Do Our Children Play Safe?

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Sports participation is a frequent cause of injury in general to children and adolescents. 719 athletically active school children belonging to the age group of 11-14 years were selected from the four urban localities in south India (i.e, Bangalore Chennai, Cochin & Hyderabad). Data was collected by a well structured questionnaire. The results revealed that the south Indian urban school children had inadequate levels of awareness regarding orofacial injuries and their emergency care. The knowledge regarding protective devices was found to be minimal. Majority of the children were aware of mouthguards but their usage was nil.
Key words: *sports participation, emergency care, preventive measures , mouthguards*
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INTRODUCTION

We live in a sports-minded society where even non-participants recognize that athletics is an integral part of the culture. Millions of individuals compete in some type of organized or unorganized sport or athletic activity, and in doing so they are at risk of injury. Dental and facial traumas are common sports-related injuries.[1]

Dental trauma is considered to be a public health problem due to its high prevalence. Separate studies show that 13-39% of all dental injuries were sports related and of all sports accidents reporting 11-18% were maxillofacial injuries.[2-3] In children, sports were found to be responsible for 13% of over all oral trauma.[4] This increased prevalence of orofacial injuries with participation in different sports activities has led to the evolution of sports dentistry as a discipline.

"Sports Dentistry is the treatment and prevention of oral/facial athletic injuries and related oral diseases and manifestations." Given the high incidence of sports-related orofacial injuries, it is important to provide prompt treatment for a dental emergency and educate regarding usage of facemasks and mouthguards in sports and educate regarding the sports related dental injuries, first-aid treatment and preventive measures like mouthguards among coaches, trainers and athletes themselves. The available facilities are dependent on the circumstances of the nation, sports practiced most commonly and the level of community education in this regard.

The present study was thus carried out to assess the knowledge regarding sports dentistry among the south Indian school children.

METHODS AND MATERIALS

A total of 719 athletically active children aged 11-14 yrs of both sexes were selected from the various schools of the four urban localities in south India. A multi stage random sampling was adopted to select the children. The first-stage unit comprised of four urban localities in south India selected by simple random method. The second- stage unit comprised of two schools each (selected by simple random method) from the list of schools providing/encouraging athletic sports within the selected urban cities. Among the selected schools, children participating in competitive sports, who were considered to be athletically active, belonging to the age group of 11-14 years, were included in the study.

Local authorities (physical education teachers and school teachers) provided the necessary information for the selection of children who were involved in competitive sports activities. Special children who were physically, mentally, and emotionally disturbed and children who were not involved in the sports activities were not included in the present study.

A well-structured questionnaire was distributed to all selected children who participated in competitive sports (i.e. athletically active) and they were assisted to fill the questionnaire with proper guidance. The collected data were subjected to statistical evaluation. Proportions were compared using Chi-square (χ^2) test of significance. Proportion of students' response to each question was expressed in absolute number and percentage.

RESULTS

Among the total sample 67.6% were boys and 32.4% were girls, among which 4.6%, 17%, 50.3% and 28.1% were of 11, 12, 13 and 14 yr olds respectively.

The chances of injury to teeth during sports participation as con-

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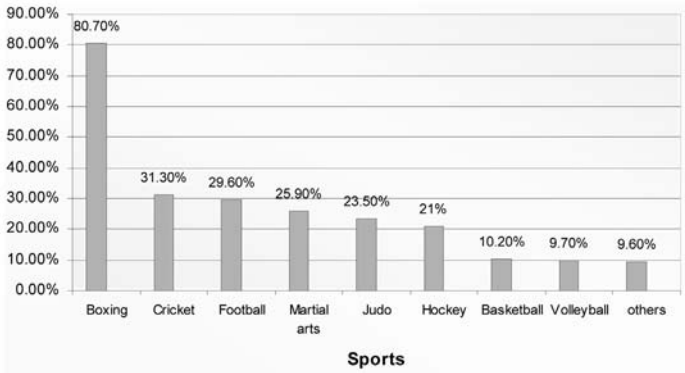

Figure 1: Children consideration for sports with greater risk of orofacial injuries

sidered by these children in descending order were boxing followed by cricket, football, martial arts, judo, hockey, basketball, volleyball, athletics, cycling, swimming, skating (Fig.1).

