


**Original Article**
**Prevalence of Ocular Trauma in Different Age Groups and Gender Presenting at Nishtar Hospital Multan**
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**Objective:** The objective of this study was to determine the prevalence of ocular trauma in different age groups and gender presenting at Nishtar Hospital, Multan.

**Materials and Methods:** In this study, Five hundred and twenty eight patients of both genders and age one year or more with ocular trauma were included. Patients with non-accidental injury (NAI) were excluded. Ocular trauma was defined as any injury affecting the eye or adnexa that required hospital admission and had a principal or secondary discharge. Demographic details from all the patients in terms of age and gender were recorded.

**Results:** Mean age was  $15.9 \pm 11.2$  years. Frequency and percentage of patients of ocular trauma according to age groups were 116 (21.97%) in 1-5 years, 106 (20.08%) in 6-10 years, 86(16.29%) in 11-15 years, 56(10.61%) in 16-20 years and majority of the patients (164) were from >20 years age group (31.06%). Frequency and percentage of patients according to gender was 366(69.32%) males and 162(30.68%) females.

**Conclusion:** Males are more prone to ocular trauma than females and majority of ocular trauma occurs at home. Eye health awareness program and strict legislation to use protective devices should be emphasized so that it can help to reduce the occurrence of ocular trauma.

**Key words:** Ocular trauma, Age, Gender.

### Introduction:

Ocular trauma is one of the leading causes of preventable monocular blindness worldwide and is a serious public health concern in developed and developing countries<sup>1</sup>. In a research programme for the prevention of blindness, the World Health Organization (WHO) estimated that 55 million eye injuries occur yearly, of which 750,000 people require hospitalization<sup>2</sup>. Epidemiology of trauma cases varies in different regions of the world with variables such as age, gender, type of injury, cause of injury, place of injury, and the management of ocular trauma. Ocular trauma patients admitted at various emergency departments varied in age. In the US, 25.4% occurred in children and youths aged 0-18 years<sup>3</sup>. In Pakistan, children who sustained eye injuries had a mean age of  $7.03 \pm 3.61$  years, most (42.9%) belonging to the school-aged group (6-11 years)<sup>4</sup>. In Israel, almost half (47%) of the injuries occurred in children younger than 17 years, mainly between 6-12 years of age<sup>5</sup>. In Brazil, 0-5 years old children were at greatest risk for ocular trauma<sup>6</sup>. The incidence of eye injuries may be higher in developing countries<sup>7</sup>. The eye represents only 0.27% of the total body surface area and 4% of the facial area, yet it is the third most common organ affected by injuries after the hands and feet<sup>8</sup>.

Worldwide there are approximately 1.6 million people blind from eye injuries, 2.3 million are bilaterally visually impaired and 19 million have unilateral visual loss. These figures make ocular trauma the most common cause of unilateral blindness. Many eye injuries are related to particular occupations and certain cultures<sup>9</sup>. The annual rate of ocular injury in the United States alone is 2.4 million<sup>10</sup>. Reports suggest that up to 60.5% of cases of ocular injury lead to visual impairment and rates are significantly higher among men under 30 years of age<sup>11</sup>. Research shows that one out of every five adults have a history of ocular trauma<sup>12</sup>.

Apart from its effect on each individual, ocular trauma is a case of ophthalmic emergency on mass level. Hospitalization due to ocular trauma is a health issue. Admission rates have been reported between 8 and 33 per 100,000 per year. Considering the importance of ocular trauma and its effect on eye and public health, we conducted this study to determine the prevalence of ocular trauma in different age groups and gender in the population of South Punjab. Nishtar hospital, Multan being the major serving institute of this population was focused for this study.

### Material and Methods:

This cross sectional study was conducted in emergency department of Ophthalmology department, Nishtar Hospital Multan from 01-01-2013 to 02-08-2015 Five hundred and twenty eight patients of either gender and  $\geq$  one year of age with ocular trauma were included in this study.

Patients with non-accidental injury (NAI) were excluded.

