ORIGINAL RESEARCH PAPER
Volume - 14 | Issue - 07 | July - 2025 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

KNOWLEDGE OF SCHOOL TEACHERS IN KADAPA DISTRICT, INDIA - REGARDING EMERGENCY CARE OF TRAUMATIC DENTAL INJURIES

Pedodontics

Dr. Bandi Jyothsna* Post Graduate Student Department of Pediatric and Preventive Dentistry, *Corresponding Author
Dr. Th. Kotaiah Department of Pediatric and Preventive Dentistry,
Dr. P. Lakshmi Prasanna Department of Pediatric and Preventive Dentistry
Dr. B. Jayachandra Reddy Department of Pediatric and Preventive Dentistry
Dr. M. Deepika Department of Pediatric and Preventive Dentistry
Dr. Meenu K Iyer Department of Pediatric and Preventive Dentistry

ABSTRACT

Aim: The aim of the study to evaluate the need of knowledge of school teachers about traumatic dental injuries on the basis of prevalence of TDI's of 6-15 years old school children. **Methodology:** A cross-sectional study conducted among school children of age group 6-15 years in Kadapa town. Upper and lower anterior teeth were examined for any evidence of fracture using mouth mirror and probe under natural light. Individuals with clinical evidence of trauma is recorded and classified as per Ellis and Davey's classification (1970). Cause and site of injuries were recorded. Knowledge of school teachers regarding traumatic dental injuries is assessed using questionnaire. **Result:** A total of 2976 school children were screened. Among them 427(14.3%) had experienced traumatic dental injuries. Male children (62.5%) were being more prone to traumatic dental injuries than female children (37.5%). Ellis and Davis class I fracture (55.6%) prevalence is more followed by class II (24.2%), class IX (10.4%), class IV (5.2%), class III (3.6%) and class IV (0.9%). The Place of injury was noted to be more at school followed by home and its premises. **Conclusion:** Based on the results, the level of knowledge of school teachers regarding first.aid management of traumatic dental injuries was limited and there is a special need to emphasize on Oral Health Education and First Aid Management of Traumatic Dental Injuries.

KEYWORDS

Traumatic Dental Injuries, Oral Health Related Quality of Life, First Aid Management, Knowledge.

INTRODUCTION

An impact injury to the teeth and/or other hard and soft tissues in the vicinity of the mouth and oral cavity is known as dental trauma (traumatic dental injury). Usually abrupt, situational, unanticipated, and unintentional, it frequently necessitates emergency care. It is a result of a number of life's inevitable risk factors rather than an illness. Even though some groups are more likely to sustain these injuries than others, no one is ever completely safe from injuries when engaging in regular activities. [1]

Traumatic dental injuries (TDI) have been projected as the fifth most prevalent disease worldwide.[1] In a global systematic review by Petti et al., the estimated number of individuals, from 7 to 65 years of age, with injured permanent teeth was approximately 900 million. The projected number of children with at least one TDI involving primary teeth was 180 million globally. Several authors have emphasised that changing lifestyles, recreational behaviours and exposure to adventure/violent content through Web-based media can be considered primary causes of increased TDI. [2]

According to estimates, the direct expenses of trauma (therapy) and indirect expenses (missed earnings and productivity, transportation expenses, and quality of life) in some western nations range from 4 to 5% of GDP. According to reports, the prevalence of caries and periodontal disease in young people may be outweighed by the effects of traumatic dental traumas. These effects not only have financial or bodily repercussions, but they also cause an huge psychological load on the person. [1]

Managing traumatic dental injuries is never the same and is challenging to the dentists. Emergency management should be considered to begin at the time of injury rather than the time the patient first sees the dentist as this effects healing. This emphasises the importance of first aid and the necessity to educate public. Even with timely presentation, management of dental trauma is not an ordinary situation in daily dental practice. It is a procedure where the initial appointment cannot be anticipated or scheduled. Furthermore, this uncommon procedure carries risk, diagnostic uncertainty and potential long-term follow-up for the patient. Additionally, this uncommon procedure entails risk, uncertainty in the diagnosis, and possible long-term patient follow-up. There is also an endless combination of environmental influence and patient considerations making every case unique. Given this diversity, evidence-based practice is best created at the population level where substantial data can provide certain advice. This highlights the significance of epidemiology or the study of trends and causes of particular conditions, such dental trauma. [1]

