) are a neglected public health problem worldwide. In countries where caries prevalence has declined, TDIs are increasingly recognised as one of the main causes of tooth loss. This study determined the prevalence of dental trauma in patients admitted to Pediatric Dentistry Clinic from 2016 to 2022. **Materials and methods:** A 7-year retrospective cross-sectional study was carried out through the analysis of 3,281 dental records of pediatric patients who consulted in the Pediatric Dentistry Specialty of a public university in Zacatecas, Mexico. The prevalence of dental trauma, age, sex, type of dentition, and trauma were analyzed. The statistical analysis was performed with the SPSS V-20 program, using the chi square test ($p < 0.05$). **Results:** The prevalence of dental trauma was 3.54%, with the 1 to 3-year-old group being the most affected. The male sex had a higher incidence of trauma with 65.76%. The primary dentition was the most affected with 75%. The most frequent trauma was concussion with 20.7%, followed by subluxation with 15.8% and uncomplicated crown fracture with 13.6%. When analyzing gender regarding the type of dental trauma, no statistically significant difference was found ($p = 0.434$), regarding the analysis between the age group and the type of trauma, it was found that 2 and 3 years occurs with high frequency ($p = 0.0001$). **Conclusions:** The prevalence of dental trauma was low. Younger patients presented more dental trauma than older ones. Males, temporary dentition and the upper central incisors of both dentitions were the most affected. Concussion and subluxation were the most frequent injuries.



KEYWORDS: oral health; dental trauma; children; tooth injuries

PREVALENCIA DE TRAUMATISMOS DENTALES EN PACIENTES

PEDIÁTRICOS EN MÉXICO: UN ESTUDIO RETROSPECTIVO

RESUMEN

Objetivo: Las lesiones dentales traumáticas (LDT) son un problema de salud pública en todo el mundo. En los países donde la prevalencia de la caries ha disminuido, las LDT se reconocen cada vez más como una de las principales causas de pérdida de dientes. Este estudio determinó la prevalencia de traumatismo dental en pacientes ingresados en la Clínica de Odontología Pediátrica del 2016 al 2022. **Materiales y métodos:** se realizó un estudio retrospectivo transversal de 7 años a través del análisis de 3,281 expedientes odontológicos de pacientes pediátricos que consultaron en la Especialidad de Odontología Pediátrica de una universidad pública en Zacatecas, México. Se analizó la prevalencia de traumatismo dental, edad, sexo, tipo de dentición, tipo de traumatismo. El análisis estadístico se realizó con el programa SPSS V-20, utilizando la prueba de chi cuadrado ($p < 0,05$). **Resultados:** La prevalencia de traumatismo dental fue de 3,54%, siendo el grupo de 1 a 3 años el más afectado. El sexo masculino tuvo mayor incidencia de traumatismo con 65,76%. La dentición temporal fue la más afectada con 75%. El traumatismo más frecuente fue la concusión con 20,7%, seguido de la subluxación 15,8% y la fractura de



corona no complicada 13,6%. Al analizar el género en cuanto al tipo de traumatismo dental no se encontró diferencia estadísticamente significativa ($p=0.434$), en cuanto al análisis entre el grupo de edad y el tipo de traumatismo se encontró que entre los 2 y 3 años ocurren con alta frecuencia ($p= 0.0001$). **Conclusiones:** La prevalencia de traumatismo dental fue baja. Los pacientes más jóvenes presentaron más traumatismos dentales que los mayores. Los varones, la dentición temporal y los incisivos centrales superiores de ambas denticiones fueron los más afectados. Las lesiones más frecuentes fueron la concusión y la subluxación.

PALABRAS CLAVE: salud bucal; traumatismo dental; niños; lesiones dentales.

INTRODUCTION

Dental traumas are generally not a life-threatening emergency, for this reason, they are usually perceived as a less urgent condition, however, it has been described that delay in care significantly jeopardizes the outcome of treatment and generates more complications (1).

Traumatic dental injuries not only affect the teeth, but also their supporting tissues. A characteristic of dental trauma is that it is not governed by a single etiopathogenic mechanism, nor does it follow a

predictable pattern in terms of intensity or extension, but rather it is an injury caused by the acute transmission of the energy of an impact on the teeth, tissues, in and around the oral cavity (2,3). Most of these occur in anterior teeth, thus causing a decrease in the ability to chew and speak, as well as aesthetic problems (4,5). When they occur in the primary dentition, dental trauma can cause both tooth loss and damage to the permanent dentition, such as hypoplasia, discoloration, delay eruption time, and tooth malformation (6,7).



