



Knowledge, attitude and practices regarding emergency management of dental trauma in children among school teachers in Pune District: A cross-sectional questionnaire study

**Dr. Viraj Mali¹, Dr. Vishal Mahajan², Dr. Bhavana Gaikwad³, Dr. Priyanka More⁴,
Dr. Pavan Kothari⁵**

- 1- Postgraduate student, Department of Conservative Dentistry and Endodontics at Y.C.M.M. & R.D. F's Dental college and hospital, Ahmednagar.
- 2- PG Guide and Professor at Department of Conservative Dentistry and Endodontics, at Y.C.M.M. & R.D. F's Dental college and hospital, Ahmednagar.
- 3- PG Guide and Reader at Department of Conservative Dentistry and Endodontics, at Y.C.M.M. & R.D. F's Dental college and hospital, Ahmednagar.
- 4- Senior Lecturer at Department of Conservative Dentistry and Endodontics, at Y.C.M.M. & R.D. F's Dental college and hospital, Ahmednagar.
- 5- Senior Lecturer at Department of Conservative Dentistry and Endodontics at Y.C.M.M. & R.D. F's Dental college and hospital, Ahmednagar.

• Address of correspondence:

Y.C.M.M. & R.D.F's Dental college and hospital, A. 166/1, Vadgaon Gupta, opposite MIDC, Ahmednagar, Maharashtra- 414003.

• Corresponding author details: Dr. Viraj Sunil Mali.

Address: Y.C.M.M. & R.D.F's. Dental College and Hospital, A. 166/1, Vadgaon Gupta, opposite MIDC, Ahmednagar, Maharashtra- 414003.

Mobile number : +91 9890831977

Email: virajsmali02@gmail.com

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Abstract

Background - Due to increased prevalence of dental trauma in school-going children, knowledge regarding its emergency management is vital to groups commonly supervising the children such as school teachers and parents.

Aim - To assess the knowledge, attitude, and practice of traumatic dental injury (TDI) management among school teachers of Pune District.

Method - This is a prospective intervention study conducted with 300 teachers randomly selected from the entire government and private, primary (elementary) as well as secondary (high) schools of Pune district of Maharashtra, India. The questionnaire was designed using the online survey platform google forms and the link was circulated through the social networking platforms to the participants. Responses were analysed using Microsoft Excel. The results were analysed and with the collected responses a descriptive statistical test was performed using the statistical software.

Result - It was found that school teachers respectively had low levels of knowledge, practice and attitude. When correlation between knowledge, attitude and practice was studied, positive correlation was seen between them which signified low knowledge correlated with positive attitude owing to less referral practices.

Conclusions - Within the limitations of the present study, it can be concluded that despite the lack of knowledge and practice regarding TDI management, school teachers of Pune district had a positive attitude towards TDI education. Emergency management training is by itself a necessity in schools and it should be inclusive of TDI management.

Introduction –

Dental trauma is a significant public health problem due to its frequency and impact on quality of life and the estimated prevalence of permanent dentition worldwide is 15.2%, according to a recent meta-analysis. The authors come to conclusion that 85% of orofacial injuries cause trauma in the dentition, and the incidence by preschool children may rise to 17%.^[1]

The occurrence of traumatic dental injuries (TDI) in primary teeth varies from 11% to 30%, while in permanent teeth, it ranges from 5% to 29%. Children typically spend approximately 40% of their waking hours in school, making those aged 8 to 11 particularly vulnerable to such injuries. Notably, sports and school-related activities account for 60% of all TDIs.^[2-3]

In recent years, there has been an increasing focus on the role of school teachers in preventing TDIs. Teachers are often present when these injuries occur, as they frequently happen during or after school activities. However, many teachers possess limited knowledge regarding the appropriate response to such incidents.^[4]

It is crucial for coaches, teachers, and parents involved in physical education to be well-informed about the correct first-aid procedures. Consequently, it is essential for school teachers to understand basic dental physiology and the treatment protocols for managing these injuries.^[5]

Aim – The aim of the present study was to assess the knowledge, attitude, and practice of Traumatic Dental Injury's management among school teachers in Pune District.

Objective -

- To assess the knowledge of school teachers (primary and secondary) regarding the traumatic injuries that happen in school
- To find out the attitude and perspective of school teachers regarding traumatic dental injury.
- To find out the what action are taken by them when traumatic dental injury happens.

Materials and Methods -

- The study was designed as a cross-sectional survey which included primary (elementary) as well as secondary (high) schools of Pune district of Maharashtra, India.
- Approval to survey the selected schools was obtained by taking permission from the head of the institution of the respective schools.
- Sample size calculation was done, to obtain results at 95% confidence interval using G power analysis sample size calculator software.
- The appropriate sample size required was
- found to be 292 and was rounded off to 300
- The study was executed for 2 months, i.e. September - October 2023.

