

Assessment of Awareness amongst School Teachers regarding Prevention and Emergency Management of Dentoalveolar Traumatic Injuries in School Children in Pune City, before and 3 Months after Dental Educational Program

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ABSTRACT

Children have boundless energy, so, they are continuously engaged in some or the other physical activity. It is seen that when child reaches school age, accidents in the school environment in the form of falls, injuries due to contact sports, fights, abuse, etc. are very common and the main cause of traumatic dental injuries. Trauma may vary from minor enamel chipping or avulsion to extensive maxillofacial damage, more serious neck and brain injury, which may cause pain, disfigurement and mental agony, having immediate and long lasting effects.

In such cases, a school teacher is in the right position to handle such an emergency and refer the child to the concerned dental surgeon or a pedodontist for further needful care. The main reason for delayed treatment of dental trauma is that people present at the site of injury are unaware of protocol of rapid and appropriate management leading to improper first aid treatment.

The purpose of this study was to investigate the awareness of a group of school teachers from different schools about the prevention and emergency management of dental trauma in school children, by means of a questionnaire. Then educating them and reassessing their knowledge after a period of 3 months. Unfortunately, the public is unaware of the risks and does not have enough information about first aid emergency treatment or to avoid traumatic injuries.

Keywords: School teachers, Traumatic injuries, Emergency management.

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INTRODUCTION

Children are the world's most valuable resources and its best hope for the future. Because of the continuous physical activity, children are most likely to face trauma to the teeth and surrounding structures, in the form of falls, sports injuries or due to fights. Since a child spends most of the time of the day in school, play becomes integral in the academic environment, leading to the social, emotional as well as their cognitive development.

The prevalence of dental injuries is 60%,¹² and a high proportion of dental trauma occur at school. Children and teenagers are especially sensitive about missing anterior teeth and there is often a conscious effort to avoid smiling.¹⁸ Trauma may leave deficit that affects the self esteem and quality of life of the patient. School teachers most commonly supervise children of this age.² Hence, it would be desirable for school teachers and parents to be capable of managing such injuries when they occur. The purpose was to investigate the awareness of a group of school teachers from different schools about the prevention and emergency management of dental trauma in school children, by means of a questionnaire.

MATERIALS AND METHODS

The study was carried out on school teachers of both primary and secondary sections of private and government aided schools in Pune. Two hundred and sixteen school teachers of both genders, from Marathi medium schools, which is the local language in Pune, were selected on the following criteria:

Inclusion Criteria

School teachers from primary and secondary sections of six randomly selected private and government-aided schools of Pune.

Exclusion Criteria

1. School teachers not planning to continue the job for next 3 months, for 1st part of the study.
2. School teachers who were not present for the 1st part of the study were not included for the 2nd part.

Method of Data Collection

A multiple choice questionnaire comprising of questions on demographic data, knowledge and awareness about prevention and emergency management of dental trauma, was designed. Primary and secondary section school teachers, who were willing to participate, were asked to fill in the questionnaire.

After collecting the answered questionnaire, the school teachers were educated by means of lectures comprising of facts regarding emergency management of dentoalveolar injuries. After a period of 3 months, again their knowledge was reassessed, by getting the similar questionnaire filled from them.

Method of Data Analysis

The data obtained through questionnaire was compiled using the software Microsoft Excel and then analyzed using the software SPSS (statistical package for social sciences) for windows, tabulated and statistical significance was assessed using Wilcoxon signed rank test.

RESULTS

In the present study, a total of 216 questionnaires were distributed to school teachers of six randomly selected private and government-aided schools in Pune city. Ninety-four percent teachers supervised children during sports activities, which indicates that a high percent of teachers are the first ones to handle such injuries in school environment (Fig. 1).

Eighty-eight percent teachers considered falls as the most frequent cause of injury in both sexes (Fig. 2).

Ninety-four percent teachers said boys are more prone to trauma as compared to girls (Fig. 3).

Sixty-nine percent teachers received first aid training during their teacher training period, of which only 17% teachers said they got information about management of dental trauma.

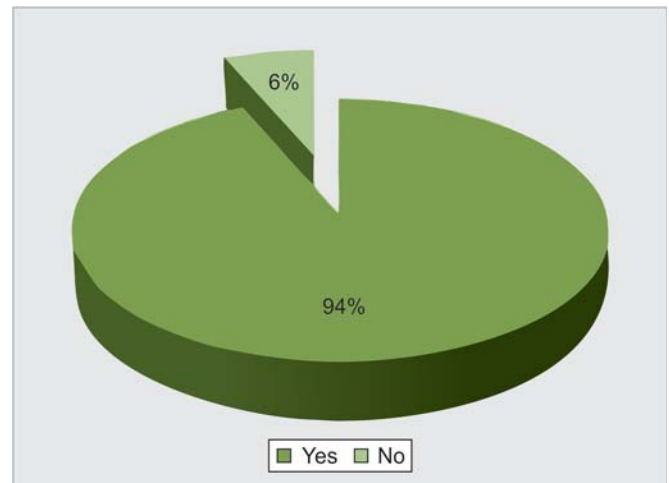


Fig. 1: Ninety-four percent teachers supervised children during sports activities

