

## Evaluation of Knowledge, Awareness, and Attitude toward Emergency Dental Trauma Management among the School Teachers of Kolkata

### Abstract

**Introduction:** Traumatic dental injuries (TDIs) are very common in childhood. Majority of TDI occur at home followed by schools. The prognosis of TDIs to a great extent is dependent on prompt emergency measures taken at the site of accident. Hence, it is of paramount importance to assess the knowledge of people present at the site of accident that generally includes parents, teachers, and sports coaches. **Aim of Study:** The aim of the study was to assess the knowledge, attitude, and awareness of school teachers of Kolkata regarding management of TDIs. **Materials and Methods:** A cross-sectional survey was conducted on 400 school teachers of Kolkata over a period of 2 months using a pretested close-ended questionnaire. The questionnaire had three parts: Part 1 contained questions on personal information, Part 2 contained questions based on two imaginary cases of trauma, and Part 3 related to their attitude toward dental trauma education. Chi-square test was done to describe the strength of the associations. **Results:** : The overall knowledge of school teachers regarding management of TDIs was not found to be satisfactory. It was observed that most of the teachers were in favor of taking immediate professional consultation for the emergency management, but most of them were unaware of the steps to be taken on their part to minimize complications and improve prognosis. **Conclusion:** Despite the lack of knowledge and awareness regarding management of dental trauma, school teachers of Kolkata had a good attitude toward management of dental trauma and its education.

**Keywords:** Awareness, children, dental trauma, emergency, knowledge, school teachers

### Introduction

“Childhood” is a social construction, whose boundaries shift with time and place and this has implications for vulnerability to injury. A strong association exists between the stage of life and the type of injuries sustained by a child. Every day more than 2000 children and teenagers die from an injury that could have been prevented.<sup>[1]</sup>

Traumatic dental injuries (TDIs) are very common in childhood. Epidemiological studies have shown that prevalence of TDI in primary dentition ranges between 11% and 30%, and in permanent dentition, it lies in the range of 5%–29%.<sup>[2-4]</sup> Most TDIs are observed in children belonging to the age group of 8–11 years,<sup>[5]</sup> and the majority have occurred at home followed by school.<sup>[6-8]</sup> TDIs pose significant consequences related to health of children, which can be functional, psychological, and social in nature.<sup>[9]</sup> These consequences also have significant impact on parents, who

are generally concerned with esthetic and economic aspects of this problem.<sup>[10]</sup>

Children spend a large span of time at school. Accident in the school environment resulting from falls is very common and is the main etiological factor of traumatic tooth injury at school.<sup>[11]</sup> Such injuries are unscheduled and often urgent events, both for the child and for teachers, who are the first ones contacted when a child sustains such injuries.

The time period following traumatic injuries is critical with regard to the prognosis of the tooth. For this, it is required that the first ones contacted by the child after the accident, have proper knowledge and awareness, which will help them to carry out expedite procedures in a timely fashion. Hence, it is of utmost importance to assess the knowledge and awareness of people present at the site of accident regarding the emergency management of dental trauma. Reports have indicated that there is a lack of knowledge among the professionals

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expected to deal with trauma such as parents, physical education teachers, medical professionals, and sports coaches.<sup>[12-15]</sup> A previous study conducted on the parents of Kolkata showed a lack of knowledge among them regarding the emergency management of dental trauma.<sup>[16]</sup>

Keeping all the aforesaid studies in mind, the present study was aimed to assess the knowledge, awareness, and attitude toward the emergency management of dental trauma among the school teachers of Kolkata, India. The objective of this study was to enable the clinician to formulate a set of instructions that can be given to school teachers, so as to increase their knowledge, which will enable them to promptly and properly manage an emergency case of dental trauma. The results of this study are also expected to provide information to help organize educational programs for those most affiliated with children and who usually lack sufficient related information.

## Materials and Methods

A cross sectional survey of school teachers working in private and government schools of Kolkata, India, was carried out to assess knowledge, awareness, and attitude toward the emergency management of dental trauma among them. Before conducting this study, ethical approval was taken from the Institutional Ethical Committee. This was followed by taking permission from the head of institution/principals of schools. The calculation of sample size was done to obtain results at 95% confidence level, confidence interval (margin of error) of five and population variance ( $P$ ) of 50%, and the appropriate sample size was found to be 383. The study was executed over 400 school teachers over a period of 2 months.

