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Research Article

**A STUDY ON THE DIFFERENT TYPES OF OCULAR TRAUMA  
IN CHILDRENS PRESENTING AT MAYO HOSPITAL LAHORE**<sup>1</sup>Dr. Zain Ali Sattar, <sup>2</sup> Dr. Najma Rani, <sup>2</sup> Dr. Jalil Kamran.<sup>1</sup>Mayo Hospital, Lahore.<sup>2</sup>University of Health Sciences, Lahore**Abstract:**

**Objective:** The aim of this research is the assessment of etiological factors and its associated circumstances with the incidence of injuries to the eyes of the children who were presented at tertiary healthcare centre.

**Methodology:** This research was carried out at the Department of Pediatric, Mayo Hospital Lahore from August 2017 to July 2018. We documented clinical outcomes, personal information and management therapy for every patient on a pre-designed proforma which included various variables such as injury date, sex, age, injured eye, mechanism of injury, circumstances of injury, immediate therapy and initial visual acuity.

**Results:** Our research sample consisted on 462 patients who were enrolled in the age of sixteen years and diagnosed with ocular trauma; moreover, among the total participants we had 297 males (64.3%) and 165 females (35.7%). Males were predominant over females in the enrolled population. The mean age of the patients was reported as (7.03 ± 3.61). The majority of the patients were in the age bracket of (6 – 11) years and attending schools, these students were 198 school going children (42.9%). Injuries frequently occurred at home as 215 patients were injured while at home (46.5%). Blunt trauma and penetration injuries were reported respectively in 228 patients (49.4%) and 162 patients (35.1%). There were other injuries such as eyelid injuries, close globe injuries and open globe injuries reported respectively among 61 cases (13.2%), 338 cases (73.1%) and 63 cases (13.7%). In 245 cases the better reports of visual acuity were present and it was better than (6/12) in about (53.0%) cases. Lubricant eye drops, cold or warm compress and pressure patching were prescribed to 215 children (46.5%). Moreover, 121 children were managed surgically during the research timeframe (26.2%).

**Conclusions:** Various ocular trauma frequencies have been reported in this particular research which can better be controlled and minimized through preventive strategies as adopted in the developed nations.

**Keywords:** Etiological, Pediatric Ocular Trauma, Blunt Injuries, Penetrating Injuries, Ophthalmic Trauma and Eyes.

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**INTRODUCTION:**

It is estimated that more the forty-five percent of the total population of Pakistan is under the age of sixteen years; moreover, more than 52,000 children are suffering from various optical issues such as visual impairment and blindness [1]. In the approximations all over the globe, about 1.6 million children suffer from blindness; whereas, low vision cases and monocular blindness because of the eye injuries are respectively estimated 2.3 and 19 million all over the world [2]. Childhood unilateral blindness is primarily because of the ophthalmic trauma which is acquired at an early age, it also causes an estimation of one third vision loss cases within the first ten years of life [3, 4].

There are more chances of the development of amblyopia after the incidence of trauma in the pediatric population if an in-time and proper management are not extended to the individual [5]. It is almost impossible to prevent such injuries; whereas, an effective treatment plan is possible with the help of involved etiological factors which can potentially handle such trauma that can damage the vision of an individual [6]. Various features put children on the risk of eye injury which includes injury agents, determinants of the environment and ocular trauma determinants. The identification of these features is very much important in order to control and determine the underlying causes and onwards management recommendations with better preventive strategies [7].

The aim of this research is the assessment of etiological factors and its associated circumstances with the incidence of injuries to the eyes of the children who were presented at tertiary healthcare centre.

**METHODOLOGY:**

This research was carried out at the Department of Pediatric, Mayo Hospital Lahore from August 2017 to July 2018. We documented clinical outcomes, personal information and management therapy for every patient on a pre-designed proforma which included various variables such as injury date, sex,

age, injured eye, mechanism of injury, circumstances of injury, immediate therapy and initial visual acuity. Total research population was divided into four major groups which included infants, preschool children, school going children and adolescents having respective age group of (< 2) years of age, (2 – 6) years of age, (7 – 10) years of age and (11 – 16) years of age. Data analysis was made through SPSS software. Frequencies and percentages were used for the descriptive data analysis. Modified Classification of the Ocular Trauma was used for the classification of the injuries among all the patients [6].

