



EVALUATION OF ELEMENTARY SCHOOL TEACHERS KNOWLEDGE AND ATTITUDE ON MANAGEMENT OF TRAUMATIC DENTAL INJURIES IN SOUTHERN PART OF INDIA

Dental Science

Chinna Babu Palli	Senior Lecturer, Dept. Of Public Health Dentistry, St. Joseph Dental College, Duggirala.
Srinivas Pachava*	Professor And Head, Dept. Of Public Health Dentistry, Sibar Institute Of Dental Sciences, Guntur. *Corresponding Author
Shaik Parveen Sultana	Master Of Dental Surgery, Dept. Of Public Health Dentistry, Sibar Institute Of Dental Sciences, Guntur.
Sowjanya Sheela Komarabathina	Post Graduate, Dept. Of Public Health Dentistry, Sibar Institute Of Dental Sciences, Guntur.

ABSTRACT

Introduction: Dental trauma remains one of the important oral health problems in developing nations and can cause much pain and distress in early childhood. It is important to provide immediate emergency care to reduce such outcomes. Most of the time these unwanted situations occurred in school premises.

Aim: To assess knowledge and attitude of the elementary school teacher's on management of traumatic dental injuries in southern part of India.

Materials and methods: Self-administrated questionnaire based cross-sectional study was done among elementary school teachers in Guntur city, Andhra Pradesh, India. A randomly selected 291 elementary school teachers who had given consent for the study were included and data was analyzed using statistic package for social sciences (SPSS) version 20. Chi-square test and Pearson correlation coefficient were used to determine the relationship between the different variables. P value of 0.05 or less was considered as statically significant.

Results: 74.2% participants reported that they had inadequate level of information on traumatic dental injuries (TDIs) and 60.8% of the teachers witnessed TDIs in their school premises among which, 69% were government teachers ($p > 0.034$). Only 12.34% participants informed that avulsed tooth can be taken to dental doctor for replantation and none of the participants had prior first aid dental training before joining the job.

Conclusion: Knowledge on management of traumatic dental injuries among elementary school teachers in Guntur city was unsubstantial and government school teachers had comparatively more knowledge on management of TDIs than private school teachers.

KEYWORDS

Knowledge; Primary Schools; School Teachers; Tooth Avulsion; Tooth Fracture; Tooth Injury.

INTRODUCTION

Traumatic dental injury (TDI) in primary dentition is a dental public health problem, because of its high prevalence rates, treatment costs and long-term consequences TDI also have a negative impact on quality of life, along with physical, esthetical and psychological repercussions that can affect the child and the parents.^{1,2,3} The occurrence of TDI in the primary dentition has been associated with accentuated over jet and inadequate lip coverage as well as behavioural characteristics, such as hyperactivity.^{4,5}

School children encounters particular health challenges which include oral health problems related to the stages of their physical and mental development, which makes them vulnerable to traumatic dental injuries resulting in tooth avulsion.⁶

"Tooth avulsion" is a condition where, as a result of trauma, a tooth is popped out from the socket. It comprises 0.5% to 16% of all traumatic dental injuries; in these circumstances the periodontal ligament fibres and the neuromuscular bundles at the root apex are severed.⁷ There may be a concomitant damage to the alveolus and to the tooth. When the tooth is propelled out from the socket, the cells of the pulp and periodontal ligament begin to deteriorate. This is due to the lack of blood supply to the cells and environmental factors which affect against normal physiological comfort of the tooth when it is inside of the socket.⁸

Successful replantation of an avulsed tooth depends solely on extra oral drying time and the storage medium in which avulsed tooth is kept. When a child attains school age, accidents in the school environment resulting from falls, high jumps are very common and can be said that they are the main cause of traumatic tooth injuries.⁹ Dental trauma can vary from a minor enamel chip to extensive maxillofacial damage involving the supporting structures and displacement or avulsion of teeth. It can result in functional and esthetical disturbances that are of concern for both the patients and their parents.⁹

The prognosis of traumatized teeth depends on prompt and appropriate treatment, which often relies on lay people such as the children's parents and their school teachers who are present at the site of accident,

prior to the initial dental contact.¹⁰ Hence teachers in schools and parents at home are contemplated to scrutinise the dental traumatic injuries and are expected to tackle the situation and haste to the nearest dentist with the avulsed tooth in appropriate storage medium so as to minimise the distress which results in their students and children respectively. Therefore knowledge on traumatic dental injuries and their management among school teachers is considered as an important stepping stone in preventive and palliative care in dentistry.

