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**Dr. Manan Shah**  
Department of Orthopaedics,  
MGM Medical College, Kamothe,  
Maharashtra, India

**Dr. Alfven Vieira**  
Department of Orthopaedics,  
MGM Medical College, Kamothe,  
Maharashtra, India

**Dr. Tushar Agarwal**  
Department of Orthopaedics,  
MGM Medical College, Kamothe,  
Maharashtra, India

## An epidemiological study on paediatric trauma in tertiary care hospitals

**Dr. Manan Shah, Dr. Alfven Vieira and Dr. Tushar Agarwal**

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### Abstract

#### Aims and Objectives

1. To assess the frequency of inpatient care in cases of paediatric trauma.
2. To assess the sex distribution of paediatric trauma
3. To assess the mechanisms of injury most often leading to significant paediatric trauma
4. To assess the mechanisms of injury most likely to cause trauma in each paediatric age group
5. To assess the frequency of emergency operative interventions in cases of paediatric trauma

**Materials and Methods:** A retrospective study was performed at MGM Medical College and Hospital, Kamothe, using data gathered over the previous five years (January 2014- December 2018) regarding the age group, sex, and mode of injury.

#### Results

1. Of 6810 paediatric admissions in the five year period, 1310 patients were admitted after suffering some form of trauma (19.2%)
2. The ratio of male to female patients was 2:1.
3. A fall from height was the most common mode of injury(43%), followed by accidental trauma from sharp/blunt objects(32%), Road Traffic accidents(11%), and 14% were from miscellaneous causes such as burns, animal bites etc.
4. Paediatric trauma was found to be most prevalent in the school going age group (6-16 years), with 54% of patients reporting in that age group.

**Conclusion:** We conclude that most injuries in the paediatric age group are preventable, and the epidemiology of injury in the paediatric age group differs from that of adults. Therefore, preventive strategies should be designed around the epidemiology of pediatric trauma.

**Keywords:** Epidemiology, paediatric trauma, tertiary care hospitals

### Introduction

Paediatric trauma is a very significant cause of mortality and disability, being responsible for more deaths than all diseases combined<sup>[1]</sup>. In India today, there is a scarcity of information regarding paediatric trauma which therefore makes it very challenging to design measures at the preventive stage to protect children from such injuries. The prevalence and popularity of alternate systems of medical practice makes the little data we have also of limited significance. The need of the hour is to recognize the ability, or the lack thereof, of tertiary care hospitals in India to intervene swiftly and effectively in cases of paediatric trauma, and to elaborate on factors that may lead to a hospitals' success in this regard.

### Materials and Methods

A retrospective study was conducted at MGM Medical College, Kamothe, using data collected from January 2014 to December 2018. A total of 1310 patients were admitted after sustaining trauma in this time period. Cases of isolated ophthalmic trauma and trauma in neonates were excluded from the study. Data was collected from medical records maintained in respective departments. Children were classified into the 0-2 years, 2-6 years (preschool) and 6-16 years (school going) age groups. Modes of trauma were divided into falls, injuries by sharp or blunt objects, Road Traffic accidents and Miscellaneous (including burns, animal bites, etc). The types of injury included were Orthopaedic injuries, Head injuries, Chest injuries, Abdomen injuries, Burns, Polytrauma etc.

**Corresponding Author:**  
**Dr. Manan Shah**  
Department of Orthopaedics,  
MGM Medical College, Kamothe,  
Maharashtra, India