A multistage sampling was adopted for selection of school teachers. In the first stage, Kolkata district was divided into four zones; north, east, central, and south. From each zone, one private and one government school was chosen randomly. In the second stage, all school teachers who gave consent to participate in survey were included to make the final sample of 400 participants. All those teachers who were residents of Kolkata aged more than 18 years and willing to participate in the study were included. Teachers who did not give their consent to participate in the study and the ones who were not present on the day of survey were excluded from the study.

A close-ended questionnaire containing ten questions and was used in the study [Table 1]. The questionnaire consisted of three parts: Part 1 – questions pertaining to personal and professional information, Part 2 – questions based on imaginary cases of dental trauma, and Part 3 – questions aimed to assess knowledge and attitude toward public education programs on dental trauma emergency management. To help the participants make prompt decisions, they were given multiple choices.

This questionnaire was pretested on a sample of ten teachers who were later on excluded from the study.

**Table 1: Questionnaire used in the study**

<b>Part-1</b>	
Name:	_____
Sex:	Male Female
School type:	Government Private
Age group:	<30 years 31-40 years 41-50 years >50 years
Education level:	Graduate Postgraduate
Service time span:	≤6 years 7-19 years >19 years
First aid training:	Yes No
Ever witnessed dental trauma accident:	Yes No
<b>Part-2</b>	
Question number 1)	A 9-year-old child is hit on the face by a ball and fractures two anterior teeth. Are the affected teeth: Permanent teeth* Milk teeth Don't know
Question number 2)	Which of the following actions do you consider most adequate? You will look for the parts of broken tooth and after class would contact his parents to explain what had happened You will look for the parts of broken tooth and then give him a cold drink and would contact his/her parents You would ask the child to hold the tooth carefully in his mouth and take him/her immediately to the nearest dentist*
Question number 3)	Do you think it is important to seek emergency management for dental trauma? Yes* No
Question number 4)	At school, a 12-year-old child falls down the stairs and hits his/her mouth on the floor. One of his/her top front teeth was knocked out of the mouth. What would be the first thing you do? You would look for the tooth and wash it with any liquid You would ask the child to bite on a tissue paper to control bleeding You would ask the child to hold the tooth carefully in his mouth and take her immediately to the nearest dentist You would look for the tooth and put it back into the socket*

Contd...

**Table 1: Contd...****Part-2**

Question number 5) If you decide to reimplant the tooth back in its place, but it had fallen on the floor, what would you do?

- You would scrub the tooth gently with a toothbrush
- You would rinse the tooth under tap water\*
- You would put the tooth straight back into the socket without any pretreatment

Question number 6) If you chose to wash the tooth, which solution would you use to wash it?

- Tap water\*
- Saline solution
- Filtered water
- Antiseptic solution

Question number 7) If you do not reimplant the tooth, how would you transport it to the dentist?

- Tap water
- Milk\*
- Child's mouth\*
- Paper tissue
- Filtered water

Question number 8) How urgently do you think that you should seek professional help if a permanent tooth is knocked out?

- Immediately
- Within 30 min\*
- Within a few hours
- Before next day
- Don't know

**Part-3**

Question number 9) Do you think that your knowledge for emergency management is satisfactory?

- Yes
- No

Question number 10) Would you like to receive short training on how to manage dental trauma cases?

- Yes
- No

\*Indicates the correct answer/s

While they were filling up the questionnaire, a few questions were asked so that it could be confirmed if they understood the questions in the questionnaire. Any confusion or difficulty in comprehension so highlighted was rectified instantly.

The nature and purpose of the study were explained to the teachers in their preferred language. Its voluntary nature was emphasized and strict confidentiality was assured. Two pretrained investigators were available throughout to make any required clarifications to the participants. Filled questionnaires were collected on the same day.

The collected data were transferred to computer. Descriptive and inferential analysis was done for the data using SPSS Version 20.0. (Armonk, NY: IBM Corp). The results were tabulated and expressed as both number and percentage. Chi-square test was determined to describe the strength of the associations. Statistical significance was set at  $P < 0.05$ .

