



Original Article

## Investigating Parental Approaches to Handling Dental Injuries in Children

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### ABSTRACT

Dental injuries are one of the most common oral health issues in children, significantly affecting their physical and emotional well-being. The role of parents in managing these injuries is crucial and their awareness of proper appropriate responses plays a vital role in determining the outcome. This study aimed to investigate the level of parental awareness and practice in dealing with dental injuries in children. In this descriptive cross-sectional research, a standardized questionnaire was distributed to parents, which included four main areas: demographic details, social background, emergency procedures for dental injuries, and preventive measures for trauma. The relationship between parental awareness and gender was examined using the T-test, while ANOVA was used to analyze how age, education level, and number of children affected the awareness scores. The mean awareness score among parents was 3.3 out of 13, with no significant differences observed between mothers and fathers. Similarly, age and number of children did not show significant correlations with awareness levels. However, there was a significant positive correlation between parents' educational background and their knowledge of dental injuries (P-value < 0.05). In addition, 48% of parents reported having no information about dental injuries, and 88% expressed a desire to gain knowledge about first aid for managing such injuries. The findings suggest that parental knowledge regarding dental injuries is insufficient, and improving educational programs for parents on managing traumatic dental events could lead to prompt, appropriate action, increased treatment outcomes, and reduced costs and patient complications.

**Keywords:** Children, Parents, Knowledge, Dental injuries, Behavior

### Introduction

Dental injuries are a significant concern in pediatric oral health, often leading to discomfort and a lot of pain. These injuries can result in tooth fractures, displacement, or damage to surrounding tissues such as the gums and bone structures. Tooth trauma is particularly common among children, with the prevalence of oral injuries reported to affect 50-70% of children by the age of 15 [1-3]. Oral injuries rank as the fourth most common type of physical injury in individuals aged 7 to 30 years [4-6].

Front teeth, particularly the upper incisors, are most commonly affected by such injuries. Boys are generally at a higher risk due to their increased physical activity and participation in sports, making them twice as likely to experience dental trauma compared to girls [7, 8]. Accidents and falls during physical activities like sports are the primary causes of these injuries, with crown fractures being the most frequent injury type. The home environment has been identified as the most common location for dental accidents and trauma [9-11].

The impact of dental injuries on the quality of life for both children and their families is considerable, with reported negative effects affecting 31.1% of children and 24.7% of families. Pain, difficulty consuming hot or cold foods, trouble speaking, and disrupted school attendance are some of the challenges children face. Families may experience feelings of discomfort, guilt, and additional financial or work-related stress [12-14].

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The understanding that parents have about dental trauma and their subsequent actions plays a crucial role in expediting treatment, which can help prevent further complications in both primary and permanent teeth [15]. Since parents, caregivers, and teachers are often the first to witness a child's dental injury, they are in a unique position to significantly influence the outcome of the treatment and reduce the potential for complications by responding correctly to the situation [16-18].

This study aimed to assess the level of awareness and actions taken by parents when faced with their children's dental injuries in a pediatric setting. By evaluating whether parents' knowledge is adequate, the study seeks to identify any gaps or deficiencies, allowing for more targeted interventions to improve their understanding and response in the future.

## Materials and Methods

This descriptive cross-sectional study was conducted with a sample of 225 parents. On each working day, the first five parents who arrived at the clinic were invited to participate. After explaining the purpose of the study and obtaining informed consent, the parents completed a standardized questionnaire designed to gather the necessary data. The validity and reliability of the questionnaire had been previously established. Inclusion criteria for participants included parents of children aged 7 to 12 years who were willing to cooperate by completing the survey.

The questionnaire was filled out and consisted of 32 multiple-choice questions. These questions covered six demographic items (parent's gender, age, number of children, education level, and child's age), four social aspects related to dental injuries and trauma, and 16 questions concerning emergency procedures for oral and dental injuries. Additionally, six questions assessed knowledge about the prevention and management of dental trauma. Out of the total number of questions, 11 were used to assess the parents' knowledge. Correct answers received one point, while incorrect answers received zero points. Questions 19 and 25, which each had two correct answers, were assigned two points. The total awareness score ranged from 0-13. The remaining questions provided descriptive data.

Once the data was collected and entered into SPSS version 16, statistical analyses were conducted using ANOVA-Tukey and t-tests to examine the associations between the mean knowledge score and variables such as parents' age, gender, education level, number of children, and previous experience with dental trauma, with a significance level set at  $\alpha = 0.05$ .