Epidemiological data serves multiple purposes, the most pertinent is being used for the identification of the problem, severity, risk factors, burden and treatment needs. These aspects may help in the formulation of effective preventive strategies and planning interventions specific to a region. These features are also the basis of health policies at state, national and international levels. TDI have largely been an ignored segment of non-communicable oral diseases. [2]

Several studies characterised the prevalence (retrospective) or incidence (prospective) of dental trauma. The total number of cases reported in a community at a specific point in time is known as prevalence, and it is frequently reported in cross-sectional studies. These cases may be new or they may be long-standing. The cumulative number of instances (both new and old) divided by the population yields the prevalence, which is sometimes given as a percentage. On the other hand, incidence rates only include newly reported cases within a population during a given period of time. Incidence is calculated by the number of reported new cases divided by the population size, which is frequently given as a percentage. Prevalence rates are always greater than incidence rates since they are cumulative and retrospective. [1]

The aim of the study is to assess prevalence of TDI's of 6-15 years old school children in Kadapa population and to evaluate knowledge of school teachers about traumatic dental injuries.

MATERIALS AND METHODS

A cross-sectional study was conducted among school children of age group 6-15 years in Kadapa. Institutional ethical committee clearance (IEC) for the study was obtained, formal letters were sent to the selected schools (multi-phase sampling), informed consent was taken from headmasters and parents. Upper and lower anterior teeth were examined for any evidence of fracture using mouth mirror and probe

under natural light. Individuals with clinical evidence of trauma was recorded and classified as per Ellis and Davey's classification.

Place of injuries were recorded. Knowledge of school teachers regarding Traumatic Dental Injuries was assessed using questionnaire.

A questionnaire modified from those used by Raphael[3], Sae-lim[4], Newman LJ[5], Tzimpoulas[6], Raoof[7], vergotine[8] in Australia, Singapore, England, Greece, Iran and USA respectively is used, consisting of two parts. Part I (table 5) is comprised of questions on demographic information including gender, age, teaching experience, first aid training, and dental trauma experience. Part II (table 6) is comprised of multiple-choice questions about management of traumatized teeth. Questionnaire was given in English as well as local language-Telugu.

Inclusion Criteria

Children of age group 6- 15 years with a history of dental trauma who had not undergone an injury more than once were included in the study.

Exclusion Criteria

Students who had lost an anterior tooth due to dental caries, broken roots, severe dental fluorosis, and children with physical, mental, or medical disabilities were excluded from the study. Children who received or had undergone orthodontic treatment were excluded from the study.

Statistical Analysis

All the obtained data were transcribed into a Microsoft Excel spreadsheet. The data were analyzed with SPSS version 21. The descriptive analysis was performed for frequency distribution. A chi-square test was used to check the association. The level of significance was kept at p value <0.05. The percentage from Part I and Part II were calculated. The responses about attitudes towards to management of the dental trauma (Part II) were grouped and percentages were calculated to each response.

RESULTS

A total of 2976 school children were screened. Among them 427(14.3%) had experienced Traumatic Dental Injuries. Male children (62.5%) were being more prone to traumatic dental injuries than female children (37.5%). Prevalence rate of trauma is, Ellis and Davis class I fracture (55.6%), class II (24.2%), class III (3.6%), class IV (5.2%), class V (0.9%), class IX (10.4%). Prevalence of class I fracture is more followed by class II, class IX, class IV, class III and class V (0.9%). The Place of injury was noted to be more at school followed by home and its premises. Hence the Pilot study was commenced to assess knowledge of school teachers about TDIs.

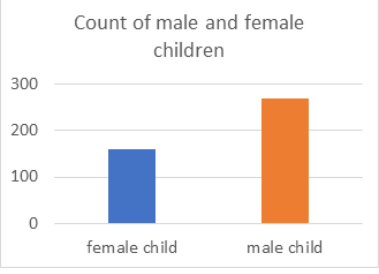

Chart 1: Prevalence Of Traumatic Dental Injuries Among Male And Female Children

Table 1: Representation Of Prevalence Rate Of Traumatic Dental Injuries Among Male And Female Children

Gender	Count of male and female children
Female child	160 (37.5%)
Male child	267 (62.5%)
Total	427

Table 2: Distribution Of Fracture Prevalence According To Ellis And Davies Classification

Ellis and Davey's classification.	Number of Teeth
Class I	246 (55.6%)
Class II	107 (24.2%)
Class III	16 (3.6%)
Class IV	23 (5.2%)
Class V	4 (0.9%)
Class IX	46 (10.4%)

Significant correlation was present between age groups and place of trauma (p<0.03). The prevalence rate of trauma has been increased with age among the children who have experienced trauma at school and gradually decreased prevalence among those who experienced trauma at home.