**Results**

A total of 323 school teachers returned the questionnaire, thereby achieving a response rate of 80.75%. Most of them were women (74.9%), under 50 years of age (58.1%). Majority of them had not received any first aid training (70.3%) and had not witnessed any dental trauma accident (73.4%). Table 2 shows the demographic characteristics of the study participants.

It was observed that 56.6% school teachers could correctly identify the damaged front tooth in a 9-year-old child as a permanent tooth. A significant association was found between previous first aid training received, service span, and question regarding identification of tooth ( $P < 0.05$ ). Most of the respondents (94.43%) considered dental trauma an emergency situation. Majority of them (60.99%) possessed the knowledge of how to correctly manage a fractured tooth. A significant association was found between teaching experience and question regarding management of fractured tooth ( $P = 0.006$ ).

In the case of an avulsed tooth falling to the ground, only 52% school teachers responded that they would look for the lost tooth, and among them, 72.76% would clean it gently with water or some liquid whereas 10.84% would not clean the tooth and put it directly back into the socket. Regarding cleaning of dirty avulsed tooth, 42.86% male school teachers reported that they would look for the tooth and wash it with tap water. Moreover, among female teachers, 90% reported that they would look for the lost tooth and put it back into the socket. Regarding cleaning of that tooth, 79.57% female teachers knew the correct method of cleaning tooth.

A small number of school teachers (15.17%) were aware of the correct solution to clean a dirty avulsed tooth with. Most of them preferred antiseptic solution (31.58%) to clean a dirty avulsed tooth. Significant association was found between previous first aid training, history of witnessing trauma, and question regarding solution used to clean a dirty avulsed tooth ( $P < 0.05$ ). Majority (78.33%) of school teachers were in favor of seeking professional help immediately in case of dental trauma.

A large proportion of the participants (93.18%) were unaware of the medium to store avulsed tooth in, till the time they reach the professional. Most of them preferred to store the tooth in tissue paper (58.51%), filtered water (27.86%), tap water (6.81%), milk (3.72%), or the child's mouth (3.10%). A significant association was found between previous first aid training received and the question regarding mode of transport of avulsed tooth the dentist ( $P < 0.05$ ). Among those teachers who had the training opted for milk (83.33%) whereas teachers with no training opted for paper tissue (58.51%).

A significant number of school teachers (59.44%) were not satisfied with their knowledge regarding emergency of dental trauma and most of them 60.68% were willing

**Table 2: Sociodemographic characteristics of study sample**

Characteristics	n (%)
Gender	
Male	81 (25.1)
Female	242 (74.9)
School	
Government	205 (63.5)
Private	118 (36.5)
Age group (years)	
Below 30	34 (10.5)
31-40	69 (21.4)
41-50	85 (26.3)
Above 50	135 (41.8)
Education level	
Graduate	144 (44.6)
Postgraduate	179 (55.4)
Service span (years)	
Up to 6	64 (19.8)
7-19	104 (32.2)
>19	155 (48.0)
First aid training	
Yes	96 (29.7)
No	227 (70.3)
Ever witnessed dental trauma	
Yes	86 (26.6)
No	237 (73.4)

to receive a short training regarding emergency of dental trauma. Tables 3-6 show the responses to Part 2 of questionnaire based on different variables and their opinion regarding Part 3 of questionnaire.

## Discussion

The present study was conducted over 400 school teachers of Kolkata to assess the knowledge, awareness, and attitude toward the emergency management of dental trauma. In the present study, only 29.77% of school teachers had received first aid training and only 26.6% of teachers had ever witnessed a case of dental trauma.

Two imaginary cases were designed in the questionnaire with the purpose of checking the general knowledge of participants regarding identification of dentition along with the assessment of knowledge regarding two common types of dental injuries. The particular ages used in the imaginary cases were selected keeping in mind the age at which the children are highly active and carry the highest risk of sports-related injuries.<sup>[17-20]</sup>

In the present study only, 56.7% teachers were able to correctly identify the affected tooth. It was also noteworthy that female teachers were more knowledgeable compared to their male counterparts, regarding the growth pattern of child's dentition. This can be owed to the caring nature and closeness of females to children. Similar

results were obtained in a study conducted by de Lima Ludgero *et al.*<sup>[21]</sup> at Brazil (60.4%) and Hashim<sup>[22]</sup> at the UAE (44.1%). Contrary to this, only a few school teachers could correctly identify the tooth in the study conducted by Mohandas and Chandan<sup>[23]</sup> at Bengaluru, India, and Nirwan *et al.*<sup>[24]</sup> at Jaipur, India (24.4% and 33.2%, respectively).