## Results and Discussion

Out of the 225 parents who participated in the study, 166 (73.8%) were women, while 59 (26.2%) were men. A total of 83 parents (36.9%) reported having witnessed an instance of dental trauma, and 76 parents (33.8%) or their children had experienced dental trauma themselves. Furthermore, 117 parents (52%) had previously received information about dental injuries and how to manage them. The results showed that an overwhelming majority (96.9%) of parents felt that they required further education on how to handle dental injuries. Between them, 88 percent expressed interest in receiving first aid training for mouth and facial injuries, while 90.7% believed that education on preventing such injuries was essential.

The average knowledge score for the participants was  $3.3 \pm 1.9$  out of a possible 13, with scores ranging from 0 to 10. No difference was observed between fathers and mothers in terms of their knowledge scores (P-value = 0.26). Additionally, there was no significant variation in knowledge based on the parents' age (P-value = 0.86) or the number of children they had (P-value = 0.39).

**Table 1.** The results were obtained from the statistical analysis of the data.

Variables		Awareness score	Test result
Gender	Mother	3.3	P = 0.26
	Father	3.08	
Age range (years)	< 30	3.3	P = 0.86
	30-39	3.2	
	40-49	3.4	
	$\geq 50$	3.07	

Level of Education	Elementary	2.8	P = 0.04
	Diploma / Associate degree	3.2	
	Bachelor's and higher degree	4.2	
Number of children	1	3.2	P = 0.32
	2	2.01	
	≥ 3	1.9	
The experience of encountering trauma	Yes	3.6	P = 0.03
	No	3.1	

A significant and direct correlation was observed between the level of parental knowledge and their educational background (P-value = 0.04), with higher knowledge scores linked to parents with more education. Additionally, a noteworthy relationship was noticed between parents' awareness and their prior experience with dental trauma (P-value = 0.03). Parents who had encountered dental trauma themselves had higher awareness scores compared to those with no prior experience (**Table 1**).

Regarding the sources of information parents relied on for learning about dental injuries, the study found that television was the most common source, cited by 23% of parents, followed by dentists at 22.2%.

In the study related to decisions regarding child tetanus vaccination, 46.6% of parents sought advice from health centers, 14.2% consulted a doctor, and 8.5% turned to a dentist. However, 30.7% of parents were unsure about the correct course of action for tetanus vaccination and did not take any specific steps.

When asked about the critical time window for replanting a tooth that has been dislodged from its socket, 57.8% of parents incorrectly stated it was more than half an hour, while only 16.9% gave the correct answer.

When assessing parents' knowledge regarding the correct storage method for a tooth that needs to be sent to a dentist, the majority (31.1%) of parents selected water as the storage medium. Napkins were chosen by 20% of parents, while only 17.4% correctly identified the appropriate environment for preserving a dislodged tooth.

This descriptive, cross-sectional study involved 225 parents who visited the dental school to assess their knowledge and actions concerning dental injuries. A 32-question questionnaire was administered to gather data.

The results showed that the average parental awareness score was 3.13 out of a possible 13, with scores ranging from 0 to 10. This is in contrast to Shahnasari's study [19], which reported an average score of 5.26 out of 15. The demographic factors of gender, age, and number of children did not significantly impact parental awareness about dental trauma in this study. These findings align with those of Ozer *et al.* [16], who also found no effect of these factors on parental knowledge.

The study did, however, reveal a direct correlation between parental education level and their awareness of dental injuries. As parents' education increased, so did their level of awareness. This result is consistent with studies by Jabarifar *et al.* [20] and Murali *et al.* [7] in India. In contrast, Ozer *et al.* [16] research in Turkey found no significant relationship between parental education and knowledge, which could be attributed to regional differences in the study populations.

In this study, a significant correlation was found between parents' previous dental trauma experiences and their level of awareness. Parents who had encountered dental trauma, either personally or with their children, scored higher on the awareness test compared to those who had not experienced such incidents. This finding aligns with the results of Quaranta *et al.* [21] in Italy, where a similar direct relationship was observed. However, the findings of Murali *et al.* study [7] in India, which involved 150 parents, did not establish a link between prior dental trauma experience and awareness of injuries. The discrepancy in these findings may be attributed to differences in the study populations, regional factors, and sample sizes.

Regarding the sources of information on dental injuries, this study found that the most common source for parents was television, cited by 23% of respondents, followed by dentists at 22.2%. These results contrast with those of Quaranta *et al.* [22], whose study in Milan, which involved 900 parents, revealed that dentists were the primary source of information (72%), with family doctors and television mentioned by only 8% and 3%, respectively. The variation in these findings could be due to differences in sample sizes, cultural factors, and the varying roles of media such as TV in different societies.

