

Knowledge Of Emergency Management Of Orofacial Trauma Among Physical Education Students In South India

Abstract

Background: Orofacial trauma is the most commonly encountered problem among both children and adults, which can result in negative impact on quality of life. As great numbers of traumatic dental injuries occur at school during sports activities, physical education teachers and students should be prepared to provide emergency management of dental trauma. Hence this study was aimed to assess the knowledge of emergency management of orofacial trauma among the physical education students in south India.

Methodology: A cross sectional survey was conducted on all the physical education under graduate students from the university college of Physical education located in Khammam, South India. A standard questionnaire was used which consisted of 21 questions regarding the knowledge of emergency management of orofacial trauma. Descriptive statistics were calculated to know the frequencies of responses.

Results: A total of 92 subjects were participated in the study. 55.43% had received first-aid training and 84.31% of the study population reported that their training had covered management of Dental injury. Half of the students (50%) have identified the tooth correctly. Regarding the medium for storage and transport of avulsed tooth, majority of students (53.61%) opted for anti-septic lotion.

Conclusion: Physical education students have relatively less awareness about management of orofacial trauma when compared to first aid treatment for general injuries. So, there is a need to update their knowledge by upgrading their existing curriculum by incorporating dental first aid component in undergraduate level.

Key Words

Emergency, Knowledge, Oro-facial Trauma, Physical Education.

Introduction

Orofacial trauma is one of the most important oral health problems among children and adolescents throughout the world[1],[2]. These injuries can vary from a minor enamel chip to displacement or avulsion of teeth to extensive maxillofacial damage which may result in pain, disfigurement, poor esthetics and speech defects. Among dentofacial injuries, avulsion of the tooth was most common and large numbers of studies have reported that these traumas largely affect the upper central incisors leading to loss of function, esthetic disturbances as well as negative impact on quality of life producing psychological and social discomfort[3]. Falls[4], [5], sports[6], collisions[7], [8], physical leisure activities[9], being stuck by an object[10] and traffic accidents[9] are the major causes of dental traumatic injuries. Among them fall is the main cause[10],[11]. It was reported that sports and school injuries accounted for 60% of dental trauma[12]. Up-to-date studies have demonstrated prevalence levels ranging from 1.8% in Norway to 18.9%

in Brazil. The most recent Israeli study has reported a prevalence of dental trauma of 13.5% among fifth and sixth grade Jerusalem school children[2]. The prognosis of injured tooth depends largely on prompt and appropriate emergency treatment which is frequently provided by the lay people, including parents and school teachers who are present at the site of accident. A study conducted regarding the awareness of emergency management among parents in Australia revealed that 90% of respondents have little knowledge on correct procedures[13]. Despite a high incidence of dental trauma in New Zealand, sports coaches generally have an inadequate knowledge for managing such conditions[14]. Newman and Crawford investigated the first aid knowledge of teachers of physical education in UK and concluded that this group should receive further training in the management of dental injuries[15]. Panzarini et al conducted a study on physical education undergraduates and reported that only 9.7% of the students had some knowledge regarding dental

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trauma[16].

Since sports have been implicated in the etiology of dental trauma and high proportions of dental trauma at schools occur during physical education classes, the concerned physical education teacher and students should be capable of managing the traumatized teeth on time for the ultimate success of treatment.

As a matter of an honest observation physical education students are very often encountered with trauma of the oral cavity and teeth. Observations demand a necessity to carry on ongoing education system as an instrument to enhance the opportunities of a good prognosis in these types of traumas. Hence this study has been conducted with an aim to assess the knowledge of emergency management of orofacial trauma among physical education undergraduates in south India.

Methodology:

It was a cross sectional questionnaire based study. All the physical education under graduate students from the university college of Physical education

located in khammam, South India were taken in to the study. Ethical clearance was obtained from the institutional ethical committee, Mamata Dental College and informed consent was obtained from each participant prior to the start of the survey.

Individuals who were willing to participate and those were present on the day of survey were included and who were not willing to participate and those were not present on the day of survey were excluded. Data was collected using a standard questionnaire consisted of 21 closed ended questions regarding the knowledge of students in the emergency management of orofacial trauma.

The investigator approached the students during their college hours. After explaining the purpose of the study, instructions were given to the students regarding the completion of the questionnaire and at last the questionnaire was collected by the investigator immediately after completion. The collected data was entered in to the excel sheet for analysis. Descriptive statistics were computed to demonstrate the frequency of responses.

Results:

A total of 92 (75 males and 17 females) subjects were participated in the study. Among them 55.43% had received first-aid training and 44.57% had not received first-aid training. 84.31% of the study population reported that their training had covered management of Dental injury. 60.87 % had witnessed injury to teeth and jaws and 57.61% had seen the management of such injuries (Table 1).