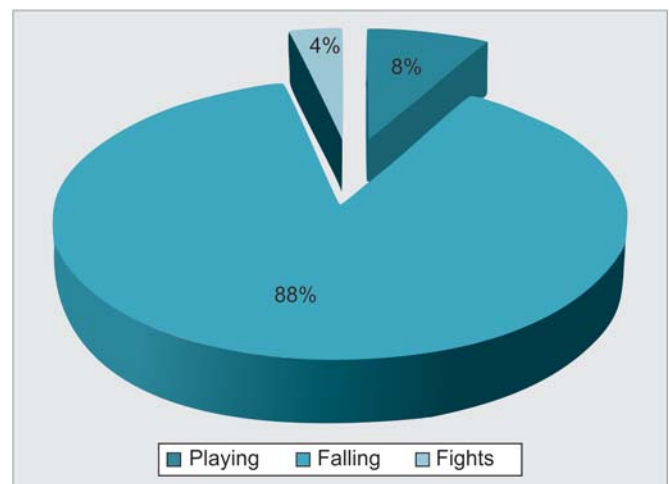


Fig. 2: Eighty-eight percent teachers considered falls as the most frequent cause of injury in both sexes

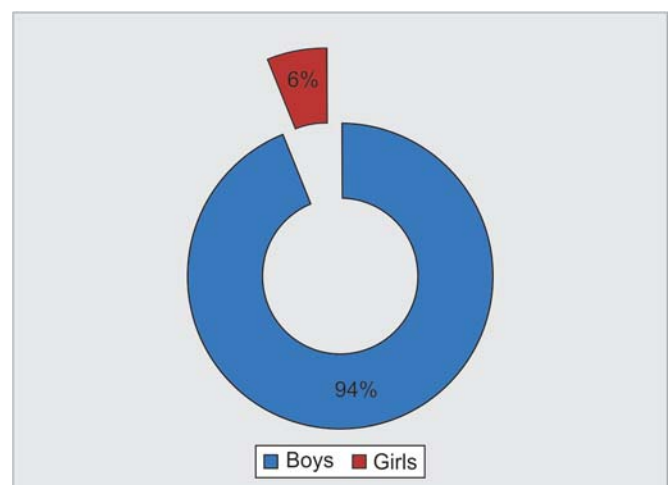


Fig. 3: Ninety-four percent teachers said boys are more prone to trauma as compared to girls

Replantation of Permanent Teeth

There was a change in level of knowledge of the teachers, from 16% (before the lecture) to 95% (after the lecture) regarding replantation of permanent tooth (Fig. 4).

Extraoral Storage Period

Eighty-six percent of the teachers, in our study, did not know the ideal extraoral storage period before the lecture, which later changed after the lecture to 88% of the teachers who felt that replantation should be carried out within 15 minutes of the injury (Fig. 5).

Cleaning of Avulsed Tooth

Before the lecture, 33% of the teachers said they would use a toothbrush to scrub off the dirt on an avulsed tooth, whereas after the lecture, this count went down to 9% (Fig. 6).

Fractured Fragment

There was a marked improvement (96%) in level of knowledge about taking the fractured fragment to the dentist to reattach it, as compared to 26% (before the lecture) and 74% who felt there was no need to keep the fractured fragment which decreased to 4% after the lecture (Fig. 7).

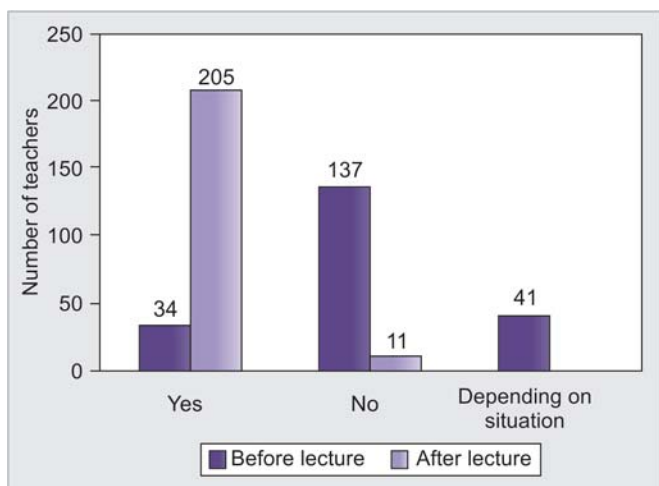


Fig. 4: There was a change in level of knowledge of the teachers, from 16% (before the lecture) to 95% (after the lecture) regarding replantation of permanent tooth