73.7% of children claimed to be aware of emergency care for orofacial injuries in sports. But on further evaluation only 55.2% of children had given correct response for emergency care like visiting a doctor immediately (or) cleaning the wound and then visiting a dentist (or) cleaning the wound and if tooth is outside the mouth/hanging replace it back in mouth or carry it to dentist (Table1). It was also observed that the girls who claimed to be aware of emergency care were significantly more than boys and this claim was found to increase with age, this difference observed was statistically significant.

Table 1: Children's response regarding awareness of emergency care

Response of Children who claimed to be aware of emergency care.	Percent in total sample
Visit a doctor immediately	16.6%
Clean the wound & then visit a dentist	37.3%
Clean the wound & take medication for pain/infection	11.5%
Clean the wound & replaced the tooth back in mouth/carry to dentist	1.3%
Clean the wound & throw the tooth	6.8%
Total	73.4%
Children claimed to be not aware of emergency care	26.6%
Total sample	100%

The various measures that would be taken by children for any kind of injury to teeth was found to: Depend on their parents or family (49%), consultation of dentist (45.3%) and consult a physician (3.3%).

Family and friends (32.8%) were found to be the main knowledge providers in this regard (Table 2).

56.5% children considered that preventive measures are required during participation. This consideration for the usage of protective devices in sports was significantly higher among boys than girls. Majority of children believed that they require protective devices like helmet in cricket (66.5%) (Tables 3 and 4).

Table 2: Knowledge Providers for children regarding sports related injuries and their emergency care

Media	Family & Friends	Coaches & other players	Pediatric Dentist/ Dentist
7.9%	32.8%	23.5%	1.1%

Evaluation of the protective device usage by the children during participation in various sports showed, only 34.4% were found to use the protective devices. Among these children 63.6% adopted protective devices in cricket and the protective devices used most commonly were body guards (Table 3 and 4).

Table 3: Various sports in which protective devicesare used and considered essential by children

	Cricket	Football	Hockey	Boxing	Martial Arts	Others	Total
protective equipment considered essential	37.6%	5.3%	2.6%	1.3%	0.1%	8.9%	56.5%
children who used Protective devices in various sports	22.18%	3.7%	1.4%	0.1%	0.1%	7.6%	34.4%

Table 4: Type of protective devices used and considered essential by children in various sports

	Helmet	Bodyguards	Mouthguards	Total
protective equipment considered essential	27.3%	23.9%	1.1%	52.1%
Protective devices used in various sports	14.2%	19.2%	0.1%	34.4%

79.3% of children were found to be aware of mouthguards. Among them majority (66.1%) of children were aware through media, least by dentist / pediatric dentist (fig.2). It was also observed that boys (84.5%) were significantly more aware of mouth guard as compared to girls (69.5%) and the awareness level was found to increase with age. This difference observed was statistically significant.

73.2% of children had considered that mouthguards can prevent injuries during participation in sports and 42.1% of children had preferred to use the mouthguard while participating in any sport (Table5).

Among the total sample only 1 child (0.4%) was found to be using mouthguard regularly, whereas 8 children (1.1%) had used mouthguard occasionally.

DISCUSSION

It has been widely reported that participation in sport, carries a considerable risk of sustaining injury.[5-8] Competitive[7] and contact

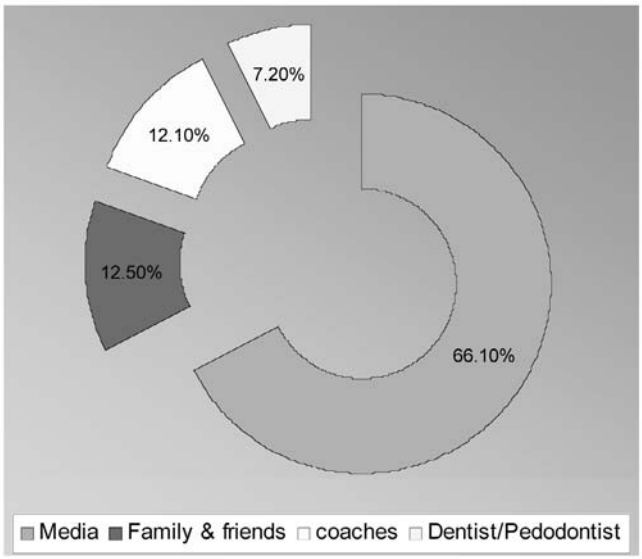

Figure 2: Source of awareness regarding mouthgards

sports[9-10] were found to be more dangerous due to their nature. The incidence of dental trauma caused by sports is more common among boys than in girls[3,4] and seems to depend on the various factors like age and sex of the individual, number of members involved in sport, the sport participated and practiced, also the circumstances and popularity of sports in nation and extent of sports facilities.