In an imaginary case of injury with lip bleeding in a 9 year old girl, 51.09% of the respondents chose the appropriate option i.e. cleaning with sterile wet gauze and apply pressure and 48.91% chose to take the girl to a nearby clinic for treatment. In the second case of a 11 year

Table 1: Responses Of The Study Population To Various Questions

Questions	YES		NO	
	n	%	n	%
Have you received first aid training?	51	55.43	41	44.57
If yes, did it cover management of dental injury?	43	84.31	8	15.69
Have you seen any accidents with injury on the face?	60	65.22	32	34.78
Have you witnessed any accidents with injury to the teeth or jaws?	56	60.87	36	39.13
Have you ever seen the management of such injuries?	53	57.61	39	42.39

old boy breaking his front tooth, only 44.57% of the respondents identified the tooth correctly as a permanent tooth. In the appropriate management of the same case, majority of the participants (80.43%) chose the correct option of contacting the parents and advise them to take the child to a dentist. More number of the respondents, 84.78 % chose to look for the dental practitioner in case of a dental injury (Table 2).

In case of avulsion injury with emergency action to be taken only 16.30% of them chose correct option i.e. to look for avulsed tooth immediately and reaching the dentist where as 88.70% opted for first-aid. When asked about the cleaning of the soiled avulsed tooth majority of the respondents would rinse it under tap water gently (51.01%) followed by cleaning with a tooth brush (36.96%). Regarding the medium to carry the tooth to a dentist, majority (53.61%) of them chose anti-septic solution. In case of a broken jaw majority (65.22%) of the students reported that they will take the injured person to an emergency room in hospital and 33.70% of students reported that they will try to keep the jaw from moving by a three tier bandage (Table 3).

Table 2: Responses Of The Study Population To Various Questions

Questions	Number of respondents	% of respondents
A nine year old girl fell and her lip is bleeding, what would you do?		
a) Clean area and apply pressure with a sterile gauze	47	51.09
b) Take him to a nearby clinic for treatment	45	48.91
c) I don't know	0	0.00
A 11 year old boy fell down and broke his front tooth. He was otherwise unhurt and didn't lose consciousness. What do you think the broken tooth is?		
a) A permanent tooth	41	44.57
b) A baby tooth	51	55.43
In the above case which of the following actions would you consider as the most appropriate?		
a) Give the child a drink and pacify him	14	15.22
b) Contact parents and advice them to send the child to dentist	74	80.43
c) Not sure what to do	4	4.35
If a boy came to you with a knocked out tooth in the hand after an injury, whom would you contact first and seek treatment?		
a) A medical practitioner	14	15.22
b) A dental practitioner	78	84.78

Out of 92 students, 97.83 % (n= 90) felt that this information on emergency management was necessary and important, and 95.65 % (n=88) expressed the desire for further training in such cases (Table 4).

Discussion:

Major cause of morbidity in both developed and developing countries around the world are injuries. Traumatic dental injuries are caused by a complex array of social and environmental factors. Contact sports, violence, falls, traffic accidents and poor environments have all been implicated in injuries.

Fractured teeth or its loss as a result of trauma may cause negative impact on the physical appearance of individuals and society. According to American organization for prevention of sports related trauma, there are 10% chances of suffering an orofacial injury and 18.9% of 12 year old children have suffered traumatic dental injury during leisure and

Table 3: Responses Of The Study Population To Various Questions

Questions	Number of respondents	% of respondents
During school hours, a 12 year old boy fell from stairs, and was hit in the mouth. His upper front tooth is found to be missing. What would you do?		
a) Look for tooth immediately and take him to a dentist	15	16.30
b) Give first aid to the boy	77	83.70
If you decide to take the tooth and the boy to the dentist but the tooth had fallen to the ground and covered in dirt. What would you do?		
a) Rinse it under tap water gently	47	51.09
b) Clean it with a tooth brush	34	36.96
c) Don't know	11	11.96
If you used a liquid to take the tooth. What liquid you would use?		
a) water	3	3.26
b) Milk	36	39.13
c) Antiseptic solution	53	57.61
In a case of a broken jaw in an injury and the patient is conscious, what would you do?		
a) Try to keep the jaw from moving by a three tier bandage	31	33.70
b) Take him to an emergency room in hospital	60	65.22
c) I don't know	1	1.08

Table 4: Responses Of The Study Population To Various Questions

Questions	Yes		No	
	n	%	n	%
Do you consider this information important and necessary?	90	97.83	2	2.17
Do you think that you need further training to manage such cases during school hours?	88	95.65	4	4.35

sports activities. Traebert reported that majority of the accidents occurred at home (60.4%) followed by school (18.6%) and outside in street (18.6%) [16].