Despite the anxiety involved in seeking emergency care for an injured child, majority of the school teachers (60.99%) stated that they would ask the child to keep the tooth safely in his mouth and take him to nearest dental clinic or dentist. This was in accordance with results found from studies conducted by Hashim<sup>[22]</sup> where 85.8% teachers were in favor of referring the child to dentist. Contrary to this, results of the study conducted by Mohandas and Chandan<sup>[23]</sup> who found that majority of teachers would refer or call the parents and ask them to take the child to a dentist.

For case 2, presenting a child of age 12 years who got his tooth avulsed, the ideal treatment should be immediate reimplantation of tooth. School teachers, by themselves, might not attempt reimplantation owing to either the fear of hurting the child or under confidence regarding management of such a situation. In case, they do not reimplant the tooth and they should store the tooth in a proper storage medium to maintain viability of the cells of periodontal ligament, until they reach a dentist. Ideally, it seems that the maximum limit of dry time for an avulsed tooth should not exceed 20–30 min as drying causes loss of normal physiological metabolism and morphology of periodontal ligament cells.<sup>[25]</sup> Moreover, this is not the case with primary teeth, where reimplantation is not recommended.<sup>[26]</sup> In the present study, 52% school teachers would look for the lost tooth, and among them, only 6.19% teachers would attempt reimplantation on their own. This is in line with findings of studies conducted by Chandukutty *et al.*<sup>[27]</sup> at Kerala, Taranath *et al.*<sup>[28]</sup> at Madurai, and Ahluwalia *et al.*<sup>[29]</sup> at Patiala, India, where a significant number of school teachers (83.8%, 99%, and 36.8%, respectively) were aware of possibility of reimplantation of tooth. Contrary to these findings, results obtained by studies conducted by Mohandas and Chandan<sup>[23]</sup> and Hashim<sup>[22]</sup> showed that only a few school teachers would look for the avulsed tooth (1.5% and 19%, respectively). It was seen that most of the school teachers (47.9%) were in favor of stopping bleeding rather than looking for the lost tooth. This could be due to the reason that bleeding is seen as a more alarming and threatening situation than avulsion. Unfortunately, the child would not benefit from this maneuver; instead, this delay would hamper the prognosis of tooth.

The ideal storage medium should be capable of preserving cell vitality, adherence, and clonogenic capacity and should be readily available at the site of the accident or easily accessible.<sup>[30]</sup> For the transport of avulsed tooth, most of the school teachers (58.5%) opted for tissue paper as the preferred transport medium rather than physiological



**Table 3: Evaluation of knowledge, awareness, and attitude according to gender**

	Gender		$\chi^{2*}$	P
	Male, n (%)	Female, n (%)		
A 9-year-old child is hit on the face by a ball and fractures two anterior teeth. Are the affected teeth				
Correct response	41 (50.62)	142 (58.68)	1.61	0.204
Incorrect response	40 (49.38)	100 (41.32)		
Which of the following actions do you consider most adequate?				
Correct response	51 (62.96)	146 (60.33)	0.18	0.671
Incorrect response	30 (37.04)	96 (39.67)		
At school, a 12-year-old child falls down the stairs and hits his/her mouth on the floor. One of his/her top front teeth was knocked out of the mouth. What would be the first thing you do?				
Correct response	39 (48.15)	81 (33.47)	5.60	0.018**
Incorrect response	42 (51.85)	161 (66.53)		
If you decide to reimplant the tooth back in its place, but it had fallen on the floor, what would you do?				
Correct response	48 (59.26)	187 (77.27)	9.93	0.002**
Incorrect response	33 (40.74)	55 (22.73)		
If you chose to wash the tooth, which solution would you use to wash it?				
Correct response	17 (20.99)	32 (13.22)	2.84	0.092
Incorrect response	64 (79.01)	210 (86.78)		
If you do not reimplant the tooth, how would you transport it to the dentist?				
Correct response	12 (14.81)	10 (4.13)	10.91	0.001**
Incorrect response	69 (85.19)	232 (95.87)		
How urgent do you think that you should seek professional help if a permanent tooth is knocked out?				
Correct response	59 (72.84)	194 (80.17)	1.92	0.166
Incorrect response	22 (27.16)	48 (19.83)		
Do you think that your knowledge for emergency management is satisfactory?				
Yes	38 (46.91)	93 (38.43)	1.81	0.178
No	43 (53.09)	149 (61.57)		
Would you like to receive short training on how to manage dental trauma cases?				
Yes	62 (76.54)	134 (55.37)	11.40	0.001**
No	19 (23.46)	108 (44.63)		
Do you think it is important to seek emergency management for dental trauma?				
Yes	79 (97.53)	226 (93.39)	-0.08***	0.179
No	2 (2.47)	16 (6.61)		