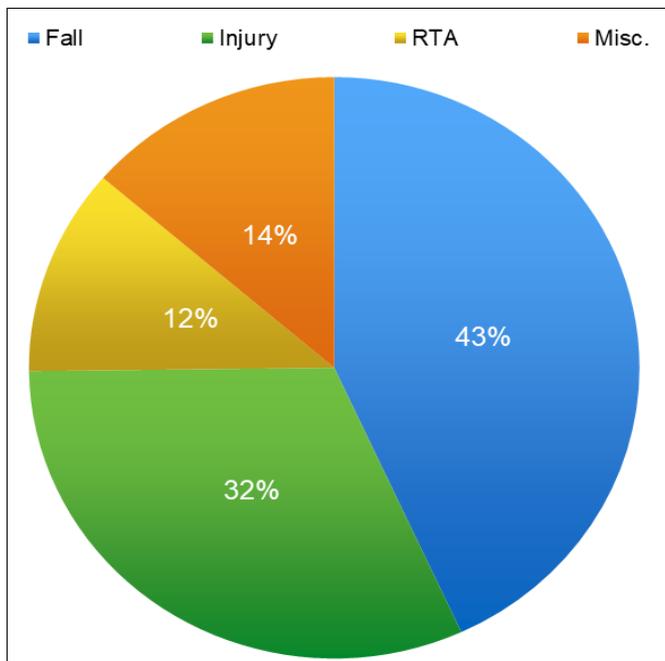


Fig 1: Mechanism of injury chart

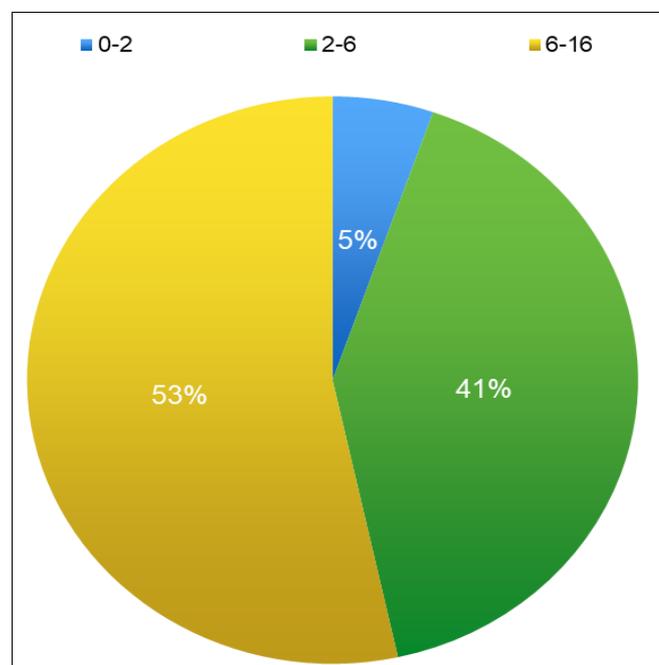


Fig 2: Age distribution chart

Table 1: Sex Distribution Chart

Sex Distribution	0-2 years	2-6 years	6-12 years	Total
Male	47	355	472	874
Female	23	185	228	436
Total	70	540	700	1310

Table 2: Mechanism of Injury Chart

Mechanism of Injury	0-2 years	2-6 years	6-12 years	Total
Fall from height	20	232	308	560
Injury by Object	45	173	197	415
RTA	3	59	93	155
Miscellaneous	2	76	102	180
	70	540	700	1310

**Results**

Of the 6810 patients admitted, the cause for admission for 1310 patients was trauma. School going children were most

frequently injured (54%). Males outnumbered females in the ratio 2:1. Children most commonly suffered from a fall from height (43%), followed by accidental trauma by sharp or blunt objects (32%), and RTA (11%). 14% of children suffered their injuries from miscellaneous causes such as burns, animal bites, etc. 5% of the total patients presented in the 0-2 year age group, 41% in the 2-6 year age group and 54% in the 6-16 year age group. This typical distribution varied in the 0-2 year age group, with 64% of patients presenting as a result of accidental injuries by sharp or blunt objects, 28% as a result of falls and 8% as a result of RTA, burns, bites etc. The prevalence of trauma in paediatric patients was 19.2%. The months of April and May contributed to 20% of the annual admissions.

**Discussion**

The prevalence of paediatric trauma was found to be 19.2%. This correlates well with other major studies, with Mukesh Sharma *et al.* [2] reporting a prevalence of 19.5%, Tandon *et al.* [2] reporting a prevalence of 14.2% and a study done in Naraingarh, India, reporting a prevalence of 5.5%. Many studies have been done from Bangladesh, [5] Iran, [6] Nigeria, [7] Thailand, [8, 9] Singapore [10, 11] and from major Indian cities, [12-15] and these studies have found boys to be more commonly injured than girls. Male to female ratio was 2:1 in our study, which is in consonance with the above studies, reporting a ratio from 1.5:1 to 3:1.

Falls were the leading cause of trauma in our study, which is in consonance with Tandon *et al.* [2] However, we found injuries by sharp or blunt objects to be more prevalent than falls in the 0-2 year age group.

**Conclusion**

1. Falls were the leading cause of trauma, 6-16 years being the most common age group with a sex ratio of 2:1.
2. Hospitals must be prepared during vacation months for greater inflow of paediatric trauma.
3. Tertiary Care Centres must be ever-ready to deal with the challenges of emergency surgical interventions in the paediatric age group.

This study confirms that the epidemiology of paediatric trauma varies from that of adult trauma, and that preventive strategies to tackle paediatric trauma should be made as per the trends of paediatric trauma.

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