Table 3: Correlation Between Age And Place Of Trauma

	Age			P
Ellis's fracture	6 to 8 years	9 to 12 years	13 to 15 years	<0.02*
Class I	18 (7.3%)	128 (52%)	100 (40.7%)	
Class II	0 (0%)	51(47.7%)	56 (52.3%)	
Class III	2 (12.5%)	1 (6.3%)	13 (75.0)	
Class IV	0 (0%)	12 (52.2%)	11 (47.8%)	
Class V	0 (0%)	1 (25%)	3 (75%)	
Class IX	38 (82.6%)	8 (17.4%)	0 (0%)	
total	58	201	183	

Significant correlation was present between Ellis fractures with three age groups (6y-8y; 9y-12y; 13y-15y) with p value less than 0.02. The prevalence rate of Ellis class I, IV fractures were more at the age of 9 to 12 years followed by 13 to 15 years; In class II, III, V the prevalence is more at 13- 15years age followed by 9-12years; and in class IX prevalence is more at 6-8 years followed by 9-12 years.

Table 4: Correlation Between Prevalence Of Types Of Fracture With Age

	Place of trauma		P
Age	At school	At home	<0.03*
6 to 8 years	16 (27.6%)	42 (42.4%)	
9 to 12 years	104 (55.9%)	82 (44.1%)	
13 to 15 years	115 (62.8%)	68 (37.2%)	
Total	235	192	

Pilot study was conducted for school teachers to assess the knowledge on TDI's. A total of 36 school teachers completed the questionnaire. In the selected schools, the mean teachers' age was 41.7 years. A predominance of female teachers was recorded (72.2%), and most of the participants (72.2%) had more than 10 years of teaching experience. The results demonstrated that 44.4% had no previous dental trauma training nor information on dental traumatic injuries, whereas 41.7% have witnessed a dental traumatic injury during school hours. However, only 66.7% believed in their ability to help during an urgent situation of TDI at school and 80.6% of the participants were interested in getting more information on first-aid management of TDI.

Table :5 Demographic Data Of School Teachers Participated In Pilot Study.

Question part I	Response	n%
1. Gender	Females Males	72.2% 27.8%
2. Teaching experience	>10 years <10 years	72.2% 27.8%
3. Previous training/ information on first aid management of TDIs	Formal expert information None Internet resources	47.2% 44.4% 8.3%
4. Incidences of dental trauma witnessed at school	None 1 to 2 3 to 4 >5	58.3% 25% 13.9% 2.8%
5. Belief in their ability to help a child with dental trauma	Yes No	66.7% 33.3%
6. Interest in being informed about dental trauma	Yes No	80.6% 19.4%

Scenario 1 was concerned about a crown fracture, 25% would keep the fractured pieces. However, only 36.1% would store the teeth in a moist environment. Of all respondents, 50% did not know what to do with the broken parts. Scenario 2 was a question about the emergency management of a luxation injury. The responses showed that only 61.1% would control bleeding before referring the child to a dentist, while 22.2% would not take any immediate action and would just refer the traumatized child to a dentist and 16.7% did not know what to do.

Table:6 Results Of Questionnaire To School Teachers On First Aid Management Of Traumatic Dental Injuries

Question part II	Response	n%

Scenario 1 Crown fracture		
1. Use of fractured parts	Yes No Don't know	25% 30.6% 44.4%
2. Storage environment	Dry moist don't know	13.9% 36.1% 50%
Scenario 2 Luxation Injury		
3. Emergency management	Bleeding control Refer to dentist Don't know	61.1% 22.2% 16.7%
Scenario 3: Avulsion		
4. Replantation	Yes No	13.9% 86.1%
5. Storage medium	Water Saline Cold milk Childs mouth Antimicrobial solution Clear napkin Don't know	0% 2.8% 22.2% 2.8% 13.9% 22.2% 36.1%
6. Cleaning tooth before replantation	Yes No	58.3% 41.7%
7. If yes, how	Cold water Soft tooth brush Antimicrobial solution Mouth wash Don't know	30.6% 0% 41.7% 8.3% 19.4%
8. Healthcare provider	General physician hospital General dentist Dental college and hospital Paediatric dentist Endodontist	8.3% 0% 44.4% 27.8% 19.4% 0%