In this study, when assessing parents' decisions regarding tetanus vaccination following a dental injury, 46.6% reported seeking medical attention at health centers, 14.2% consulted a doctor, and 8.5% visited a dentist. However, 30.7% of parents admitted they were unaware of the necessary steps for tetanus vaccination and did not take any specific action. A similar trend was observed in Al-Obaida's study [23] conducted in Saudi Arabia, where

30.7% of men and 41.2% of women lacked awareness about tetanus vaccination. In contrast, Kaul *et al.* study [24] in India, which involved 2000 parents, found that 77.5% correctly identified the importance of checking tetanus vaccination status after a dental injury. The discrepancy in findings may be attributed to variations in sample sizes and differences in public health awareness across different regions.

When evaluating parental awareness regarding the critical timeframe for repositioning a tooth that has been dislodged from its socket, 57.8% incorrectly believed that more than half an hour was an acceptable timeframe, while only 16.9% provided the correct response. Similarly, Abdellatif and Hegazy's study [25] in Egypt found that 50% of parents were unaware of the urgency and also considered more than half an hour to be appropriate. However, differing results were reported by Quaranta [21] in Italy, where, out of 900 surveyed parents, 41% answered correctly. These variations may be influenced by differences in sample sizes and geographical factors. Additionally, Kaul's study [24] in India found that only 20.6% of parents transported an avulsed tooth in a suitable storage medium before seeking dental care.

When assessing parents' awareness of the proper storage medium for a tooth before being transported to the dentist, water was the most commonly selected option at 31.1%. Additionally, 20% of parents mentioned using napkins, while only 17.4% correctly identified the appropriate storage environment for an avulsed tooth. In contrast to these findings, Kamali *et al.* study [26], which focused on the knowledge of elementary school health educators, found that 45% of participants correctly chose milk and saliva as suitable storage options. This difference may be attributed to variations in the study population, as educators might have greater exposure to health-related information than parents.

The findings of this study highlight that many parents lack adequate knowledge and skills regarding the treatment of dental trauma and emergency management. Their limited awareness of the correct procedures for handling damaged teeth appears to have influenced their actions in such situations [27]. Given these gaps in knowledge, it is essential to educate parents on the appropriate response to dental injuries in children to improve their ability to manage such incidents effectively.

## Conclusion

The findings of this study indicate that parents generally have a low level of awareness when it comes to handling dental injuries, as reflected in their average awareness scores. However, there is a strong willingness among parents to learn and receive first-aid training for managing such incidents. Since children's access to dental care largely depends on their parents, their knowledge of the importance of responding to dental injuries is crucial for maintaining children's oral health. To enhance parents' awareness and preparedness, educational initiatives should be implemented through various channels, including posters, mass media, and training sessions. Providing information on both emergency management and preventive measures for dental injuries can significantly improve treatment outcomes for affected teeth while also enhancing children's overall oral health and quality of life.

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## References

1. Kahabuka FK, Plasschaert A, Van't Hof M. Prevalence of teeth with untreated dental trauma among nursery and primary school pupils in Dar es Salaam, Tanzania. *Dent Traumatol.* 2001;17(3):109-13.
2. Hashim R, Alhammadi H, Varma S, Luke A. Traumatic dental injuries among 12-year-old schoolchildren in the United Arab Emirates. *Int J Environ Res Public Health.* 2022;19(20):13032. doi:10.3390/ijerph192013032