Some studies indicate that the prevalence of dental trauma affects approximately 30% of preschool children with primary dentition and 25% of schoolchildren with permanent dentition. Its incidence can be between 1 to 44 new cases per 100 people in a year. The prevalence can range from 15.3% to 58.6% (8).

The presence of these lesions has increased alarmingly due to the changes produced in modern lifestyle and can come to occupy the first places in the order of emergencies of dental origin. Currently, they are considered the second cause of pediatric dental care after dental caries (5). It has been shown that the groups most affected by these incidents are children and young people, causing them not only physical problems, but also psychological ones that require specialized attention for a better prognosis and quality of life (1,4,9). Additionally, it has been reported that soft tissue involvement may occur in unusual places for trauma of an accidental nature, such as ecchymosis or other orofacial

injuries, especially around the eyes, ears or retroauricular region, lateral areas of the face and mouth (7).

The causes of dental trauma are complex and influenced by different factors, including human biology, individual behavior and the environment. These types of injuries usually occur at school age, during games, sports practice, fights, car accidents, bicycle crashes, among others. In patients with intellectual disabilities and/or with special health care needs, they frequently occur due to lack of motor coordination and neurological involvement (2,9).

The frequency in which these occur has been increasing around the world in recent years, generating a call for attention in the dental community and society in general about how different factors are influencing the increase in this type of injury (5) and how high costs, low standard of living, as well as lack of knowledge about the urgency of dental trauma can delay treatment (10). The objective of this study was to determine



the prevalence of dental trauma in patients admitted to the Pediatric Dentistry clinic of the Autonomous University of Zacatecas, through the review of clinical records, during the period 2016 to 2022.

MATERIALS AND METHODS

Study design and patients

An observational, descriptive, cross-sectional and retrospective study was carried out, where 3,281 the clinical records of patients from the Pediatric Dentistry clinic, Autonomous University of Zacatecas, in the period from 2016 to 2022 were reviewed.

Inclusion criteria

Clinical files of patients of both sexes, of any age, files with the correct identification number, which were completely and correctly elaborate, with all the elements of diagnosis and treatment, signed by the clinical professor and which had the signature of informed consent by the parents of the patients.

Exclusion criteria

Files with incomplete, confusing data or those where the information provided was not correctly collected were excluded.

Procedures

Authorization was obtained from the director of the Pediatric Dentistry Specialty program at the Autonomous University of Zacatecas to collect the information. Additionally, a dentist was trained for the manual review of clinical records from 2016 to 2022, stored in the clinic file in search of dental trauma records. The records where the diagnosis of dental trauma was detected, information was collected on: gender of the patient, age, number and dental organs affected, type of trauma and affected dentition.

Statistical analysis

The analysis was done using the SPSS V-20 (Statistical Package for the Social Sciences) program with frequencies and percentages. To determine differences



between the types of injuries with the variables (sex and age), the Chi Square test was used at a significance level of 5%.

Ethical considerations

The study protocol was approved by the ethics and research committee of the Health Sciences Area of the Autonomous University of Zacatecas. This research complied with the specifications of the General Health Law on research and with the principles of the Declaration of Helsinki.