Scenario 3, concerned about an avulsed tooth. Of those surveyed, only 13.9% believed that the tooth can be replanted back into its socket. When the teachers were asked about storage media for avulsed teeth, most of them (36.1%) did not know where to store them, whereas 22.2% would immerse the teeth in cold milk and 22.2% in clean handkerchief/napkin. In the question about cleaning the avulsed tooth before storage, 58.3% responded "yes," but 41.7% would rinse them with antimicrobial solution and 30.6% with cold water, whereas 19.4% did not know how to do this. All participants were asked an additional question with regard to first choice of healthcare provider to seek in case of an emergency dental trauma situation. Most of the teachers would refer the injured child to general dentist (44.4%), and only 27.8% would refer the child to the nearest dentist or dental school/hospital. A pediatric dentist was 3rd in the ranking with 19.4%, whereas 8.3% would refer to general physician.

DISCUSSION

Traumatic injuries to teeth have been reported to have a prevalence rate between 6.1% and 58.6%.[9] The results of the present study shows that Prevalence of trauma is 14.3% aligning with the results of Kumar A et al.,(14.4%)[10], Fransisco SS et al(16.5%)[11], Gupta et al. (13.8%)[12], Dua and Sharma (14.5%)[13], Baldava and Anup (14.9%)[14], and Ravishankar et al. (15.1%)[15]. Among 14.3% TDIs experienced, 62.5% in boys which was about twice as high in girls at 37.5% similar to studies by Saikiran K V et al (68% of Boys, 32% Girls)[16], Juneja P et al (68.38% Boys, Girls 31.62%)[9].

Enamel fracture was found to be the most common type of injury i.e., Ellis class I, similar to that reported by Stockwell AJ and Garcia-Godoy F et al.[17,18]

Scenario 1- Crown Fracture:

Only 25% responded that they would keep the fractured piece and can be used which is lower than the studies by tzimpoulas(48.6%), Raoof(34%), vergotine(36%) while 44.4% did not know what to do. 36.1% prefer to carry the broken pieces in moist environment similar to study by Tzimpoulas and Raoof but lower than Vergotine's(44%). [6–8]

Scenario 2- Luxation Injury

Of all those participating in the study, 61.1% prefer to do first aid management and contact parents which is similar to Raoof's (51.5%) and higher than Tzimpoulas (15.9%). 22.2% knew the urgency in seeking professional help immediately similar to Raoof(22.2%) and lower than Tzimpoulas(69.9%).

Scenario 3- Avulsion

Summarising the responses to questions on tooth avulsion, of all those surveyed, 86.1% did not know that they could replant the tooth after avulsion when it has fallen out and 13.9% believe in reimplantation which is similar to the study by Raoof(13%) and Vergotine(12%) and lower than in the study by Tzimpoulas(52.2%). 58.3% selected the response of find the tooth, wash it before storing, which is higher than the study by Raoof and Vergotine. Almost one-third (30.6%) responded correctly by washing the tooth with water before replantation/ before storing which is similar to the results of Tzimpoulas(35.5%) and Raoof(35%) and lower than in by Vergotine's(44%). In the case of transporting a tooth in a liquid, 22.2% opted cold milk as storage medium similar to Vergotine and tzimpoulas and higher than Raoof(13%), 13.9% chosen antimicrobial solution similar to tzimpoulas and lower than Raoof(23.6%), 2.8% selected normal saline lower than Raoof(23.5%) and Tzimpoulas(12.7%), only 2.8% answered that they would put it back in the patient's mouth which is lower than by Raoof(19.5%) and higher than Tzimpoulas(0.7%), while 22.2% suggested that they would carry it in napkin. Unfortunately, the majority responded incorrectly by putting the tooth in paper/napkin/dry towel.

Health Care Service

44.4% declared that they would consult general/ family dentist higher than in Raoof and Tzimpoulas studies, 27.8% considered dental college and hospital(dental schools) similar to Raoof's and higher than Tzimpoulas(1.44%), 19.4 % have choosen pediatric dentist as a worthy consultant which is lower than Raoof's(42%) and Tzimpoulas(23.9%) results and 8.3% have even preferred general physician which is higher than in the studies Raoof(2.3%) and Tzimpoulas(2.17%).