If the treatment for traumatized teeth is delayed, it might lead to a reduction in the pulp vitality that cannot be salvaged even if treatment is given at a later stage.¹¹ Majority of the dental injuries was incident in anterior teeth, which may lead to restriction in biting, speech difficulties and psychological trauma due to impaired aesthetics. Anterior permanent tooth fracture makes an undesirable memory and dealing with it needs adequate skills and experience. Lack of knowledge among parents and school teachers apropos delayed treatment of dental trauma may result in some side effects like discoloration, infection, mobility, resorption and loss of tooth root.¹²

Primary education in India is considered as one of the fundamental rights for children of age 6-14 years as stated by various articles in our constitution. The whole education system in India is funded by both public as well as private sectors. Compulsory and free education from elementary to high school is being provided by the government to the below, backward and dearth population whose utilisation percentages are meagre when it comes to education and health sector. It is appropriate to say that primary teeth are weak and more prone to traumatic dental injuries and the knowledge about these injuries among school teachers in these elementary schools provided by the government sector is questionable.

Hence the study is aimed to assess the elementary school teacher's knowledge and attitude on management of traumatic dental injuries among elementary school children.

MATERIALS AND METHODS

STUDY DESIGN: A descriptive, questionnaire study was designed to assess the knowledge and attitude on dental trauma management

among the government and private elementary school teachers in Guntur district, Andhra Pradesh, India. Prior permission was taken from the District Education Officer, of Guntur district and administrators of the respective schools. Present study was conducted in between July and August 2015. List of schools, both private and public, located within the Guntur municipality was obtained from District School Officer. In the first stage, Guntur city was divided geographically into four zones, that is, North, South, East and West. In the second stage, from each zone 10 schools were randomly selected.

Ethical approval and consent: Research details and consent of the participants was explained for approval by SIBAR Institutional Ethical Committee. Anonymity of the participants was secured by following ethical guidelines of World Medical Association Declaration of Helsinki. Written informed consent was taken for each study participant prior to the study.

Participants: A total of 291 school teachers were present at the day of survey were included by simple random sampling technique and interviewed where the teachers absent on the day were excluded and the survey was preceded to the nearest school.

Questionnaire design:

A 10-item questionnaire was developed both in English and Telugu languages (local language) for the study purpose. The questionnaire was divided into three sets:

- i. First set included personal and professional information like age, gender, teaching experience, dental first aid training, and personal tooth injury experience.
- ii. Second set included knowledge and attitude of the school teachers on the management of tooth avulsion injuries and
- iii. Third set consisted two case scenario's on the immediate management of dental injuries among school children.

Case 1: A 9 years old boy got hit on the face with a softball during school hours. His upper front teeth are broken. He is otherwise unhurt and does not lose consciousness.⁵

Q1. Are the damaged front teeth likely to be permanent or primary teeth (baby teeth)?
 a. Primary () b. Permanent () c. Don't know ()

Q2. Which of the following actions would you consider to be the most appropriate?
 a. Contact his parents and advice them to send the child to dentist immediately ()
 b. Reassure the child and send him back to class ()
 c. After school , contact his parents to explain what happened ()
 d. Don't know ()

Case 2: During school hours, a 12 year old girl falls down the stairs and hits her mouth. Her mouth is bleeding and an upper front tooth is found to be missing.⁵

Q1. Do you have first-aid kit available in your school premises?
 a. Yes () b. No () c. Don't know ()

Q2. What would you do with that avulsed tooth in that point of time?