**RESULTS:**

Detailed outcomes analysis has been carried out in the given Table – I, II, III and IV which respectively discuss the outcomes analysis of “Time is taken from Injury Occurrence to Hospitalization”, “Injury Site”, “Trauma Types” and “Trauma Classification” among 462 children. Our research sample consisted on 462 patients who were enrolled in the age of sixteen years and diagnosed with ocular trauma; moreover, among the total participants, we had 297 males (64.3%) and 165 females (35.7%). Males were predominant over females in the enrolled population. The mean age of the patients was reported as (7.03 ± 3.61). The majority of the patients were in the age bracket of (6 – 11) years and attending schools, these students were 198 school going children (42.9%). Injuries frequently occurred at home as 215 patients were injured while at home (46.5%). Blunt trauma and penetration injuries were reported respectively in 228 patients (49.4%) and 162 patients (35.1%). There were other injuries such as eyelid injuries, close globe injuries and open globe injuries reported respectively among 61 cases (13.2%), 338 cases (73.1%) and 63 cases (13.7%). In 245 cases the better reports of visual acuity were present and it was better than (6/12) in about (53.0%) cases. Lubricant eye drops, cold or warm compress and pressure patching were prescribed to 215 children (46.5%). Moreover, 121 children were managed surgically during the research timeframe (26.2%). An analysis of the outcomes is as under (Respective Tabular and Graphical Data).

**Table – I:** Time is taken from Injury Occurrence to Hospitalization in 462 Patients

Time interval	Number	Percentage
One to Six Hours	141.00	30.50
Seven to Twenty-Three Hours	98.00	21.30
24 Hours – 5 Days	120.00	25.90
Six to Ten Days	51.00	11.00

Above Ten Days	52.00	11.30
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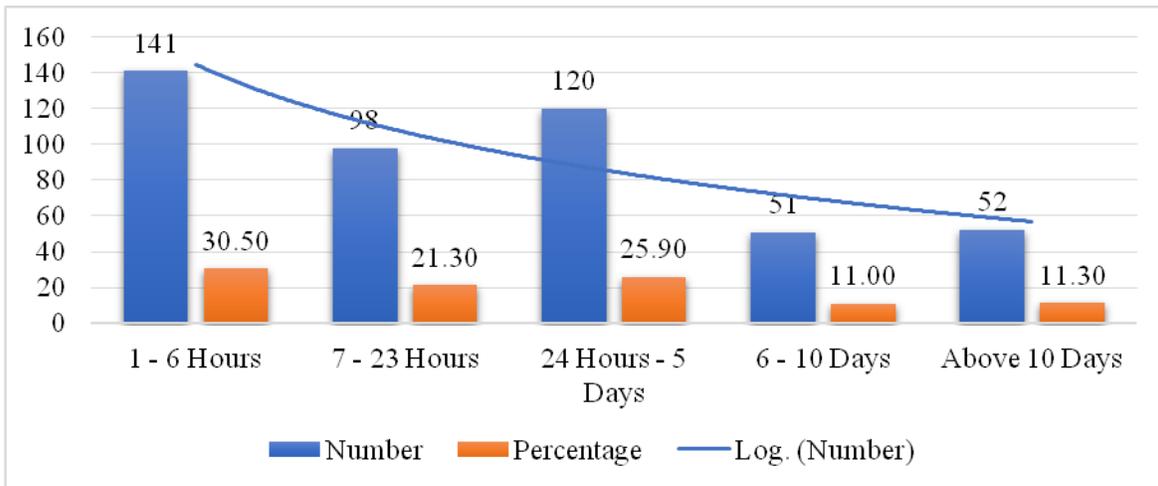
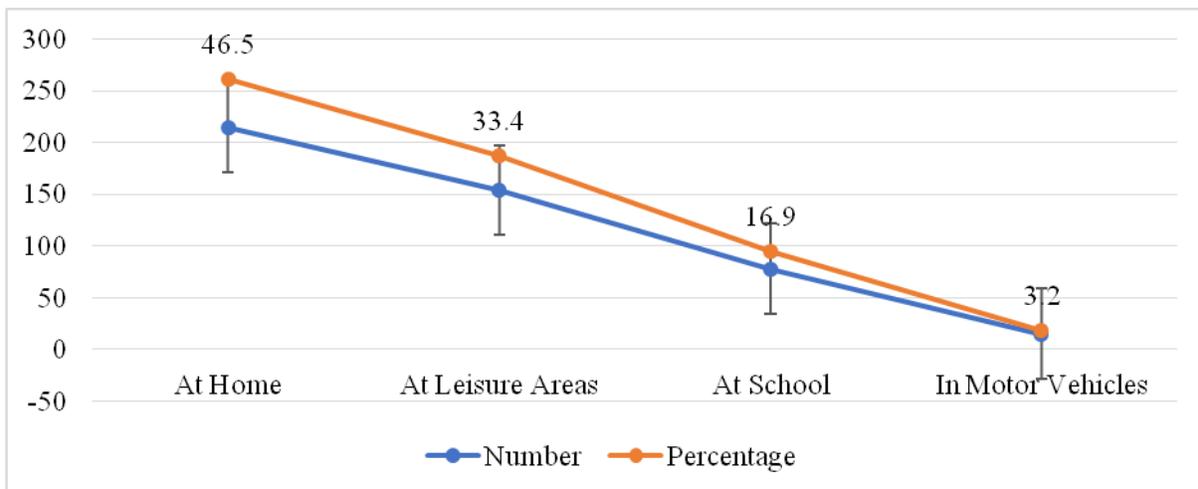