The level of knowledge of school teachers regarding first-aid management of traumatic dental injuries was limited, which confirmed similar findings of previous studies by Fux-Noy A et al[19], Marcano-Caldera M et al[20], Antunes LA et al[21], Raoof[7], vergotine[8] and Tzimpoulas[6]. It is important for the educators/teachers to learn appropriate behaviour in a variety of situations. The teachers should be informed that the student must be referred to a dentist for clinical and radiological follow-up, even in cases of minor fractures or displacements.

The obtained data will provide the basis for establishing priorities for action and may be extrapolated to the implementation of health education activities in schools in the town. Teachers could be the strategic partners in implementing and carrying out these activities. Dental trauma can result in irreversible tooth loss as well as financial, social, psychological, and aesthetic harm. Teenagers' and children's quality of life may be impacted by such harm. When comparing children and adolescents who have experienced trauma to those who have not, Antunes LAA et al found that the former had more detrimental and significant effects on their emotional and functional limitations [21].

Psychosocial factors should be considered in the affected person's treatment plan in order to enhance social interaction and general well-being. Providing teachers, parents, and kids with material that is specifically tailored to them can help spread the word of information. It would be beneficial if the teachers had training programme in both education and in the fundamentals of medicine.

The fact that every participant asked for the right answers at the end of the survey was really encouraging. Additionally, they asked to attend a seminar on prevention to gain more knowledge and First Aid Management of Dental Trauma. However, the responses to the questionnaire suggest the need for a series of actions to be taken to improve the level of knowledge and first-aid management among school teachers. Education campaigns with posters in schools, (Mori GG[22], Lieger O[23]) and Lectures on first-aid steps followed by discussion with teachers (Al-Asfour A[24]) or the use of an audio-visual aid (Niviethitha S[25]) are effective methods to improve their level of knowledge regarding the emergency management of dental injuries.

Education of every potentially individual associated with traumatic dental injuries (TDI) such as the injured individual, parents/ family/

caregivers, school teachers, sports persons and coaches, and non-dental health care professionals regarding the prevention and emergency management of dental injuries is essential. Dental professionals must be empowered and motivated to disseminate this information to help prevent TDI globally [26].

A Pediatric dentist, plays a vital role in managing traumatic dental injuries in children, Ranging from Immediate Care and Treatment or emergency care (screening, diagnosis, repositioning or stabilisation of traumatised teeth, suturing and fracture management), Preventive Measures (Identifying predisposing risk factors like malocclusions and Educating parents and children about injury prevention, including the use of mouthguards during sports activities), Long-term follow up (to ensure proper healing and development of affected teeth and supporting structures and check for complications such as pulp necrosis, infections, or developmental disturbances in permanent teeth), Behaviour Management, Parental Guidance (including oral hygiene and dietary recommendations as a part of post trauma care and educating parents on possible complications to watch out), to coordination for multidisciplinary approach (with schools and sports academies for injury prevention programmes and other health professionals like oral surgeons, orthodontists and endodontists for comprehensive care). The role of pediatric dentist towards traumatic dental injuries otherwise is practical approach of following and implementing the IADT and ASD guidelines at all the levels.

According to the International Association of Dental Traumatology (IADT) and the Academy for Sports Dentistry (ASD) guidelines for prevention of traumatic dental injuries the essential areas of education that should be addressed are: 1. The identification of conditions that make an individual more prone to dental trauma. 2. The use and availability of protective devices such as mouth-guards, face-shields and helmets. This aspect is even more important for parents, school teachers, sports persons and coaches. 3. Dental personnel must have the technical expertise to fabricate/provide different types of protective devices, and they must monitor the use of these devices after periodic intervals to assess them for wear and tear and any other issues. 4. Information regarding First Aid for TDI must be provided and reinforced periodically. A pictorial information mode either in the form of a chart or as a mobile application should be available. 5. The signs of the delayed consequences of TDI such as discoloration, pain, swelling, and tooth mobility. It is very important that the injured individuals, parents, coaches and school teachers are educated about these problems and their consequences. They should be aware of the need to contact a dentist if any of these signs are noticed. 6. Non-dental health care personnel (both emergency and non-emergency) must be educated to understand the greater chances of TDI in individuals with special care health needs. This is also important for the parents/caregivers of such individuals, and teachers engaged in special schools and institutions [26].