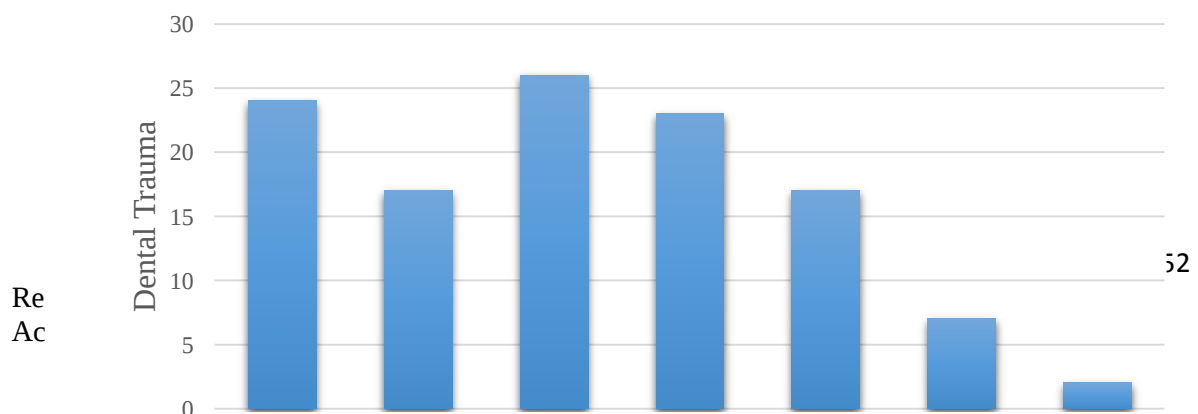
RESULTS

At the end of the study, 3,281 files that met the inclusion criteria were reviewed,

where 116 presented a record of dental trauma, these being only those that were considered for the analysis, thus representing a prevalence of 3.54%, where 37.1% were female. and 62.9% to the male. A mean age of 4.896 ± 3.1906 was obtained and a range between 1 and 13 years, being more representative those under 5 years (65.5%).

In the distribution of injuries per year, the largest number of cases (26) occurred during 2018, with the period 2021-2022 where the lowest number of cases were reported (Figure 1).

Figure 1 Distribution of traumatic dental injuries per year





Regarding the type of dental trauma, 184 were registered, concussion was the most prevalent (20.7%), followed by

subluxation (15.8%) and uncomplicated crown fracture (13.6%) (Table 1).

Table 1 Prevalence of traumatic dental injury according to classification

Dental Trauma	N	%
Avulsion	15	8.2
Concussion	38	20.7
Complicated Crown and root fracture	6	3.3
Complicate Crown fracture	19	10.3
Uncomplicated Crown fracture	25	13.6
Root fracture	12	6.5
Enamel infringement	4	2.2
Extrusive luxation	15	8.2
Intrusive luxation	13	7.1
Lateral luxation	8	4.3
Subluxation	29	15.8
Total	184	100.0

In the type of dentition affected, 75% corresponded to the temporary dentition and 25% to the permanent one. For the temporary dentition, the most affected tooth was the upper left central incisor (28.8%), followed by the upper right

central incisor (26.1%). In the permanent dentition, the most affected tooth was the upper left central incisor (11.4%), followed by the upper right central incisor with 9.2% (Table 2).

Table 2 Distribution of affected teeth by traumatic dental injuries

Affected Tooth		N	%
Upper right central incisor	(P)	17	9.2
Upper right lateral incisor	(P)	4	2.2
Upper left central incisor	(P)	21	11.4
Upper left lateral incisor	(P)	2	1.1
Upper left first premolar	(P)	1	0.5
Lower left central incisor	(P)	2	1.1
Lower right central incisor	(P)	1	0.5
Upper right central incisor	(T)	48	26.1
Upper right lateral incisor	(T)	9	4.9
Upper right first molar	(T)	1	0.5
Upper left central incisor	(T)	53	28.8
Upper left lateral incisor	(T)	14	7.6
left upper canine	(T)	3	1.6
Lower left central incisor	(T)	4	2.2
Lower left lateral incisor	(T)	1	0.5
Lower right central incisor	(T)	2	1.1
Lower right lateral incisor	(T)	1	0.5
Total		184	100.0

P: Permanent. T: Temporal.

It was found that the male sex presented more dental trauma (65.8%), where concussion and subluxation were the most observed, without statistically significant

differences ($\chi^2 = 10.077$, $p > 0.05$) (Table 3).

Table 3 Comparison of the type of dental trauma according to gender

Type of dental trauma	Female		Male		Total		χ^2	p
	n	%	n	%	n	%		



Avulsion	3	4.8	12	9.9	15	8.2		
Concussion	16	25.4	22	18.2	38	20.7		
Complicated crown and root fracture	3	4.8	3	2.5	6	3.3		
Complicated crown fracture	7	11.1	12	9.9	19	10.3		
Uncomplicated crown fracture	9	14.2	16	13.2	25	13.6	10.077	0.434
Root fracture	2	3.2	10	8.3	12	6.5		
Enamel infringement	2	3.2	2	1.6	4	2.2		
Extrusive luxation	7	11.1	8	6.6	15	8.2		
Intrusive luxation	6	9.5	7	5.8	13	7.1		
Lateral luxation	1	1.6	7	5.8	8	4.3		
Subluxation	7	11.1	22	18.2	29	15.6		
Total	63	34.2	121	65.8	184	100		

The greatest number of traumatic injuries occurred between 2 and 3 years of age, finding highly significant statistical

differences ($\chi^2 = 244.729$, $p < 0.05$) (Table 4).