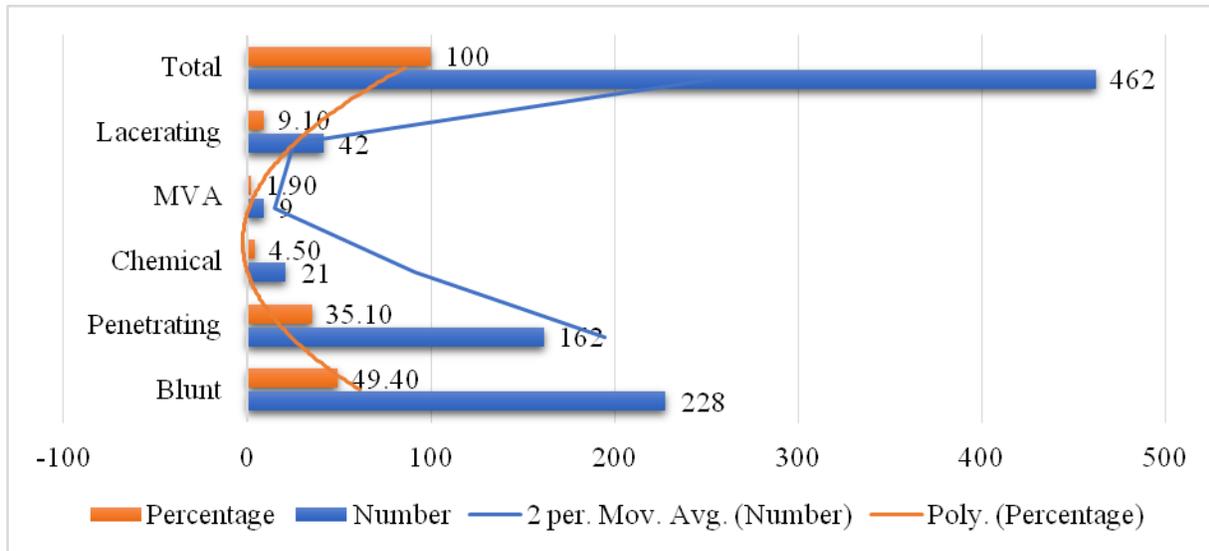
Table – II: Injury Site in 462 Patients

Injury Site	Number	Percentage
Injuries while at Home	215.00	46.50
Injuries while at Leisure time spending Areas	154.00	33.40
Injuries while at School	78.00	16.90
Injuries while riding on Motor Vehicles	15.00	3.20