Case scenarios were included in the questionnaire to assess knowledge and practice of teachers in relation to avulsed, fractured and mobile teeth. Knowledge questions were assigned one point each for the correct answer and zero points for the wrong answer. The study was carried out for 2 months duration. Each prospective participant was approached individually by the investigator, who assessed his or her willingness to participate voluntarily in the study by completing the questionnaire. Questionnaires were distributed to the teachers personally and they were given sufficient time to answer the questions and collected back on the same day.

Reliability and validity

The questionnaire was pretested in a group of 30 school teachers of a nearby schools with good face validity as non of the participants showed difficulty in answering the questionnaire and the test re-test analysis showed a good reliability of 0.8. Those school teachers who were involved in the pilot study were excluded from the final study. Oral health education lecture regarding dental trauma and its management was given to all the teachers at the end of the day's procedure.

Data analysis

The data had been coded and entered into the computer program, and analyzed using statistic package for social sciences (SPSS) version 20. Demographic data, self assessment data, knowledge of tooth fracture, and attitude were first analyzed using descriptive statistics. Chi-square test and Pearson correlation coefficient were used to determine the relationship between the different variables. P value of 0.05 or less was considered as statically significant.

RESULTS:

291 elementary school teachers were participated in present study of which 54.3% were males, majority of the participants (42.6%) belongs to 30-40yrs age group followed by 40-50yrs (33.3%), 20-30yrs (21%), >50yrs (2.4%) and <20yrs (0.6%). 42.3% of the teachers had 5-10 yrs experience and are working as a government teachers (65%) [Table-1]. 74.2% participants reported that they had inadequate level of information on traumatic dental injuries of which 66.2% were government teachers and 44.8% were private school teachers. Compared to government school teachers (2.2%), majority of the private school teachers (4.4%) perceived that their knowledge on TDIs was adequate (Figure-1).

TABLE 1: Demographic profile of the participants

Subjects		Number of subjects	Percentage
Gender	Males	158	54.3%
	Females	133	45.7%
Age wise distribution	<20 years	2	0.6%
	20-30 years	61	21%
	30-40 years	124	42.6%
	40-50 years	97	33.3%
	>50 years	7	2.4%
Length of service	<5 years	76	26.1%
	5-10 years	123	42.3%
	>10 years	92	31.6%
Job category	Government school teacher	189	65%
	Private school teacher	102	35%

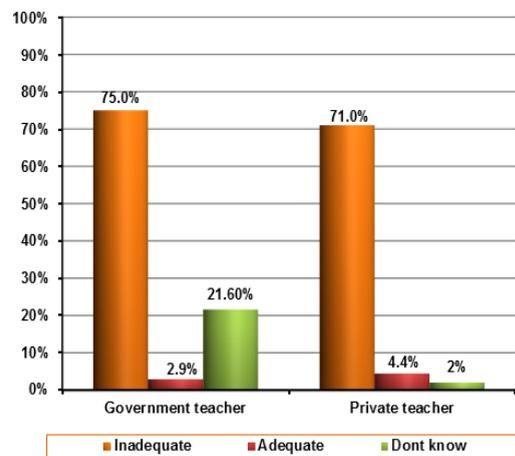


FIGURE 1: Level of information on traumatic dental injuries?

24.1% of the female participants reported that learning about management of traumatic dental injuries was 'very important' while 22% of the male participants felt it was 'somewhat important' which is statistically significant (p <0.01) (Figure 2). 60.8% of the teachers witnessed TDIs in their school premises of which 69% were government teachers and 30.3% were private school teacher (p <0.034) (figure 3). Only 12.37% participants informed that avulsed tooth can be taken to dental doctor for replantation; among them 77.7% were females and 22.3% were males which was statistically not significant (p<0.07). Knowledge and management of traumatic injuries were more likely associated with increased length of teaching experience (r= 0.2, p>0.015), age of the teachers (r= 0.18, p>0.010), which was statistically significant (table-2) and none of the participants had received first aid training on dental emergencies.