3. Hegde R, Agrawal G. Prevalence of traumatic dental injuries to the permanent anterior teeth among 9- to 14-year-old schoolchildren of Navi Mumbai (Kharghar-Belapur region), India. *Int J Clin Pediatr Dent.* 2017;10(2):177-82. doi:10.5005/jp-journals-10005-1430
4. Petersson EE, Andersson L, Sörensen S. Traumatic oral vs non-oral injuries. *Swed Dent J.* 1997;21(1-2):55-68.
5. Goswami M, Aggarwal T. Prevalence of traumatic dental injuries among 1- to 14-year-old children: a retrospective study. *Int J Clin Pediatr Dent.* 2021;14(4):467-70. doi:10.5005/jp-journals-10005-1961
6. Mordini L, Lee P, Lazaro R, Biagi R, Giannetti L. Sport, and dental traumatology: surgical solutions and prevention. *Dent J.* 2021;9(3):33. doi:10.3390/dj9030033
7. Murali K, Krishnan R, Kumar VS, Shanmugam S, Rajasundharam P. Knowledge, attitude, and perception of mothers towards emergency management of dental trauma in Salem district, Tamil Nadu: a questionnaire study. *J Indian Soc Pedod Prev Dent.* 2014;32(3):202-6.
8. Tewari N, Goel S, Srivastav S, Mathur VP, Rahul M, Haldar P, et al. Global status of knowledge of parents for emergency management of traumatic dental injuries: a systematic review and meta-analysis. *Evid Based Dent.* 2023;24(2):91. doi:10.1038/s41432-023-00883-7
9. Andreasen JO. Etiology and pathogenesis of traumatic dental injuries a clinical study of 1,298 cases. *Eur J Oral Sci.* 1970;78(1-4):329-42.
10. Fitzgibbon R, Carli E, Piana G, Montevecchi M, Bagattoni S. Dental trauma epidemiology in primary dentition: a cross-sectional retrospective study. *Appl Sci.* 2023;13(3):1878. doi:10.3390/app13031878
11. Eissa MA, Mustafa Ali M, Splieth CH. Dental trauma characteristics in the primary dentition in Greifswald, Germany: a comparison before and after German unification. *Eur Arch Paediatr Dent.* 2021;22(5):783-9. doi:10.1007/s40368-021-00606-5
12. Jokovic A, Locker D, Stephens M, Kenny D, Tompson B, Guyatt G. Validity and reliability of a questionnaire for measuring child oral-health-related quality of life. *J Dent Res.* 2002;81(7):459-63.
13. Siqueira MB, Firmino RT, Clementino MA, Martins CC, Granville-Garcia AF, Paiva SM. Impact of traumatic dental injury on the quality of life of Brazilian preschool children. *Int J Environ Res Public Health.* 2013;10(12):6422-41.
14. Lopez D, Waidyatillake N, Zaror C, Mariño R. Impact of uncomplicated traumatic dental injuries on the quality of life of children and adolescents: a systematic review and meta-analysis. *BMC Oral Health.* 2019;19(1):224. doi:10.1186/s12903-019-0916-0
15. Prathyusha P, Harshini T, Haripriya B, Pramod IJ, Swathi K, Samyuktha CL. Knowledge and awareness regarding avulsion and its immediate treatment in school teachers in Bangalore city (South). *J Int Oral Health.* 2015;7(8):93-7.
16. Ozer S, Yilmaz EI, Bayrak S, Tunc ES. Parental knowledge and attitudes regarding the emergency treatment of avulsed permanent teeth. *Eur J Dent.* 2012;6(4):370-5.
17. Al Sheeb M, Al Jawad FA, Nazzal H. Parents' knowledge of emergency management of avulsed permanent teeth in children and adolescents in the state of Qatar: a questionnaire cross-sectional study. *Eur Arch Paediatr Dent.* 2023;24(5):643-50. doi:10.1007/s40368-023-00829-8
18. Alzahrani MS, Almaqboul FA. Parents' awareness and attitude toward urgent management of avulsed permanent tooth in AL-Baha city. *Saudi Endod J.* 2019;9(2):82-7. doi:10.4103/sej.sej\_88\_18
19. Shahnasari S, Mousavi SA, Jafari N. Evaluation of knowledge of parents of children aged 8-12 years about traumatic avulsed teeth in Isfahan in 2016. *J Mash Dent Sch.* 2017;41(1):41-50.
20. Jabarifar E, Khadem P, Heidari M, Javadinejad S, Nobahar S, Haji Ahmadi M. Evaluation of awareness of mothers about individual and environmental risk factors of dental trauma and prevention in 8-12-year-old children and their relationship with children's daily life. *J Isfahan Dent Sch.* 2011;6(5):574-87.
21. Quaranta A, De Giglio O, Trerotoli P, Vaccaro S, Napoli C, Montagna MT, et al. Knowledge, attitudes, and behavior concerning dental trauma among parents of children attending primary school. *Ann Ig.* 2016;28(6):450-9.
22. Quaranta A, De Giglio O, Coretti C, Vaccaro S, Barbuti G, Strohmenger L. What do parents know about dental trauma among school-age children? A pilot study. *Ann Ig.* 2014;26(5):443-6.
23. Al-Obaida M. Knowledge and management of traumatic dental injuries in a group of Saudi primary schools' teachers. *Dent Traumatol.* 2010;26(4):338-41.

24. Kaul R, Jain P, Angrish P, Saha S, Patra TK, Saha N, et al. Knowledge, awareness and attitude towards emergency management of dental trauma among the parents of Kolkata-an institutional study. *J Clin Diagn Res.* 2016;10(7): ZC95-101.
25. Abdellatif AM, Hegazy SA. Knowledge of emergency management of avulsed teeth among a sample of Egyptian parents. *J Adv Res.* 2011;2(2):157-62.
26. Kamali A, Kashani AT, Hydarpoor M. Primary school health teachers' knowledge regarding the emergency treatment of avulsed permanent teeth in Hamadan. *J Dent Med.* 2016;29(2):129-35.
27. Sanu OO, Utomi IL. Parental awareness of emergency management of avulsion of permanent teeth of children in Lagos, Nigeria. *Niger Postgrad Med J.* 2005;12(2):115-20.