A close-ended questionnaire containing 17 questions was devised for the current study. It consisted of Four parts:

- 1) Attitudes and opinions of teachers towards traumatic dental injuries suffered by children at school
 - 2) Case Scenario
 - 3) A teacher's opinion on whether or not a tooth that has been dislodged can be re-implanted as it is.
 - 4) Teachers Information on Treatment of Traumatic dental injury
- The nature and purpose of the study were first explained to the teachers in English and the local language.
 - Online survey link using Google forms was provided
 - after obtaining informed consent individually.
 - One pretrained investigator was available throughout to make any required clarifications and rectify any difficulty in comprehension by the participants.
 - The responses obtained were tabulated and
 - then analyzed using Google Sheet.

Results –

All the participating teachers filled the entire questionnaire with a 100% response rate. This can be attributed to the presence of one pretrained investigator who was available throughout to help the participants in filling the online survey.

Out of the 300 participants, 39.4% teacher belong to primary school teachers and were 60.6% are secondary school teachers as shown in [Fig.1]. The participants' age distribution is presented in Table 1 of section 1 that is General Information.

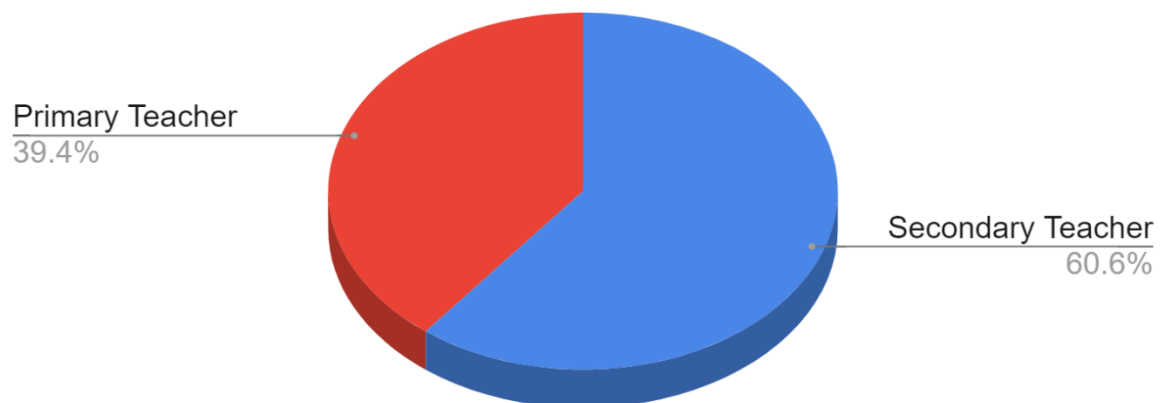
In section 2 to section 5 the results of the part we divided in methodology were distributed as follow.

Section 1 : General Information

-	<u>Frequency (n)</u>	<u>Percentage (%)</u>
<u>21-30 years</u>	<u>26</u>	<u>8.6%</u>
<u>31-40 years</u>	<u>96</u>	<u>31.8%</u>
<u>41-50 years</u>	<u>112</u>	<u>36.6%</u>
<u>51-60 years</u>	<u>66</u>	<u>21.9%</u>

Table 1: Age group distribution

Grade you are teaching

**[Fig.1]**

Section 2 : Attitude of study population

Mean Attitude score range from 0 (worse attitude) to 3 (good attitude)

<u>Questions</u>	<u>Mean (SD)</u>
<u>Q.1 Teachers are not responsible for treatment after a painful dental injury at school</u>	<u>2.22 (1.05)</u>
-	

<u>Q.2 Being aware of dental injuries seen at school and having knowledge of their treatment can lead to better treatment of dental injuries today.</u> -	<u>2.91 (0.44)</u>
<u>Q.3 The teachers should be trained in the knowledge and measures to be taken after dental injuries</u> -	<u>2.83 (0.52)</u>
<u>Q.4 A dental injury is not a major emergency</u> -	<u>2.08 (1.12)</u>
<u>Q.5 If a tooth is dislodged and lost, no dental treatment is needed</u> -	<u>2.64 (0.74)</u>
<u>Q.6 A teacher's first aid after a dental injury can be decisive in saving that tooth</u> -	<u>2.8 (0.65)</u>

Section 3: Case Scenarios

	<u>Correctly Identified</u> <u>N (%)</u>
<u>A nine-year-old boy fell while playing hollow and lost a fragment of his front tooth if nothing else happened</u>	<u>181/300 (59.9%)</u>
<u>A thirteen-year-old girl fell on her face while climbing the school stairs. Her front tooth is knocked out and bleeding</u>	<u>215/300 (71.2%)</u>