\*Pearson Chi-square test, \*\* $P \leq 0.05$ , \*\*\*Fisher's exact probability test

media. Alarmingly, only a few teachers preferred milk (3.72%) and child's mouth (3.10%). Similar results were found in the studies conducted by de Lima Ludgero *et al.*<sup>[21]</sup> and Hashim,<sup>[22]</sup> where only 5% and 4.3% school teachers, respectively, were aware of correct storage medium. Contrary to this, studies conducted by Mohandas and Chandan,<sup>[23]</sup> Ahluwalia *et al.*,<sup>[29]</sup> Chandukutty *et al.*,<sup>[27]</sup> and Taranath *et al.*<sup>[28]</sup> found that a good number of school teachers, i.e. 49.6%, 47.4%, 40%, and 35.7%, respectively, were aware of correct storage medium.

Regarding management of a dirty avulsed tooth, it was encouraging to find that most of the school teachers

preferred cleaning the dirty avulsed tooth gently under tap water rather than using a toothbrush or putting back the tooth into the socket without any pretreatment.

When asked about the solution, they will use to clean the avulsed tooth with; maximum teachers opted for an antiseptic solution to clean the tooth. This might be due to their intention to kill germs on the dirty tooth; however, they did not realize that doing this might hamper viability of cells of periodontal ligament at the same time. Similar results were observed in the study conducted by Mohandas and Chandan<sup>[23]</sup> where only a few school teachers were aware of the correct solution to clean dirty avulsed tooth with.

**Table 4: Evaluation of knowledge, awareness, and attitude according to service span**

	Teaching experience			$\chi^2$	P
	Up to 6 years, n (%)	7-19 years, n (%)	>19 years, n (%)		
A 9-year-old child is hit on the face by a ball and fractures two anterior teeth. Are the affected teeth					
Correct response	42 (65.63)	48 (46.15)	93 (60.00)	7.47	0.024**
Incorrect response	22 (34.37)	56 (53.85)	62 (40.00)		
Which of the following actions do you consider most adequate?					
Correct response	32 (50.00)	58 (55.77)	107 (69.03)	8.65	0.013**
Incorrect response	32 (50.00)	46 (44.23)	48 (30.97)		
At school, a 12-year-old child falls down the stairs and hits his/her mouth on the floor. One of his/her top front teeth was knocked out of the mouth. What would be the first thing you do?					
Correct response	22 (34.37)	41 (39.42)	57 (36.77)	0.45	0.798
Incorrect response	42 (65.63)	63 (60.58)	98 (63.23)		
If you decide to reimplant the tooth back in its place, but it had fallen on the floor, what would you do?					
Correct response	48 (75.00)	73 (70.19)	116 (74.84)	0.8	0.670
Incorrect response	16 (25.00)	31 (29.81)	39 (25.16)		
If you chose to wash the tooth, which solution would you use to wash it?					
Correct response	12 (18.75)	19 (18.27)	24 (15.48)	0.51	0.775
Incorrect response	52 (81.25)	85 (81.73)	131 (84.52)		
If you do not reimplant the tooth, how would you transport it to the dentist?					
Correct response	4 (6.25)	4 (3.85)	14 (9.03)	2.68	0.262
Incorrect response	60 (93.75)	100 (96.15)	141 (90.97)		
How urgent do you think that you should seek professional help if a permanent tooth is knocked out?					
Correct response	48 (75.00)	82 (78.85)	123 (79.35)	0.53	0.767
Incorrect response	16 (25.00)	22 (21.12)	32 (20.65)		
Do you think that your knowledge for emergency management is satisfactory?					
Yes	30 (46.88)	31 (29.81)	70 (45.16)	7.41	0.025**
No	34 (53.12)	73 (70.19)	85 (54.84)		
Would you like to receive short training on how to manage dental trauma cases?					
Yes	42 (65.62)	72 (69.23)	82 (52.90)	7.77	0.021**
No	22 (34.38)	32 (30.77)	73 (47.10)		
Do you think it is important to seek emergency management for dental trauma?					
Yes	60 (93.75)	96 (92.31)	149 (96.13)	1.8	0.406
No	4 (6.25)	8 (7.69)	6 (3.87)		

