

Clearing the Path to Healthy Vision: Navigating Common Pediatric Ophthalmological Disorders

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Abstract:

Objectives: To study the frequency of common pediatric ophthalmological disorders among patients presenting in an outpatient department of a Trust Hospital in Lahore, Pakistan.

Methods: A retrospective descriptive cross-sectional study was carried out at the outpatient department of Akhtar Saeed Trust Hospital, Lahore, from 15th March 2023 to 15th November 2023. Non-probability conventional sampling technique was used. The data were analyzed using SPSS-25 and presented in the form of pie charts, bar graphs, and tables. A total of 1119 patients were included, aged between 0-14 years. A provisional diagnosis was made after a detailed history and ocular examination and were prescribed treatment in the form of topical, oral, or systemic drugs. Refractive errors were corrected if applicable, and surgical treatment was discussed with parents if required. The exclusion criteria were patient's age above 14 years of age.

Results: There were 577 (51.56%) females and 542 (48.44%) males. The most common diagnosis was a refractive error, seen in 321 (28.68%) patients followed by conjunctivitis, including bacterial 285 (25.47%), allergic 95 (8.49%), and viral conjunctivitis 49 (4.38%). This was followed by routine emmetropes with complaints of headaches. Nasolacrimal duct blockage was present in 67 (5.98%), and strabismus in 41 (3.66%) individuals. Furthermore, some benign disorders were also seen.

Conclusion: Pediatric ophthalmological disorders require our attention, and efforts should be made to ensure their early detection and appropriate intervention, especially considering that relatively common disorders represent the larger proportion of diseases in our sample. *Al-Shifa Journal of Ophthalmology 2023; 19(4): 139-144.* © Al-Shifa Trust Eye Hospital, Rawalpindi, Pakistan.

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Introduction:

Pediatric ophthalmology has become an emerging specialty and there are fellowships in this subject in Pakistan and worldwide, owing to its importance. Vision impairment poses an enormous global financial burden with an estimated annual global productivity loss of about US\$ 411 billion purchasing power parity¹. The early detection and treatment of visual disorders in children can be very rewarding not only for them but also for the whole family and society.

Visual impairments in early childhood can significantly affect the development of visual, motor, and cognitive function and potentially lead to long-term adverse psychosocial effects. Hence there is a need

for their timely detection, not only to treat the disease but to increase the quality of life. While some conditions are congenital, others may develop as a child grows. According to a WHO report 5% of the global blind population are young children²⁻⁴. Some estimations show that there are nearly 19 million children worldwide with visual impairment; 1.4 million are blind, 17.5 million have low vision, and most are residents of poor countries⁵⁻⁶.

Many of these disorders are observed in outpatient settings, emphasizing the importance of early detection, diagnosis, and appropriate management⁷⁻⁹. Some visual disorders, if not treated timely, can lead to permanent blindness. At present, visual morbidity is the leading cause of childhood disabilities¹⁰⁻¹¹. The goal of the study was to report patterns of pediatric visual disorders presenting at a hospital and their potential impact on children.

Materials and Methods:

Following the approval of the ethical review committee of the hospital, a total of 1119 patients, aged between 0-14 years, were included after reviewing prior records at the outpatient department of ophthalmology, Akhtar Saeed Trust Hospital, Lahore. These patients had presented in the eye OPD with some ocular or vision-related complaints. A detailed examination had been done, including auto-refractometry, and tonometry. Visual acuity was checked with the Snellen chart or Sheridan Gardiner chart, and cycloplegic refraction using 1% cyclopentolate or atropine was performed in selected cases. Where appropriate, slit lamp biomicroscopy was done for anterior and posterior segment examination, and a provisional diagnosis was made. B scan was done if the media were not clear. EUA was performed when required. These patients were prescribed treatment in the form of topical or systemic drugs, refractive errors were corrected if applicable, and surgical treatment was discussed with

parents if required. The data were collected in printed form, mentioning name, age, vision, and diagnosis. The statistical analysis was done with SPSS-25 and presented in the form of pie charts, bar graphs, and tables.

Results:

A total of 1119 patients were included in our study, of which 577 individuals were (51.56%) females and 542 (48.44%) were males (Figure 1). The age distribution of these patients is shown (Figure 2). The most common diagnosis was a refractive error, seen in 321 (28.68%) patients. Myopia was the most prevalent refractive error 128 (39.88%), followed by myopic astigmatism 106 (33.02%) and hypermetropic astigmatism 48 (14.95%). Hypermetropia was the least common (39: 12.15%) (Table 1). It was followed by conjunctivitis, being bacterial in 285 (25.47%), allergic in 95 (8.49%), and viral in 49 (4.38%). Next were emmetropic patients (141: 12.60%), either brought by parents or referred from other departments of the hospital. The majority (101: 71%) presented complaints of headache, and no visual cause of headache was found. It was followed by cases of nasolacrimal duct blockage seen in 67 (5.98%), strabismus in 41 (3.66%), blepharitis in 26 (2.32%), and blunt trauma seen in 11 (0.98%) patients. Among 41 squint patients, 23 (2.05%) had exophoria, 12 (1.07%) had exotropia, and esotropia was seen in 6 (0.53%) individuals. These along with other disorders found are presented in Figure 3.