People frequently use mobile applications [apps] and other online platforms to access information. Traumatic dental injuries (TDI) may also fall under this category. In 2018, the "ToothSOS" app was made available by the International Association of Dental Traumatology (IADT). This app's objective is to provide information and instant guidelines on TDI to the general public, players, coaches, sports trainers, parents, teachers, and dental and medical experts. Additionally, it was designed to make information easily accessible to anybody in emergency and non-emergency situations, allowing them to provide appropriate first aid or professional management of an injury. The application is available for free, to download on smartphones and has an interface for patients or the general public which has basic information about different types of TDI and first aid measures. The most recent IADT guidelines and the detailed steps for diagnosing and treating TDI clinically are easily accessible in the app's section dedicated to dental practitioners. Both dentists and non-dentists have found this app to be a helpful training tool in emergency management of TDI. Likewise it can be employed to educate people about prevention of TDI[6,27].

It is important to emphasize that the constant improvement of the science and technology brings significant changes for the society. This is an extremely important strategy for prevention and to guide the correct management of the dental trauma, improving the quality of life of these children/teenagers

CONCLUSION

There is a substantial lack of proper knowledge among school teachers regarding emergency TDI management. Therefore, they are not able to act appropriately during a first-aid emergency of traumatic dental injuries. The knowledge teachers possess is not scientifically grounded, is inconsistent, based on unfounded concepts, beliefs or even intuition and also have a lack of training. Continuing oral health education for teachers with widespread application of education campaigns, lectures and AV aid is expected to result in greater awareness, and increased use of dental services in the target populations and could be a good action strategy to follow.

Limitations

A potential limitation of the present study is the sample size of teachers.