\*\* $P \leq 0.05$ 

Contrary to these findings, results obtained from the study conducted by Shamarao *et al.*<sup>[31]</sup> at Karnataka, Taranath *et al.*,<sup>[28]</sup> and Chandukutty *et al.*<sup>[27]</sup> showed a majority of school teachers (62.5%, 54.2%, and 36.6%, respectively) being aware of correct solution for cleaning a dirty avulsed tooth.

It was encouraging to notice that school teachers of Kolkata were aware of the critical role of time in managing a dental injury. It was evident from their response to the question regarding the urgency of seeking professional help, where a vast majority of teachers (78.33%) were in favor of seeking immediate professional help. Similar results were

obtained from studies conducted by Chandukutty *et al.*<sup>[27]</sup> and Taranath *et al.*<sup>[28]</sup> (45.9% and 33.6%, respectively). On a positive note, most of them (94.43%) considered dental trauma an emergency situation.

Results of Part 3 of the questionnaire were positive as most of the school teachers (59.44%) were not satisfied with their knowledge regarding emergency management of dental trauma and most of them were in favor of receiving short training on how to manage dental trauma cases.

The loss of a permanent tooth is a painful and regretful experience for any patient. Studies have indicated that

**Table 5: Evaluation of knowledge, awareness, and attitude according to past history of having witnessed dental trauma**

	Ever witnessed dental trauma		$\chi^2$ *	P
	Yes, n (%)	No, n (%)		
A 9-year-old child is hit on the face by a ball and fractures two anterior teeth. Are the affected teeth				
Correct response	48 (55.81)	135 (56.96)	0.03	0.862
Incorrect response	38 (44.19)	102 (43.04)		
Which of the following actions do you consider most adequate?				
Correct response	52 (60.47)	145 (61.18)	0.01	0.920
Incorrect response	34 (39.53)	92 (38.82)		
At school, a 12-year-old child falls down the stairs and hits his/her mouth on the floor. One of his/her top front teeth was knocked out of the mouth. What would be the first thing you do?				
Correct response	38 (44.19)	82 (34.60)	2.48	0.115
Incorrect response	48 (55.81)	155 (65.40)		
If you decide to reimplant the tooth back in its place, but it had fallen on the floor, what would you do?				
Correct response	58 (67.44)	177 (74.68)	1.67	0.196
Incorrect response	28 (32.56)	60 (25.32)		
If you chose to wash the tooth, which solution would you use to wash it?				
Correct response	12 (13.95)	37 (15.61)	0.13	0.718
Incorrect response	74 (86.05)	200 (84.39)		
If you do not reimplant the tooth, how would you transport it to the dentist?				
Correct response	12 (13.95)	10 (4.22)	9.42	0.002**
Incorrect response	74 (86.05)	227 (95.78)		
How urgent do you think that you should seek professional help if a permanent tooth is knocked out?				
Correct response	70 (81.39)	183 (77.22)	0.65	0.420
Incorrect response	16 (18.61)	54 (22.78)		
Do you think that your knowledge for emergency management is satisfactory?				
Yes	44 (51.16)	87 (36.71)	5.47	0.019**
No	42 (48.84)	150 (63.29)		
Would you like to receive short training on how to manage dental trauma cases?				
Yes	66 (76.74)	130 (54.85)	12.68	0.000**
No	20 (23.26)	107 (45.15)		
Do you think it is important to seek emergency management for dental trauma?				
Yes	82 (95.35)	223 (94.09)	-0.02***	0.789
No	4 (4.65)	14 (5.91)		