Table 4 Comparison of dental trauma according to age

Type of trauma	Age Groups				Total
	1-3 years	4-6 years	7-9 years	10-13 years	
Avulsion	5 (5.6%)	2 (4.3%)	2 (8%)	6 (25%)	15 (8.2%)
Concussion	21 (23.6%)	11 (23.9%)	2 (8%)	4 (16.7%)	38 (20.6%)
Complicated crown and root fracture	4 (4.5%)	1 (2.2%)	0 (0%)	1 (4.2%)	6 (3.3%)
Complicated crown fracture	14 (15.7%)	0 (0%)	0 (0%)	5 (20.8%)	19 (10.3%)
Uncomplicated crown fracture	5 (5.6%)	1 (2.2%)	12 (48%)	7 (29.2%)	25 (13.6%)
Root fracture	4 (4.5%)	6 (13.1%)	2 (8%)	0 (0%)	12 (6.5%)



Enamel infringement	0 (0.0%)	3 (6.5%)	0 (0%)	1 (4.2%)	4 (2.2%)
Extrusive luxation	7 (7.8%)	6 (13.1%)	2 (8%)	0 (0%)	15 (8.2%)
Intrusive luxation	11 (12.4)	1 (2.2%)	1 (4%)	0 (0%)	13 (7.1%)
Lateral luxation	4 (4.5%)	3 (6.5%)	1 (4%)	0 (0%)	8 (4.3%)
Subluxation	14 (15.7%)	12 (26.1%)	3 (12%)	0 (0%)	29 (15.7%)
Total	89 (48.4%)	46 (25%)	25 (13.6%)	24 (13%)	184 (100%)
		$\chi^2 = 244.729$		$p = 0.0001$	

DISCUSSION

Traumatic dental injury is not a result of disease but a consequence of certain factors that will accumulate throughout life if not properly treated (11). The present study reports the prevalence of dental trauma registered during the period 2016 to 2022 in the Pediatric Dentistry Clinic of the Autonomous University of Zacatecas, Mexico; through a retrospective study.

The prevalence of oral trauma observed in this study was 3.54%, coinciding with others studies who obtained values of 4.05% (N=132) (12) and 8.1% (N=26) (8) respectively, however it differs from other investigations in which the

prevalence of trauma has been reported to be higher (13-15). This difference may be due to the number of participants included and the observation time that each study considered. Another element that could have intervened in the low prevalence rates and in the type of oral trauma that the patients presented, was the fact of limited outdoor physical activities, not attending school and the poor socialization of the children, due to the restrictions caused by the Sars Cov-2 pandemic, during part of the period analyzed (2020-2022).

Regarding gender, this study coincides with other investigations (13,16) where male is reported as the most prevalent



(62.9%). This predisposition may be due to the fact that the male has a more active and intense participation in games, extreme sports, traffic accidents and fights (13,15,17). It is affirmed that due to this reality, men experience oral trauma twice as often as women (18,19). However, it has been raised whether this trend will continue or not, since a decrease in the gender difference has been observed, which is attributed to current behavior changes, with women showing greater interest and participation in activities and high-risk sports (20); as reported by other studies that show higher rates of involvement than in men (21,22).

Traumatic dental injuries have been reported to occur most frequently in the first years of life (16,19), however other studies agree that dental trauma occurs mainly in ages 8-12 years (11,20). Al-Ansari and Nazir (2020) (23), identified that 39.5% of traumas occur in the permanent anterior teeth of adolescents. Our study found that the most affected age is between 2 and 3 years. Regarding

the dentition that is most affected by this type of injury, an exact comparison cannot be made with other investigations, since most of them did not have the necessary data to establish this aspect. According to the data obtained in this investigation, it was observed that the dentition that presented the most dental trauma was the temporary one (75%). These values may vary due to the difficulty in being able to compare the prevalence values found in other studies, due to lack of uniformity in the selected population, dental examination procedure, diagnostic criteria, age groups, behavioral variations, cultural factors, and environmental factors that may predispose children to different degrees of dental trauma (24,25).