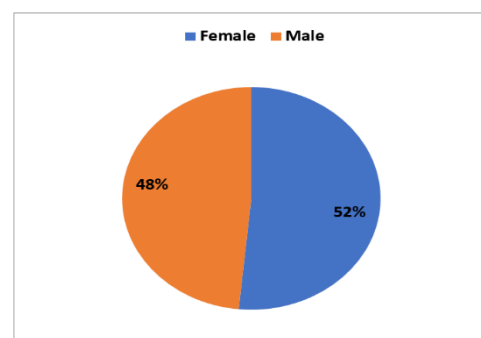


Figure 1 - Gender Distribution

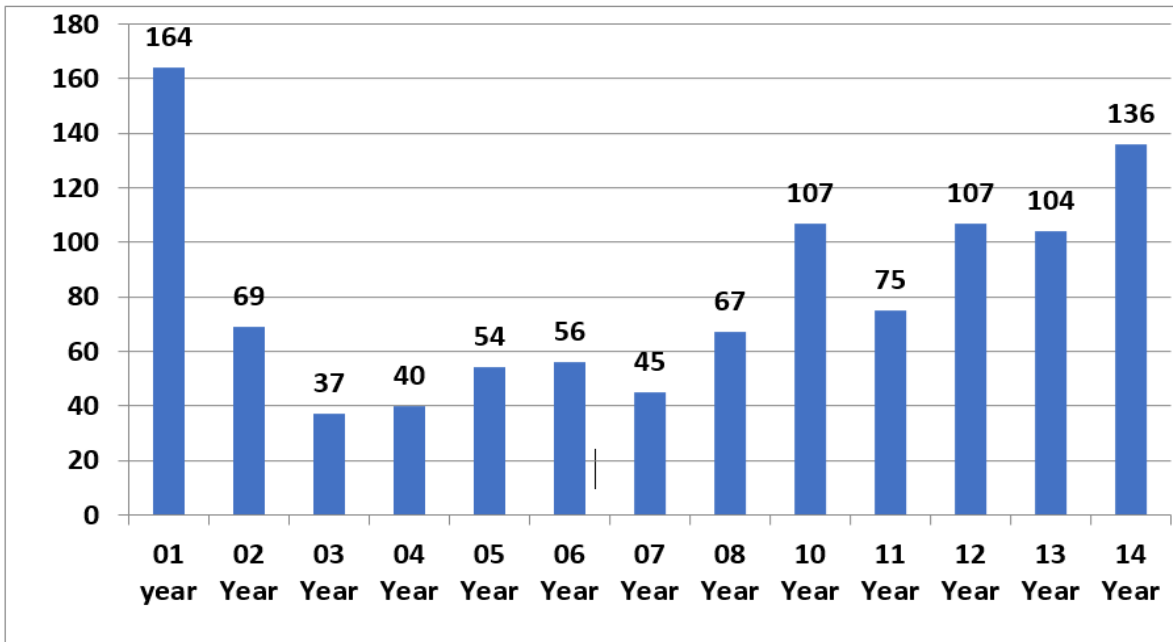


Figure 2: Age distribution

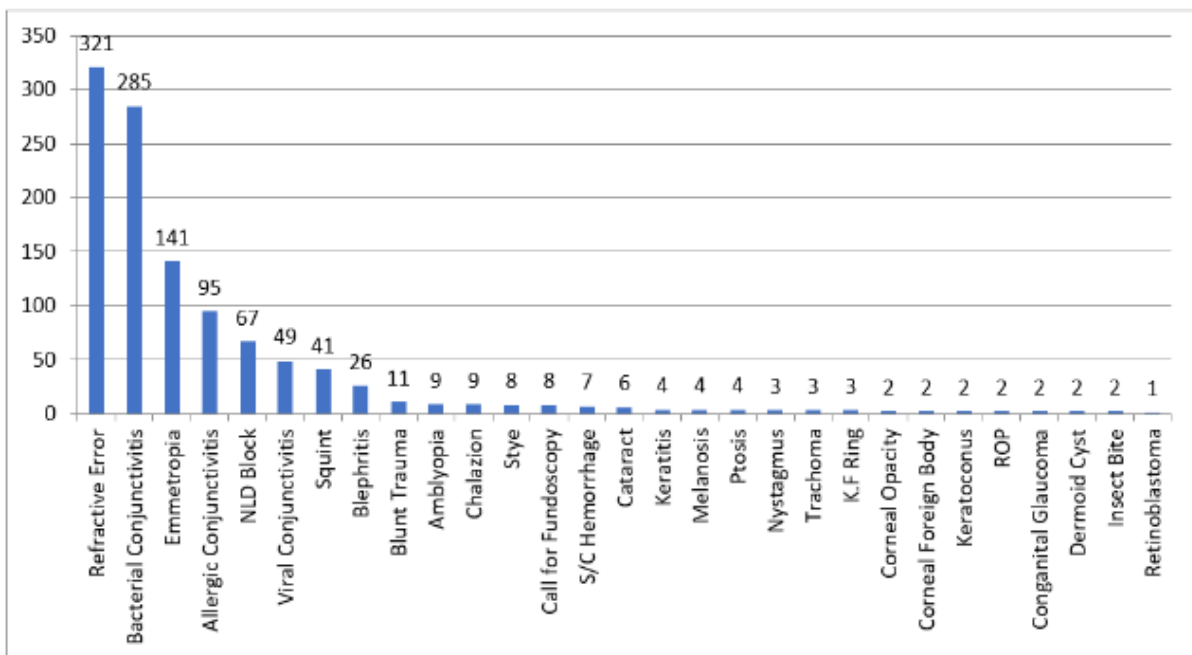


Figure 3 - Diagnosis (Pediatric Ocular Diseases)

Table 1: Type of Refractive Errors in Children

| Refractive Error | No. of patients | Percentage |
|---------------------------|-----------------|------------|
| Hypermetropia | 39 | 12.15 % |
| Hypermetropic astigmatism | 48 | 14.95 % |
| Myopia | 128 | 39.88 % |
| Myopic astigmatism | 106 | 33.02 % |
| Total | 321 | 100 % |

Discussion:

In a trust hospital, most of the patients who attend outpatient departments belong to the low-income class. The prevalence and causes of blindness in children vary from region to region and in relation to socio-economic development. Recent estimates show that 19 million children suffer from vision impairment and of these 1.26 million are blind and two-thirds of these children live in developing countries adding to the socioeconomic burden of an already impoverished society¹². A literature review has revealed that in Pakistan around 1 in 10,000 children are blind¹³.

In our study, there is no specific gender predilection among children presenting to the eye OPD. The female patients (51.56%) were slightly more than males (48.44%). In another study in Pakistan similar gender distribution was observed². In contrast, a study from the southern hilly areas shows male preponderance [14], which may be associated with local norms (strict veil observation). No significant differences were found for male and female children, for vision-related complaints, in other similar studies from other parts of the world^{7,15}.

The age distribution graph shows two prong patterns. Among pediatric patients ranging from birth to 14 years of age, most were either infants (below one year of age) or above 10 years of age. A study from Africa, on children from ophthalmology clinics showed higher incidence in the age range of one to six years¹⁶. The incidence of NLD block (nasolacrimal duct blockage) ranges from 5 to 20% of all newborns¹⁷. In our study it was seen in 6% of infants, observed as the most common ocular morbidity seen in infants.

The commonest cause of decreased vision in children below 14 years of age presenting to our OPD were refractive errors. Myopia and myopic astigmatism contributed to 73% of ametropic patients whereas 27% had hypermetropia or hypermetropic astigmatism. The leading causes of vision impairment and blindness