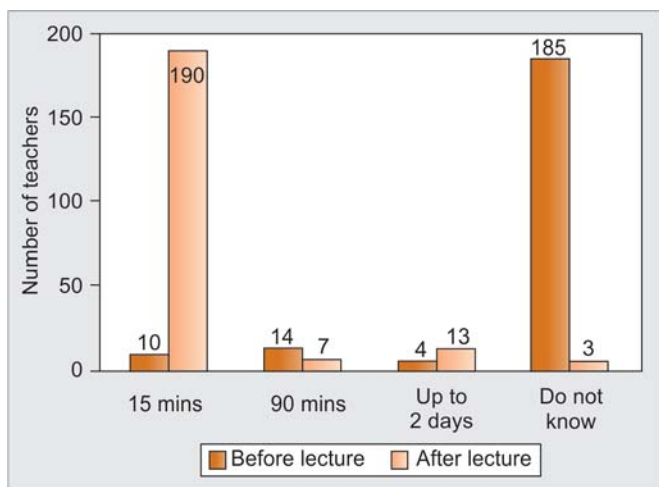


Fig. 5: After the lecture, 88% of the teachers felt that replantation should be carried out within 15 minutes of the injury

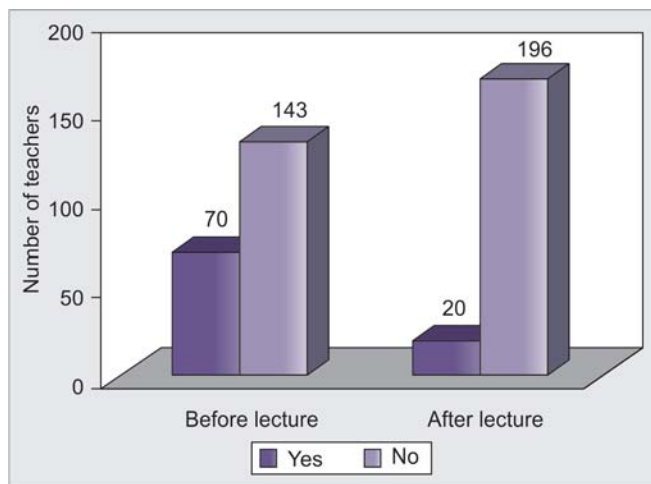


Fig. 6: Before the lecture, 33% of the teachers said they would use a toothbrush to scrub off the dirt on an avulsed tooth, whereas after the lecture, this count went down to 9%

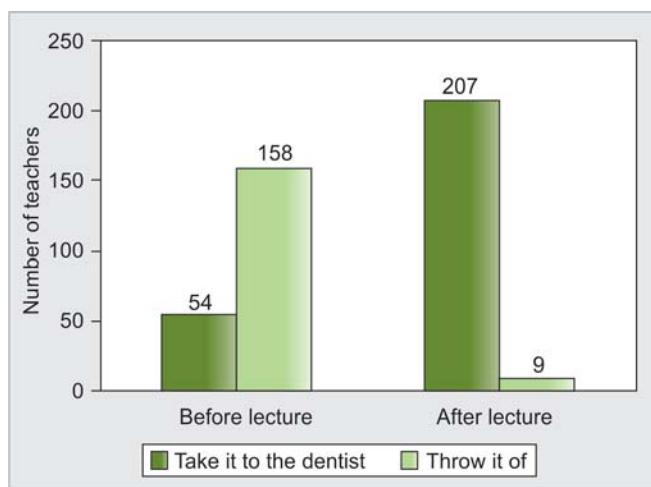


Fig. 7: Before the lecture, 74% felt there was no need to keep the fractured fragment which decreased to 4% after the lecture

Use of Mouthguards

Only 23% teachers knew about the use of mouthguards during sports activities, even after the lecture. This suggests that we need to discover another way or simpler language in delivering the information or may be stress on this aspect at regular intervals.