Several studies (19,22,26), indicate that teeth are mostly affected by trauma are the upper central incisors, this data coincides with the results obtained in the present investigation. The upper central incisors of both the permanent and temporary dentition are the dental organs



with the highest incidence of dental trauma. These teeth are at greater risk, since they are normally more protruded than the lower incisors and are the first to come into contact during falls or accidents (19,20). Additionally, some conditions such as anterior open bite, incompetent lip coverage, and increased overjet increase the risk of trauma (15).

Concussion and subluxation represented the most frequent injuries in our study, which differ from other study where report enamel fractures as the most prevalent in primary dentition with 61.9% (19). Other research agree that uncomplicated crown fracture is the trauma with the highest incidence (17,27). In addition, a higher prevalence of fractures involving enamel, dentin and pulp (54.5%); showing that these values vary according to the location and age of the patients (20). Another study carried out previously results similar to ours, indicating that subluxation occupies a higher percentage in incidence of appearance (8). The observation of more

luxation injuries in primary teeth could be because of the elasticity of the supporting structures and short root lengths of primary teeth (28).

Finally, comparing the results obtained with previous studies, it was impossible to determine the causes and treatment of dental trauma, since this information was not specifically reflected in the medical records, which indicates that more attention and care must be paid at the moment to diagnose and describe this type of injury, as well as the importance of inquiring more about the event in order to have clearer and more abundant information on the subject. In this way, the investigations that are carried out later will be able to cover much more specific data than those obtained on this occasion.

CONCLUSION

The prevalence of dental trauma in our study was 3.54%, with the male sex being the most affected. It was determined that the age that is most affected is between 2 and 3 years. The temporary dentition and



the upper incisors were the ones that presented the greatest number of dental traumas.

REFERENCES

1. González X, Crespo M, Cardentey J, Porras O. Traumatismos dentales en niños de 7 a 11 años. *Rev Cienc Méd Pinar Rio* 2016; 20 (4): 99-107.
2. Lam R. Epidemiology and outcomes of traumatic dental injuries: a review of the literature. *Aust Dent J* 2016; 61 (1): 4-20. doi: 10.1111/adj.12395.
3. Yu C, Abbott P. Responses of the pulp, periradicular and soft tissues following trauma to the permanent teeth. *Aust Dent J* 2016; 61 (1): 39-58. doi:10.1111/adj.12397.
4. Vettore M, Efhima S, Machuca C, Lamarca G. Income inequality and traumatic dental injuries in 12-year-old children: A multilevel analysis. *Dent Traumatol* 2017; 33 (5): 375-82. doi: 10.1111/edt.12350.
5. Carvalho T, Pereira C, Vasco C, Oliveira I, Veloso L, Cardoso F, et al. Prevalence of dental trauma in children victims of child violence. *Braz J Dev* 2021; 7 (9): 94109-22.
6. Gamaleldin A, Mohieldin E. Prevalence of Anterior Dental Trauma and Its Associated Factors among Preschool Children Aged 3–5 Years in Khartoum City, Sudan. *Int J Dent* 2018. ID 2135381. <https://doi.org/10.1155/2018/213538>
7. Silva I, Hartwing A, Goettems M, Azevedo M. Is dental trauma more prevalent in maltreated children? A comparative Study in Southern Brazil. *Int J Paediatr Dent* 2019; 29 (1): 361-8. doi:10.1111/ipd.12466
8. Castro J, Llanes S, Bastidas M, Jiménez M. Prevalencia de trauma dentoalveolar en la parroquia urbana Hermano Miguel. *Odontol Vital* 2021; 35: 17-28.
9. Leyva M, Reyes D, Zaldivar O, Naranjo Y, Castillo Y. El traumatismo dental como urgencia estomatológica: a stomatologic emergency. *CCM* 2018; 22 (1): 66-78.