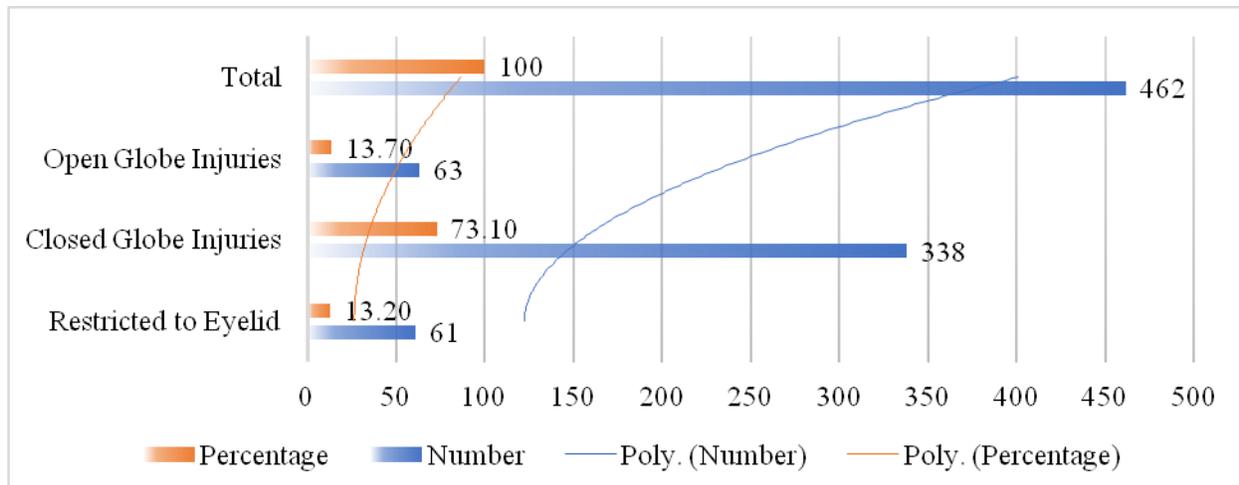


**Table – III:** Trauma Types in 462 Patients

Trauma Type	Number	Percentage
Blunt Injuries	228.00	49.40
Penetrating Injuries	162.00	35.10
Chemical Injuries	21.00	4.50
MVA Injuries	9.00	1.90
Lacerating Injuries	42.00	9.10
Total Injuries	462.00	100

**Table – IV:** Trauma Classification in 462 Patients

Trauma Classification	Number	Percentage
Restricted to Eyelid	61.00	13.20
Closed Globe Injuries	338.00	73.10
Open Globe Injuries	63.00	13.70
Total Injuries	462.00	100.00



### DISCUSSION:

Pakistan is considered among underdeveloped countries which is developing at a rapid rate and it has a birth rate of 28 births per one thousand births over the population which is an established fact of 2009 [8]. About fifty percent of the Pakistani population is under the age of fifteen years and about one-third of the total population is of the age of nine years [9]. South East Asian countries face the worst situation of health especially regarding children healthcare [10]. The primary need is to focus all the areas which affect the predisposing factors and issues for the spread of disease in such a grave situation. No database or documented numbers are available about the incidence of ocular trauma blindness especially in the children population. Girls are less affected than boys because of the ocular trauma and same has been reported in other studies [11 – 13]. Relatively immature and school going population is prone to ocular trauma and eye injuries because of their vulnerability and dependency on their parents and attendants. Most of the injuries (46.5%) took place while children were at home and the next most common place of injury was during leisure time spending.

As the majority of the time of both infants and school going children is spent at home so the majority of the incidences of eye injury were reported at home; same has been also reported in numerous other studies about the place of injury to the children [14 – 16]. Majority of the children were injured through home utensils and toys while playing and fingering when they were at home and no attendant was present or parents were unaware of the movements of the children. This includes a younger age group which was injured during a stay at their home as utensils and toys are in the easy access of the children and majority of these toys and utensils are also pointed and have sharp edges that may harm the children.

Second most repeated cause of the injury was reported during sports. The injuries related to sports can be minimized or even eradicated by wearing supportive and safety gadgets and it is also a fact that mature adolescents are involved in sporting activities. We reported that about 49.4% of children received blunt injuries. Most of the blunt trauma cases were hospitalized due to hyphemia. Blunt Trauma injuries were caused because of stone or cricket ball was thrown on the other children and it damaged the eye of the receiving child. Among other eye injury causes were the punch or pellets of the toy guns used by children intentionally or unintendedly and it damaged the other children which resulted in the shape of eye injury to children. Safety and protective gears can potentially reduce the incidence of these injuries while playing and sporting through viable legislation by making safety gears as a compulsion before involving in any sporting event. There is also a need for the legislation to ban the selling of pointed toys and toy guns especially to underaged children as legislation also exists about the sale and purchase of tobacco of underaged children.

Outdoor locations ocular injuries are also reported in the current and previous research studies at various places [17 – 20]. We reported the ocular injuries incidence at home and leisure time spending places.

### CONCLUSIONS:

The commonplace where an eye is injured is at home and leisure time spending area. These occurrences can possible be restricted through an effective supervision and awareness of the parents and attendants. Various ocular trauma frequencies have been reported in this particular research which can better be controlled and minimized through preventive strategies as adopted in the developed nations.

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