REFERENCES

1. Lam, R. (2016). Epidemiology and outcomes of traumatic dental injuries: a review of the literature. Australian dental journal, 61, 4-20.
2. Tewari, N., Mathur, V. P., Siddiqui, I., Morankar, R., Verma, A. R., & Pandey, R. M. (2020). Prevalence of traumatic dental injuries in India: A systematic review and meta-analysis. Indian journal of dental research, 31(4), 601-614.
3. Raphael, S. L., & Gregory, P. J. (1990). Parental awareness of the emergency management of avulsed teeth in children. Australian Dental Journal, 35(2), 130-133.
4. Sae-Lim, V., Chulaluk, K., & Lim, L. P. (1999). Patient and parental awareness of the importance of immediate management of traumatised teeth. Dental Traumatology, 15(1), 37-41.
5. Newman, L. J., & Crawford, P. J. (1991). Dental injuries:"first aid" knowledge of Southampton teachers of physical education. Dental Traumatology, 7(6), 255-258.
6. Tzimpoulas, N., Markou, M., Zioutis, V., & Tzanetakis, G. N. (2020). A questionnaire-based survey for the evaluation of the knowledge level of primary school teachers on first-aid management of traumatic dental injuries in Athens, Greece. Dental Traumatology, 36(1), 41-50.
7. Raoof, M., Zaherara, F., Shokouhinejad, N., & Mohammadalizadeh, S. (2012). Elementary school staff knowledge and attitude with regard to first-aid management of dental trauma in Iran: a basic premise for developing future intervention. Dental Traumatology, 28(6), 441-447.
8. Vergotine, R. J., & Govoni, R. (2010). Public school educator's knowledge of initial management of dental trauma. Dental Traumatology, 26(2), 133-136.
9. Juneja, P., Kulkarni, S., & Raje, S. (2018). Prevalence of traumatic dental injuries and their relation with predisposing factors among 8–15 years old school children of Indore city, India. Clujul medical, 91(3), 328.
10. Kumar, A., Bansal, V., Veeresha, K. L., & Sogi, G. M. (2011). Prevalence of traumatic dental injuries among 12-to 15-year-old schoolchildren in Ambala district, Haryana, India. Oral health & preventive dentistry, 9(3).
11. Francisco, S. S., de Souza Filho, F. J., Pinheiro, E. T., Murrer, R. D., & de Jesus Soares, A. (2013). Prevalence of traumatic dental injuries and associated factors among Brazilian schoolchildren. Oral health & preventive dentistry, 11(1).
12. Gupta, K., Tandon, S., & Prabhu, D. (2002). Traumatic injuries to the incisors in children of South Kanara District. A prevalence study. Journal of Indian Society of Pedodontics and Preventive Dentistry, 20(3), 107-113.
13. Dua, R., & Sharma, S. (2012). Prevalence, causes, and correlates of traumatic dental injuries among seven-to-twelve-year-old school children in Dera Bassi. Contemporary clinical dentistry, 3(1), 38-41.
14. Baldava, P., & Anup, N. (2007). Risk factors for traumatic dental injuries in an adolescent male population in India. J Contemp Dent Pract, 8(6), 35-42.
15. Ravishankar, T. L., Kumar, M. A., Ramesh, N., & Chaitra, T. R. (2010). Prevalence of traumatic dental injuries to permanent incisors among 12-year-old school children in Davangere, South India. Chin J Dent Res, 13(1), 57-60.
16. Saikiran, K. V., Gurunathan, D., Nuvvula, S., Jadadoddi, R. K., Kumar, R. H., & Birapu, U. C. (2022). Prevalence of Dental Trauma and Their Relationship to Risk Factors among 8–15-Year-Old School Children. International journal of dentistry, 2022(1), 3343827.
17. Stockwell, A. J. (1988). Incidence of dental trauma in the Western Australian school dental service. Community dentistry and oral epidemiology, 16(5), 294-298.
18. García-Godoy, F., Sánchez, R., & Sánchez, J. R. (1981). Traumatic dental injuries in a sample of Dominican schoolchildren. Community dentistry and oral epidemiology, 9(4), 193-197.
19. Fux-Noy, A., Sarnat, H., & Amir, E. (2011). Knowledge of elementary school teachers in Tel-Aviv, Israel, regarding emergency care of dental injuries. Dental traumatology, 27(4), 252-256.
20. Marcano-Caldera, M., Mejía-Cardona, J. L., Parra Sánchez, J. H., Méndez de la Espriella, C., Covo Morales, E., Sierra Varón, G., ... & Sigurdsson, A. (2018). Knowledge about emergency dental trauma management among school teachers in Colombia: A baseline study to develop an education strategy. Dental Traumatology, 34(3), 164-174.
21. Antunes, L. A. A., Ribeiro, L. G., Da Silva, C. S. F., Lopes, R. C., Warol, F., Meyfarth, S., & Antunes, L. S. (2021). The impact of traumatic dental injury on sensory perception and oral health-related quality of life of a child/adolescent before and after the treatment with aesthetic prosthesis: case report. International journal of burns and trauma, 11(1), 41.
22. Mori, G. G., Castilho, L. R., Nunes, D. C., Turcio, K. H. L., & Molina, R. O. (2007). Avulsion of permanent teeth: analysis of the efficacy of na informative campaign for professionals from elementary schools. Journal of Applied Oral Science, 15, 534-538.
23. Lieger, O., Graf, C., El-Maaytah, M., & Von Arx, T. (2009). Impact of educational posters on the lay knowledge of school teachers regarding emergency management of dental injuries. Dental traumatology, 25(4), 406-412.
24. Al-Asfour, A., Andersson, L., & Al-Jame, Q. (2008). School teachers' knowledge of tooth avulsion and dental first aid before and after receiving information about avulsed teeth and replantation. Dental Traumatology, 24(1), 43-49.
25. Niviethitha, S., Bhawarlal, C., Ramkumar, H., Dhakshanamoorthy, S., & Shanmugam, H. (2018). Effectiveness of an audio-visual aid on the knowledge of school teachers regarding the emergency management of dental injuries. Dental Traumatology, 34(4), 290-296.
26. Tewari, N., Abbott, P. V., O'Connell, A. C., Mills, S. C., Stasiuk, H., Roettger, M., & Levin, L. (2024). The International Association of Dental Traumatology (IADT) and the Academy for Sports Dentistry (ASD) guidelines for prevention of traumatic dental injuries: Part 6: Education. Dental traumatology, 40, 14-15.
27. Tewari, N., Abbott, P. V., O'Connell, A. C., Mills, S. C., Stasiuk, H., Roettger, M., & Levin, L. (2024). The International Association of Dental Traumatology (IADT) and the Academy for Sports Dentistry (ASD) guidelines for prevention of traumatic dental injuries: Part 8: Tooth SOS app. Dental Traumatology, 40, 18-19.