\*Pearson Chi-square test, \*\* $P \leq 0.05$ , \*\*\*Fisher's exact probability test

the majority of TDIs occur at school<sup>[6-8]</sup> and highlight the importance of trained/experienced school staff, who are most often required to respond initially to the traumatic incident. The school system and teachers in India, besides imparting education, are becoming increasingly aware and are taking an active part in the proper health care of a child. We can use this to our advantage by taking necessary measures to help teachers increase their knowledge regarding emergency management of dental trauma. The identification of causal factors and high-risk group patients proves beneficial for design of appropriate preventive measures. Educational programs and dental camps can prove to be beneficial in this regard. Mounting posters, leaflets, and media campaigns to educate teachers can prove to be of vital importance. Programs to update teachers' knowledge about dental trauma management in addition to first aid training need to be included in basic

teacher training programs. Further studies to assess and compare the knowledge and attitude regarding emergency management of dental trauma would give a broader perspective.

### Recommendations

1. Development of planned teacher training programs for school teachers, especially physical education teachers to impart relevant knowledge regarding first aid and emergency management of dental trauma throughout the country
2. Regular upgradation of knowledge regarding emergency dental trauma management by virtue of Continuing Dental Education (CDE) programs and dental health camps
3. Developing interactive sessions between dentists and school teachers, especially during school functions such as annual programs and parent-teacher meetings to take

**Table 6: Evaluation of knowledge, awareness, and attitude according to first aid training**

	Received first aid training		$\chi^2$ *	P
	Yes, n (%)	No, n (%)		
A 9-year-old child is hit on the face by a ball and fractures two anterior teeth. Are the affected teeth				
Correct response	44 (45.83)	139 (61.23)	6.52	0.011**
Incorrect response	52 (54.17)	88 (38.77)		
Which of the following actions do you consider most adequate?				
Correct response	63 (65.63)	134 (59.03)	1.23	0.267
Incorrect response	33 (34.37)	93 (40.97)		
At school, a 12-year-old child falls down the stairs and hits his/her mouth on the floor. One of his/her top front teeth was knocked out of the mouth. What would be the first thing you do?				
Correct response	46 (47.92)	74 (32.60)	6.78	0.009**
Incorrect response	50 (52.08)	153 (67.40)		
If you decide to reimplant the tooth back in its place, but it had fallen on the floor, what would you do?				
Correct response	57 (59.38)	178 (78.41)	12.34	0.000**
Incorrect response	39 (40.62)	49 (21.59)		
If you chose to wash the tooth, which solution would you use to wash it?				
Correct response	17 (17.71)	32 (14.10)	0.68	0.410
Incorrect response	79 (82.29)	195 (85.90)		
If you do not reimplant the tooth, how would you transport it to the dentist?				
Correct response	18 (18.75)	4 (1.76)	-0.31***	2.326
Incorrect response	78 (81.25)	223 (98.24)		
How urgent do you think that you should seek professional help if a permanent tooth is knocked out?				
Correct response	73 (76.04)	180 (79.30)	0.42	0.517
Incorrect response	23 (23.96)	47 (20.70)		
Do you think that your knowledge for emergency management is satisfactory?				
Yes	52 (54.17)	79 (34.80)	10.49	0.001**
No	44 (45.83)	148 (65.20)		
Would you like to receive short training on how to manage dental trauma cases?				
Yes	81 (84.38)	115 (50.66)	32.14	<0.000**
No	15 (15.62)	112 (49.34)		
Do you think it is important to seek emergency management for dental trauma?				
Yes	96 (100.00)	209 (92.07)	-0.16***	0.006
No	0	18 (7.93)		

\*Pearson Chi-square test, \*\* $P \leq 0.05$ , \*\*\*Fisher's exact probability test

advantage to get maximum relevant audience to enable them to proceed correctly in rendering the best treatment for ensuring a good prognosis for the traumatized teeth in particular and oral health in general.

## Conclusion

Within the limitations of the present study, results indicate that despite the lack of knowledge and awareness regarding management of dental trauma, school teachers of Kolkata have a good attitude toward management of dental trauma and its education.

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## Conflicts of interest

There are no conflicts of interest.

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