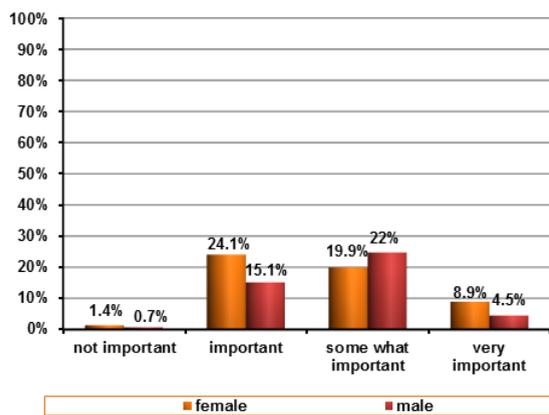


FIGURE 2: Learning about traumatic dental injuries? (Gender wise responses)

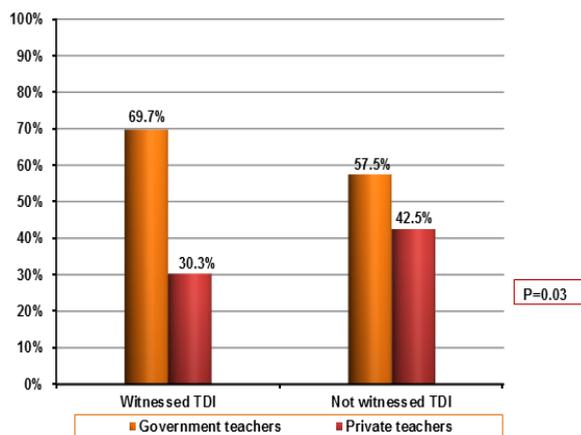


FIGURE 3: Showing the witness of TDI among teachers

TABLE 2: Association between knowledge on TDI and characteristics of the subject

Individual characteristics		Number of Correct responses in management of TDIs case scenario	Correlation coefficient	P-value
Gender	Males	28	--	0.074
	Females	16		
Age wise distribution (years)	<20	0	0.189	0.015
	20-30	2		
	30-40	20		
	40-50	18		
	>50	4		
Length of service	<5 years	6	0.205	0.010
	5-10 years	15		
	>10 years	23		
Job category	Government teacher	29	-0.009	0.987
	Private teacher	15		

Chi-square test, Pearson’s correlation coefficient

DISCUSSION

Given the fact that most of the dentists in India practice in urbanised regions (80%), the awareness on the management of Traumatic dental injuries among urban school teachers were scarce as their source of interest lingers solely on life threatening situations rather than preventive services. The so called meagre interest in people on dental health was inculcated by nearest dental and medical institutions who take the responsibility of taking dental health education to the grass root level where school children, teachers and underprivileged people get benefited. Most of the population in India highly depends on

private health care delivery system rather than government health care services due to lack of dental man power at immediate vicinity.¹³

Similar kind of social and environmental influences were evident in most of the developing countries hence In this kind of circumstances knowledge on managing some unwanted situations is very essential which further eliminate risk of losing better quality of life. Traumatic dental injuries are the common prevalent disease among pre-school children where teachers are the first ones to attend this kind of situations mostly in school premises thus knowing about management of traumatic dental injuries is utmost important for teachers to save children’s smile for life long.¹² Hence the study focuses to assess the teacher’s knowledge, attitude towards managing traumatic dental injuries in pre-school children.

Majority of the participants in the study were males (54.3%) and government school teachers (65%), who were very interested in learning about knowledge on traumatic injuries and it is accordance with Sapna Prasanna et.al study.⁶ Most of the government teachers were witnessed (69.7%) TDIs incidents in their school premises as the government schools had playgrounds and that facilitate the children to play which is really needed for their development of good physical and mental health. Most of the private schools were not permitted to assess their faculty’s knowledge on traumatic dental injuries which is a real limitation to the study in generalising the results. So the available teachers interested to participate were included and it is observed that government school teachers occupied a large space in pool as participants that have knowledge to manage TDIs which is 66% when compared to private school teachers who are only 34%. This could be due to lack of play grounds in private school and were mostly interested only on focusing studies. These finding were in contrast with Sabyasachi Saha et.al study where private schools were having higher knowledge. The reason for increased knowledge among government teachers may be because of their increased exposure to TDIs which made them to give priority to knowing about its management.¹²