Table 5: Children's knowledge regarding mouthguards and other protective devices

	Boys	Girls	Total
Heard of Mouthguards	56.74%	22.53%	79.3%
Preferred to use Mouthguards in sports	34.3%	7.7%	42.3%
Considered Mouthguards to be useful for prevention of orofacial injuries	53.11%	20.02%	73.4%
Considered Protective device usage is essential in sports	44.36%	12.10%	56.7%

In the present study, the perception regarding orofacial injuries in various sports showed boxing as the sport with greatest risk by the majority of children (80.70%). But the actual incidence of dental injuries in boxing is relatively less (33%) as reported by Tuli *et al* (2002).[11] This difference in actual incidence and perception can be explained by relatively low levels of participation in boxing and already existing mandatory rules for usage of protective devices in boxing.[12]

These children's perception for orofacial injuries in contact sports like football and martial arts was found relatively similar to the actual incidence.[13] But the children perceived basketball as one of the sport with a lesser risk for dental injury which is in contrast to the actual incidence.[14,15]

73.7% children claimed to be aware of emergency care that can be given for orofacial injuries during sports. This claim regarding awareness was found to be greater among girls and increased with age. This increase in claims with age can be explained by an increase in the learning abilities.[16]

Only 55.2% children's knowledge regarding emergency care of orofacial injuries was appropriate. Several investigators have stressed that the knowledge of parents, physicians, school teachers, and physical education teachers regarding emergency management of dental injuries was poor and underlined the importance of education in this regard[17-19], which can be considered as one of the reason for lack of proper knowledge in these children.

The source of knowledge providers were family and friends (32.8%) followed by coaches, school teachers and media. But majority of the children asked for further information, which indicates willingness on their part to be more aware in this regard.

In the total sample, 56.5% of children considered that they require protective devices while participating in various sports. The usage of these protective devices in various sports was found in accordance to their knowledge of sustaining injury i.e. sport with greater risk for injury showed common usage of protective devices. The exception was boxing which can be attributed due to the lack of participation.

The majority (79.3%) of the children had heard about mouthguards. Mass media played a major role in providing this information than in comparison to pediatric dentist. These findings are in accordance with Seals et al (1985)20 who reported that majority of high schools used sales representatives for selecting mouthguards than dentist. However, 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.

In the total sample, 73.25% children believed that mouthguards could prevent injuries in sports and only 42.1% preferred to use the mouthguards. The children perception regarding mouthguards preventing injuries and their preference to use in various sports was found as boxing, football, cricket, hockey, martial arts and basket ball (in the descending order)There is evidence that mouthguards can prevent injuries in these sports if worn during participation.[21-23]

These children mouthguard awareness, perception for preventing injuries and preference to use them was found to be higher among boys than girls and this increased with age. This can be attributed to their possible greater participation and prevalence of dental injuries associated with sports[3-5] and increase in learning abilities found with agel.[6] Other factors like the attitudes of parents and coaches were found to significantly influence usage of mouthguards.[23-25]

The restricted usage of the mouthguards among the children can be attributed to various factors like, awareness about orofacial injuries in sports and importance of protective devices in a particular game, lack of free availability and ease of mouthguard usage. The other contributing factors could be lack of encouragement by parents and coaches for the mouthguard usage and also lack of mandatory rules for enforcement of using mouthguard in sports by governing bodies and (or) authorities.

Hence it can be suggested that the athletes during participation in sports which are conducive to orofacial injuries should be aware of emergency care and should use preventive measures like helmet and mouthguards for better management and reduction in incidence of orofacial injuries.[26,27]

CONCLUSIONS and RECOMMENDATIONS

In the present study greater percentage of south Indian urban school children showed inadequate levels of awareness regarding

orofacial injuries and their emergency care. These children knowledge about protective devices was found to be minimal, but majority of them were aware of mouthguards and their usage was nil.

Recommendations based on the present study are:

1. Athletes and coaches should be aware of the significance of protective devices like mouthguards in sports.
2. Athletes and coaches should be aware of the sports related oro facial injuries and their emergency care.
3. Sports community and governing bodies should take active measures in the implementation of mandatory usage of mouth guards in sports.
4. Pediatric Dentists should play a major role in sports dentistry.

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