10. Garg K, Kalra N, Tyagi R, Khatri A, Panwar G. An appraisal of the prevalence and attributes of traumatic dental injuries in the permanent anterior teeth among 7–14-year-old schoolchildren of North East Delhi. *Contemp Clin Dent* 2017; 8 (2): 218–24.
11. Juneja P, Kulkarni S, Raje S. Prevalence of traumatic dental injuries and their relation with predisposing factors among 8-15 years old school children of Indore city, India. *Clujul Med* 2018; 91 (3): 328-35. doi: 10.15386/cjmed-898
12. López L, Chavira D, Angulo J. Prevalencia de traumatismos dentales en escolares de 6 a 12 años de edad de Culiacán, Sinaloa. *Rev Mex Med Forense* 2020; 5 (3): 73-6.
13. Alhaddad B, Rózsa N, Tarján I. Dental trauma in children in Budapest. A retrospective study. *Eur J Paediatr Dent* 2019; 20 (2): 111-5.
14. Born C, Jackson T, Koroluk L, Divaris K. Traumatic dental injuries in preschool-age children: Prevalence and risk factors. *Clin Exp Dent Res* 2019; 5: 151–9.
<https://doi.org/10.1002/cre2.165>
15. Borin L, Azambuja P, Daer G, Barros L, Kirst L, Braga C. A 10-year retrospective study of dental trauma in permanent dentition. *Rev Esp Cir Oral Maxilofac* 2018; 40 (2): 65-70.
16. Garibay A, Robles N, Hernández C, Guadarrama L, Pedraza G, Jiménez S, et al. Traumatismo dental en pacientes pediátricos que acuden a una clínica universitaria de Odontopediatría: un análisis retrospectivo de historias clínicas. *Pediatr (Asunción)* 2018; 45 (3): 206-11.
<https://doi.org/10.31698/ped.45032018003>
17. Soto L, Curbelo R, Torres L. Frecuencia de traumatismos dentales en los incisivos en niños de 6 a 12 años. *Rev Habanera de Cienc Médicas* 2016; 15 (1).
18. Ugolini A, Parodi G, Casali C, Silvestrini A, Giacinti F. Work-related traumatic dental injuries: Prevalence, characteristics and risk factors. *Dent*



Traumatol 2017; 34 (1): 36–40.

<https://doi.org/10.1111/edt.12376>

19. Patnana A, Chugh A, Chugh V, Kumar P, Vanga N, Singh S. The prevalence of traumatic dental injuries in primary teeth: A systematic review and meta-analysis. Dent Traumatol 2021; 37: 383–99. <https://doi.org/10.1111/edt.12640>

20. Veliz A, Catalan B, Rioseco C, Jerez P, Latapiat A, Matamoros D, et al. Retrospective study of traumatic dental injuries of patients treated at a dental trauma clinic in Santiago, Chile. Int J Odontostomatol 2017; 11 (4): 405-10.

21. Vuletić M, Škarić J, Batinjan G, Trampuš Z, Bagić I, Hrvoje H. A retrospective study on traumatic dental and soft-tissue injuries in preschool children in Zagreb. Bosn J Basic Med Sci 2014; 14 (1): 12–5.

22. Sulieman A, Awooda E. Prevalence of Anterior Dental Trauma and Its Associated Factors among Preschool Children Aged 3–5 Years in Khartoum City, Sudan. Int J Dent 2018; 1-5. ID

2135381 <https://doi.org/10.1155/2018/2135381>

23. Al-Ansari A, Nazir M. Prevalence of Dental Trauma and Receipt of its Treatment among male school children in the Eastern Province of Saudi Arabia. Sci World J 2020; 1-6. ID 7321873: <https://doi.org/10.1155/2020/7321873>

24. Singh N, Singh A, Jolly M. Prevalence of traumatic dental injuries in school going children of Lucknow, India. Int J Oral Health Med Res 2015; 2 (2): 39–42.

25. Eltair M, Pitchika V, Standl M. Prevalence of traumatic crown injuries in German adolescents. Clin Oral Investig 2020; 24 (2): 867–74.

26. Tewari N, Mathur V, Siddiqui I, Morankar R, Verma A, Pandey R. Prevalence of traumatic dental injuries in India: A systematic review and meta-analysis. Indian J Dent Res 2020; 31 (4): 601-5.

27. Batista T, Tamayo J, Soto M, Paz L. Traumatismos dentarios en niños y



adolescentes. CCM 2016; 20 (4): 741-56.

28. Mahmoodi B, Rahimi R, Weusmann J, Azaripour A, Walter C, Willershausen B. Traumatic dental injuries in a university hospital: a four-year retrospective study. BMC Oral Health 2015; 15: 139.