Knowledge on management of traumatic dental injuries were higher with increasing age and length of teaching experience, it could be because of with increased experience they had exposed to variety of situations which are related to traumatic dental injuries can be a changing factor in their behaviour towards most positivity. Similar kind of result was reported with a study carried out in Egyptian country during 2015 on 50 governorate kindergarten teachers and with Chan AW et al. study where the increased knowledge was associated with middle age to elderly.^{14,23} Most of the study participants from private schools have less length of teaching experience and most of them belonging to 20-29yrs age group could be a factor for less knowledge on management of traumatic dental injuries in private institutions. This finding was in accordance with a study done in Pakistan in 2015.²⁰ Compared to government school teachers majority of the private school teachers responded that their knowledge was adequate on management of TDIS but while analyzing their knowledge about the same it was found that government teachers had better understanding and responded correctly about the case scenarios. This response of private school teachers could be due to their school’s perceived social stigma status in society which implies their teachers were best skilled in all aspects of schooling. Most of the developing countries private education systems are more inclined towards memorization and takes long systematic study hours. Leaving less time for recreational activities, and socialization which is an essential part of the development of a child.²¹

Despite the imposition of compulsory norms by government to all schools, to monitor the health status of students periodically, Schools are merely having a look on student’s health by conducting health check up camps on limited specialities like eye or dermatology where dental health was out focussed. And none of the participants received first-aid training prior to their job joining. The absence of compulsory first aid training during teachers training in India could be a reason behind this finding and in contrast teachers who got first aid training prior were found have greater knowledge on management of traumatic dental injuries.^{18,19} similar kind of results were evident in a study done in Ethiopia 2017.²² This could be a reason for overall less knowledge towards management of traumatic dental injuries in teachers which is in accordance with Blakytyny C et.al, Cagler E et.al and Sapna Prasanna et.al studies.^{6,9,15,16}

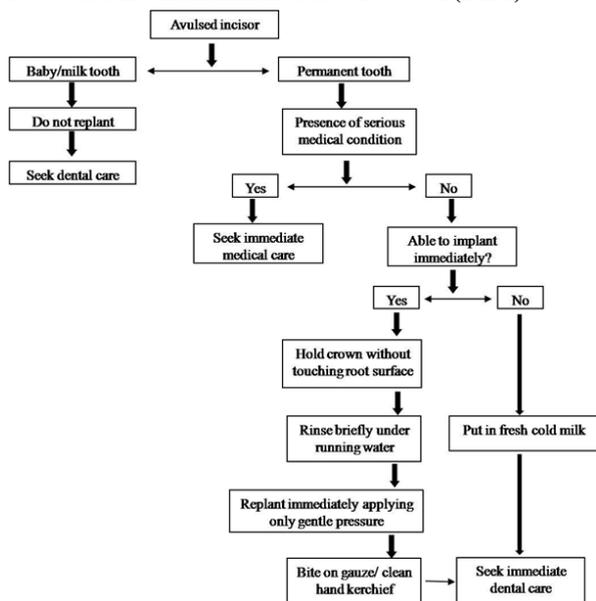
Although the present study included 291 teachers the results can be generalised to most of the African and Asian developing countries

which are in line with the same social and environmental factors supports the fact that the underprivileged opt for government free education services.

Recommendations:

1. The Government should strictly implement dental health education campaign at every school at least monthly once along with General health campaign.
2. Every teacher prior to their posting should have first-aid training and it should be strictly monitored by the Government.
3. School managements along with studies need to give priority to physical activities also which will make us to stand against any unwanted situations
4. Traumatic dental injuries management should be implemented in Oral health policy.
5. All the school teachers should follow the International Association of Dental Traumatology (IADT) guidelines in the first aid treatment of an avulsed tooth.¹⁷

Protocol for first aid treatment of an avulsed tooth (IADT)¹⁷



CONCLUSION:

Overall knowledge on management of traumatic dental injuries among elementary school teachers in Guntur city was unsubstantial and government teachers had more knowledge compared to private school teachers. Health education campaigns related to the management of traumatic dental injuries among teachers were in need to save the quality of life of the children.

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