The future course of an injured tooth will extremely rely on a sufficient urgent administration of treatment. Physical education undergraduates were selected as the study group because a great deal of dental trauma may occur during sports practices. Among the 92 respondents, only slightly more than half of the respondents (55.43%) underwent first aid training during the course. In the study conducted by Alencar AHG et al[17] this percentage was slightly lower (46.5%) than the present study.

The permanent teeth should be replanted or placed in milk, physiological saline or saliva if immediate replantation is not possible and the deciduous teeth should not be replanted. Therefore, to carry out the most suitable emergency management it is important to distinguish between the permanent and primary teeth[18], [19]. In the present study only 44.57% of respondents were capable of correctly identifying the tooth which is similar to the results of the study by Chan et al[12] conducted in Hong Kong (46.8%) and Uma SR et al[20] in Bangalore (45.1%). This might be due to the lack of awareness regarding the time of eruption of teeth among the undergraduates and also the lack of dental topics in their curriculum.

When a question was asked regarding action to be taken in case of fractured tooth, 80.43% stated rightly by opting to communicate with the parents instantly and recommend them to send the child to a dentist. The reason for the correct decision may be due to the fact that most people know that dentists treat the tooth problems which is comparable to the study conducted in England by Newman L, Crawford PJM[15].

With regard to the dental injury, majority of the respondents out of 92 (84.78%) reported that they would contact dental practitioner first and seek treatment and only 15.22% of respondents opted for medical practitioner which was in accordance with Chan et al[12] (48.8%) and panzarini et al[16] (50%). This could be explained by the abundant availability of private dental facilities and their idea that dental profession has a comparatively well knowledge of correct activities taken in case of tooth separation than medical profession.

Only one-thirds (25%) of the study population were aware of the management of an avulsed tooth and the rest (75%) of the study population were not aware of the management of an avulsed teeth. This strongly reflects the lack of knowledge about emergency management of avulsed teeth among physical education undergraduates as well as their teachers or could be due to their lack of prior experience or information from other sources.

In situation of handling a separated or avulsed tooth, majority of the study population (83.75%) has opted for first aid rather than searching for tooth quickly because the perception of blood initiates an overwhelming response to control the bleeding. Similarly, focusing on controlling bleeding was observed in the study conducted by Chan et al[12]. This may be also a reflection of the basic life support provided in first aid training. Unluckily the child would not have advantage from this maneuver because delayed re-planting the tooth will endanger its prognosis.

Milk is a practical storage and transport medium which is easily available and relatively free from bacteria, and its osmolality is not harmful to the periodontal ligament cells. The choice of an adequate transport medium is essential to prevent damage to periodontal ligament cells and thus increase the chances of a successful treatment[21]. In the present study only a small percentage of students (39.13%) have reported milk as the best storage and transport medium of choice and majority of the students (57.61%) reported that antiseptic solution as the storage and transport medium for the avulsed tooth which is in favor with the study conducted by Chan et al[12] and Claudia Londero et al[21]. The intention of the students was to kill the germs on the root surface of the tooth but they do not realize that the viable cells of the tooth will also be damaged severely at the same time[12].

Majority of the subjects (97.83%) considered this information as important; it is also surprising to know that 95.65% of the study population expressed a desire for further training in managing such injuries which is similar to study conducted by panzarini et al[16]. The reason might be due to their high degree of dissatisfaction.

Based on this, it is of prime importance to introduce dental trauma management in physical education trainees' curriculum,

which is in agreement with Chan et al[12]. The cooperative actions between dental and physical education professionals are needed in order to develop continued education programmes, since physical education undergraduate students are not adequately prepared to provide emergency care to dental trauma victims. From here to abstain this it is inevitable to invest on preventive educational strategies to promote oral health, aiming to qualify these future professionals so that they are aware of their leading role when dealing with dental trauma. The results suggests that almost all of the physical education colleges have no contents regarding dental trauma in their curriculum, as is evident from their inadequate knowledge and attitude towards the matter which coincides with the results of the study conducted by Alencar AHG et al[17].

Recommendations:

Revision of physical education training curriculum should be considered. To advise course coordinators of the institutions to add dental first-aid component in undergraduate level. Educational campaigns and regular reinforcement is recommended with the involvement of local dentists and institutions.

Limitations:

The present study was conducted on a smaller sample; a larger sample can give a better insight. Surveys with closed-ended questions may have a lower validity rate. Qualitative type of studies can provide detailed information about their knowledge regarding the emergency management of orofacial trauma.

Conclusion:

From the current study it is familiar that the majority of the respondents have well and adequate knowledge concerning first aid measures for managing general injuries but are found to have noticeably insufficient knowledge regarding the management of orofacial trauma and more precisely the management of an avulsed tooth. Awareness campaigns on dental traumatic injuries and their consequences must be targeted at physical education students and also to the public community including health care professionals, so that they can be able to provide emergency care to dental

trauma victims, or to minimize its effects during sports practice.

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