DISCUSSION

Facial esthetics play an important role in self-identification, self-image, self-presentation and interpersonal confidence.³ Mouth is of primary importance in determining overall facial attractiveness. A traumatic dental injury, be it fracture, discoloration of teeth or avulsion of a tooth will alter facial appearance. What is more, the effects of traumatic dental injuries on self-esteem and self-awareness are important because the majority of traumatic dental injuries occur in the early years of life and adolescence.²

Since, school teachers are likely to be in contact with the child soon after the injury, their knowledge of emergency procedure is critical to ensure a better prognosis of the clinical treatment.^{1,10,12} Also schools are the best places to initiate dental trauma education programs to educate people spending time with children (parents, guardians and mostly teachers).⁶

In the present study, a total of 229 questionnaires were distributed to school teachers of eight randomly selected primary and secondary schools in Pune city. Out of the 229, 13 teachers were not available for 2nd part of the study. Hence, they were excluded from the study, and a total of 216 teachers from Marathi medium schools, which is the local language in Pune were included. Incidence of dental injuries in children is extremely high. Ninety-four percent teachers felt boys experience dental trauma more frequently than the girls. This corroborates with the findings of Rai S and Munshi AK.¹⁶ The etiological factors are mainly undefined falls, fights and sports accidents. Eighty-eight percent teachers considered falls as the most frequent cause of injury in both sexes, which backs up results from several previous studies.^{4,5,11} Among the sports activities, the most common sport that lead to dental injuries, according to 77% school teachers, was kabbadi, which is the most common sport played by children, especially boys.

Previous reports indicate that some influence of teacher's education on immediate management of traumatized teeth may improve the prognosis of trauma cases, occurring in school environment.^{17,19}

It has been stated previously in the literature that every effort should be made to replant an avulsed tooth immediately.²¹ There was a change in level of knowledge of the teachers, from 16% (before the lecture) to 95% (after the lecture) regarding replantation of permanent tooth. The major factors that may influence the success of treatment of an avulsed tooth are storage period and media, which are directly related to a minimum insult to the periodontal cells, keeping them viable.¹⁵ A Danish study reported that teeth replanted within 5 minutes had the best prognosis.¹⁸ Other studies suggest that 20 to 30 minutes seem to be the maximum limit of dry time for an avulsed tooth as drying causes loss of normal physiological metabolism and morphology of periodontal ligament cells.⁷ 86% of the teachers, in our study, did not know the ideal extraoral storage period, before the lecture, which later changed after the lecture to 88% of the teachers who felt that replantation should be carried out within 15 minutes of the injury. Kandemir S et al in his case report, stated that the main factors, which affect the resorption after replantation and survival of PDL cells, can be; dry extraoral time greater than 30 minutes, touching the cementum surface, and splint treatment for a prolonged time.²⁰ There are two main reasons

for delayed treatment of avulsed teeth. People present at the site of injury are usually lay persons, such as parents, teachers and coaches, who rarely know how to manage an avulsed tooth.¹³ In addition, soft tissue lacerations and bleeding are almost always associated with injuries to the teeth, which mask the loss of teeth.⁸ Before the lecture, 33% of the teachers said they would use a toothbrush to scrub off the dirt on an avulsed tooth, whereas after the lecture, this count went down to 9%, thus showing significant difference in the knowledge with respect to before and after the lecture.

Due to delayed treatment following fracture of tooth after a traumatic injury, pulp necrosis can result because of leaving the dentin uncovered with bacteria invasion through the open dentinal tubules. There was a marked improvement (96%) in level of knowledge about taking the fractured fragment to the dentist to reattach it, as compared to 26% (before the lecture) and 74% who felt there was no need to keep the fractured fragment which decreased to 4% after the lecture.

The loss of permanent teeth is a painful and irreversible injury. Although restoration of the damaged dental tissues can be highly effective in modern dentistry, but is usually very expensive. Prevention of these injuries will be a step in reducing the accompanying pain, disfigurement and mental agony.⁹ Newsome et al reviewed that mouthguards are effective in the prevention of dentoalveolar injuries. Mouthguard is basically a resilient device or appliance placed inside the mouth to reduce oral injuries, particularly to teeth and surrounding structures. They are effective because they considerably diminish the deflection of teeth subjected to stress in comparison with unprotected teeth. The AAPD encourages the use of protective gear, including mouthguards, which help to distribute forces of impact, thereby reducing the risk of severe injury.²² Amitha M Hegde et al feels that dentists should be one of the main sources for obtaining information about mouthguards, because a dentist's understanding of the oral cavity and knowledge of appliance fabrication makes them an excellent source for providing mouthguard information.¹⁴ Only 23% teachers knew about the use of mouthguards during sports activities, even after the lecture. This suggests that we need to discover another way or simpler language in delivering the information or may be stress on this aspect at regular intervals.

This study reveals a serious lack of knowledge and awareness among school teachers regarding emergency management of dental injuries. This issue should be addressed seriously on a larger scale. Including emergency first aid management of traumatic injuries, especially dental trauma in the teacher training curriculum, would help the teachers act in a better way when faced with such situations.

Also, along with the dental camps held for school children every year, implementing such awareness lectures, highlighting emergency management of dental traumatic injuries occurring in children for teachers and parents on a regular basis, would help in reinforcing their knowledge. By identifying high risk groups, from the dental check up camps, such as children with proclined teeth, and informing their parents about prevention and possible treatment options.

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