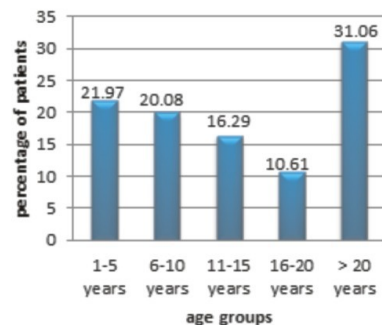
Ocular trauma was defined as any injury affecting the eye or adnexa that required hospital admission and had a principal or secondary discharge. Demographic details from all the patients in terms of age and gender were recorded.

Data were analyzed with SPSS statistical analysis program. Frequency and percentage was computed for qualitative variables like age groups and gender. Mean  $\pm$ SD was presented for quantitative variable like age. Age and gender was controlled by stratification.

### Results:

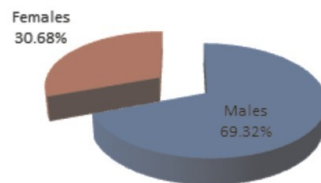
Mean age was  $15.924 \pm 11.21$  years. Frequency and percentage of patients of ocular trauma according to age groups were 116 (21.97%) in 1-5 years, 106 (20.08%) in 6-10 years, 86 (16.29%) in 11-15 years, 56 (10.61%) in 16-20 years and majority of the patients (164) were from >20 years group (31.06%) as shown in Graph-I.

**Fig.1: Distribution of ocular trauma according to age group**



gender was 366 (69.32%) males and 162 (30.68%) females

**Fig. 2: Distribution according to gender**



Incidence of ocular trauma increased with age in males. However female gender didn't follow this relation. This is very well depicted in table 1.

**Table 1: Stratification of gender with respect to age groups**

Age in years	Gender	
	Males	Females
1–5	45 (38.8%)	71 (61.2%)
6–10	70 (66%)	36 (34%)
11–15	72 (83.7%)	14 (16.3%)
16–20	48 (85.7%)	8 (14.3%)
>20	131 (79.9%)	33 (20.1%)
Total	366 (69.32%)	162 (30.68%)

#### Discussion:

Ocular trauma is a major cause of monocular blindness and visual impairment. A total of 528 patients who sustained ocular trauma were included in this study to find out the magnitude of ocular trauma among patients who presented to Nishtar Hospital, Multan, Pakistan. Ocular trauma has been investigated in many population based studies in the USA and Canada as well as the United Kingdom and Australia<sup>13-17</sup>. There is a geographical variation in the cause of ocular injury which is age and gender specific<sup>13,14,18</sup>. Studies from different regions such as the Caribbean,<sup>13,14</sup> Singapore<sup>18</sup> and India<sup>20</sup> demonstrate variations in the characteristics, incidence and prevalence of ocular trauma. These variations clearly portray the influence of different methods of data collection, socioeconomic factors and industrialization of a population on the epidemiology of eye trauma.

The present study demonstrates that males are more susceptible to eye injury than females irrespective of their age. This male predominance is found in earlier studies too<sup>13,14</sup>.

The highest incidence of ocular trauma occurred in the > 20 years age group. This concurs with other studies but some authors also describe a bimodal pattern where an increased incidence is observed in the 25–30 years age group (first peak) and the second peak incidence is seen after 70 years.<sup>18</sup>

The highest incidence of ocular trauma in our population occurred at home followed by the work place then road traffic accidents. The domestic setting produced all types of trauma, but blunt and penetrating injuries were the most frequent types of injuries. This correlation was also seen in study by Khatry et al<sup>21</sup>.

In the paediatric age group, our study reports and agrees with the literature that the majority of injuries occur at home and can be avoided with supervision<sup>13,14,19</sup>. This important trend highlights the need for prevention strategies to increase public awareness and re-emphasize the use of protective eyewear in the high-risk groups of population while

being engaged in common domestic activities which can likely cause eye injury. This trend also indicates that further efforts are still required in our population to regulate the availability and use of effective eye protection in the workplace setting. Strict penalties for non-compliance should be enforced to ensure good practices among workers. Estimations by Dannenberg et al suggest that less than 10% of injured workers used adequate protective eyewear at the time of injury<sup>22</sup>.

#### Conclusion:

Males are more prone to ocular trauma than females and majority of ocular trauma occurs at home. Very few people use protective devices at work place leading to such a magnitude of monocular impairment. So eye health awareness program and strict legislation to use protective devices should be emphasized so that it can help to reduce the occurrence of ocular trauma.

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