at a global level are refractive errors and cataracts^{12,18}. A similar pattern of distribution was seen in another study from Karachi, Pakistan², India⁷, and Ethiopia¹⁶ where refractive error was found to be the commonest cause of visual morbidity. A meta-analysis from the Middle East has shown that rates of myopia rose significantly with age; 3.5% for children under 5 years of age and 47% for those over 18 years¹⁵. Recent studies from Africa also found refractive errors as one of main causes of vision impairment, commonly seen in primary school children²⁰⁻²³.

There is no specific reason associated with the increased prevalence of myopia but studies have found certain risk factors for developing myopia in children. These include the history of diabetes in mothers, excessive television watching, and increased use of smart screens by children as significant risk factors for ocular morbidity among children under the age of 5 years¹⁹.

Although cataract is thought to be a major cause of visual impairment among preschool children, in our study however, it was a minor cause, seen only in 6 (0.53%) patients. A survey conducted in Muzaffarabad showed cataracts as the 3rd most common cause of visual impairment. Still, refractive error was the most common cause of decreased vision¹⁴. It may be that most patients with cataracts were referred to some other, major pediatric centers.

The limitations of the study are a small sample including data from one hospital and a retrospective study design. Furthermore, hospital presentations represent an inherent bias in the disease distribution of the population at large. Larger studies should be carried out to get comprehensive results which can help in general policy making. There is no financial disclosure.

Conclusion:

Pediatric ophthalmological disorders require our attention, understanding, and action. The well-being of our children's

vision should be a priority, and efforts should be made to ensure that every child receives regular eye examinations and timely treatment. With early detection, appropriate intervention, and a collective commitment to promote pediatric eye health, we can help children achieve their full visual potential and enhance their overall quality of life.

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