Section 4: Teachers opinion (knowledge) on re- implanatation

	<u>Correctly Identified</u> <u>N (%)</u>
<u>Q.1 Can a lost baby tooth be transplanted</u>	<u>168/300 (55.6%)</u>
<u>Q.2 Can a dislodged permanent tooth be implanted in its place</u>	<u>221/300 (73.2%)</u>
<u>Q.3 Who can perform the transplant procedure</u>	<u>302/300 (100%)</u>
<u>Q.4 How long should that tooth be transplanted</u>	<u>56/300 (18.5%)</u>

Section 5: Teachers Information on Treatment of Traumatic dental injury

-	<u>Correctly Identified</u> <u>N (%)</u>
<u>Q.1 How should a dislodged tooth be handled</u>	<u>89/300 (29.5%)</u>
<u>Q.2 Which of the following is the correct method for cleaning a tooth that has fallen into soil</u>	<u>166/300 (55%)</u>
<u>Q.3 Which of the following solution used to Cleaning the teeth</u>	<u>49/300 (16.2%)</u>

<u>Q.4 A dislodged tooth can be transported to the hospital through which of the following</u>	<u>27/300 (8.9%)</u>
<u>Q.5 In which liquid can a loose tooth be kept</u>	<u>3/300 (1%)</u>

DISCUSSION –

Upon evaluating the overall knowledge, practices, and attitudes of TDI management among the school teachers, no significant differences were observed between the two groups. A majority of the teachers expressed dissatisfaction with their knowledge and practices related to managing TDIs, although they demonstrated a commendable attitude towards the subject.

The study was structured into five sections. The first section gathered basic information about the participants. The second section assessed the attitudes of the school teachers, which were measured on a scale from 0 (indicating the worst attitude) to 3 (indicating a good attitude). The results indicated that the attitudes for all questions fell within the range of 2.08 to 2.91, reflecting a generally positive disposition.

In the third section, case scenarios were presented, with the first scenario focusing on identifying dental age and the second on determining appropriate actions in response to the situation. The findings revealed that 59.9% of the participants correctly identified the dental age, while 71.2% took appropriate actions in the given scenarios.

The fourth section inquired about knowledge related to tooth replantation, including which teeth can be re-implanted, the timing for re-implantation, and who should perform the procedure. The results showed that 73.2% of the teachers believed that permanent teeth could be re-implanted, and all participants acknowledged that a dentist should carry out the procedure. However, only 18.5% of the teachers could accurately identify the correct timing for re-implantation. It was noted that an avulsed tooth could be transported in saliva, but not for extended periods, as it lacks the necessary nutrients to sustain the vitality of periodontal ligament (PDL) cells. Storing the avulsed tooth in tap water or allowing it to dry would lead to the destruction of the PDL and its cells.^[7]

Functional healing was observed in teeth re-implanted within one hour after injury, and the prognosis worsens with increased time between avulsion and replantation.^[8]

In the final section, the inquiry focused on the teachers' knowledge regarding TDI management. It was found that more than a quarter of the participating teachers possessed a misguided sense of knowledge and practice concerning TDI management. Although the overall sample size may not be sufficient to draw broad conclusions, it underscores the necessity for training programs aimed at enhancing knowledge and skills in this area.

The integration of first-aid emergency management, particularly concerning dental trauma, into the teacher training curriculum is essential. This inclusion would equip educators to respond more effectively in such emergencies. It is also crucial to raise awareness about preventive strategies and the importance of safety equipment, such as properly fitted mouthguards, face cages, and helmets, during sports and recreational activities that pose a risk of facial impact. Fostering collaboration between dentists and school teachers through dental education promotion programs can enhance teachers' ability to manage dental injuries appropriately, thereby improving the prognosis for affected teeth. Regular dental camps should be organized in schools, featuring awareness lectures and informative materials that emphasize emergency management of traumatic dental injuries to reinforce knowledge.^[6]

The prevalence of misconceptions regarding dental trauma management may adversely affect treatment outcomes due to inadequate care. While this study achieved its intended objectives, it is important to note that the findings are based on a limited population. Future research aimed at evaluating and comparing the knowledge, practices, and attitudes related to emergency management of dental trauma in various regions would provide a more comprehensive understanding.

CONCLUSION -

Within the limitations of the present study, it can be concluded that despite the lack of knowledge and practice regarding TDI management, school teachers of Pune, Maharashtra had a good attitude towards TDI education. Emergency management training is by itself a necessity in schools and it should be inclusive of Traumatic Dental Injuries management.

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