

## Prevalence and pattern of ophthalmic morbidity in pediatric patients at a district early intervention centre of North India

Naheed Akhtar<sup>1\*</sup>, Anam Khalid<sup>2</sup>, Uzma Firdaus<sup>3</sup>

<sup>1,3</sup>Assistant Professor, <sup>2</sup>Pediatric Optometrist, <sup>1</sup>Institute of Ophthalmology, Pediatric Ophthalmologist JNMCH, AMU, Uttar Pradesh, <sup>2,3</sup>DEIC JNMCH, AMU, Uttar Pradesh, India

### Article Info

**Received:** 9<sup>th</sup> June, 2019

**Accepted:** 22<sup>nd</sup> July, 2019

**Published Online:** 9<sup>th</sup> September, 2019

**Keywords:** Ophthalmic morbidity, Pediatric patients, Refractive error.

### Abstract

**Objective:** To find out prevalence and pattern of Ophthalmic morbidity in pediatric population in a district early intervention centre (DEIC) of North India.

**Study Design:** A retrospective cross sectional study conducted in DEIC of JNMCH, AMU for a period of one year.

**Materials and Methods:** Complete ophthalmological workup was done for 495 pediatric patients.

**Result:** Prevalence of Ophthalmic morbidity was 49.09%. Peak prevalence (72.41%) was found in age gp. (9-12 Yrs). Refractive errors was the commonest morbidity (33.74%). Females had higher prevalence of morbidity than males.

**Conclusion:** Refractive error was the commonest Ophthalmic morbidity. Early intervention in Pediatric population is utmost essential to prevent irreversible visual loss and amblyopia.

### Introduction

A study of prevalence and profile of ophthalmic disorders in pediatric age-group is of utmost importance as early detection, and its management is the key to final visual acuity.

Childhood blindness is the second largest cause of blind person-years following cataract. Globally approximately 70 million blind person-years are caused by childhood blindness. About 1.4 million blind children are there worldwide. 73% of whom live in developing countries. WHO's vision 2020 – "The right to sight program" emphasizes on various measures to control childhood blindness as it adds to socio-economic burden to a nation. Many of ophthalmic morbidities if not detected and managed early lead to irreversible visual morbidity because of risk of amblyopia in childhood.

This study conducted in a District Early Intervention Center aims at early detection of ocular problems in children as many of them are preventable like Vitamin A deficiency, treatable like congenital cataract and strabismus and even potentially irreversible like cortical blindness can have a reasonably good vision if intervened at an early stage.

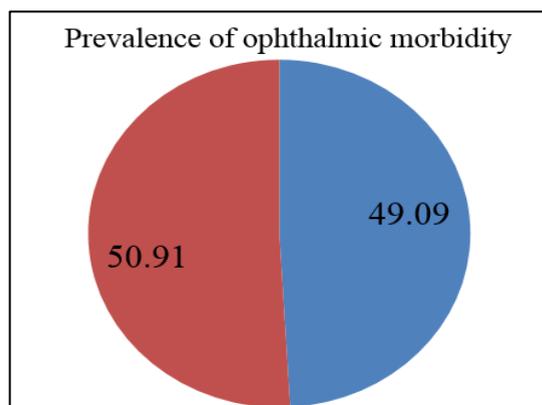
### Materials and Methods

A retrospective cross-sectional study was conducted in pediatric patients attending a District Early Intervention Centre (DEIC) of North India. A total of 495 patients, between 0 to 16 years, were included in the study. Data was collected between October 2017 to October 2018. Each

patient had undergone complete ophthalmic workup, including visual acuity test by Lea paddles, Lea symbols, Cardiff acuity cards, E- charts, Snellen's chart or logMAR visual acuity chart along with cycloplegic refraction. Hirschberg's test, cover-uncover test, and prism bar cover test were done for strabismus evaluation.

Each patient underwent torchlight and slit-lamp examination for the anterior segment and dilated posterior segment examination. All ophthalmic disorders were documented on standard proforma for management. We used Fischer's exact test for the calculation of prevalence.

### Observations



**Fig. 1:** Prevalence of ophthalmic morbidity in total patients

\*Corresponding Author: Naheed Akhtar, Assistant Professor, Institute of Ophthalmology, Pediatric Ophthalmologist JNMCH, AMU, Uttar Pradesh, India

Email: [nakhtar.io@amu.ac.in](mailto:nakhtar.io@amu.ac.in)

<http://doi.org/10.18231/ijceo.2019.088>

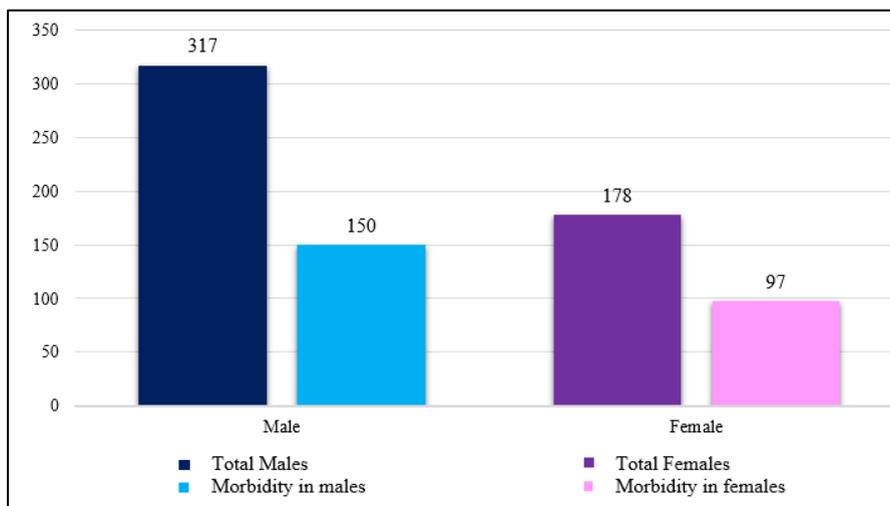


Fig. 2: Prevalence of ophthalmic morbidity on gender basis

Table 1: Prevalence of ophthalmic morbidity with age distribution

Age	Ophthalmic disorders	No. ophthalmic disorders	Prevalence	95% CI
0-4	127	190	40.06%	34.28 – 45.55
5-8	57	36	61.29%	51.12 – 70.56
9-12	42	16	72.41%	59.71 – 82.33
13-16	17	10	62.96%	44.16 – 78.53

P value <0.001, Chi square = 30.06, df = 3

Table 2: Prevalence of ophthalmic morbidity: curable versus non-curable

Curable		Non-curable	
Lid	01	Vitreous and Retina	09
Cornea & Sclera	18	Optic nerve pathology	14
Lens	17	Cortical visual impairment	16
Uvea	09	Cortical blindness	10
Squint	67		
Refractive error	82		
Total	194 (79.85%)		49 (20.16%)

Table 3: Prevalence of non-curable ophthalmic disorders which showed improvement

Diseases (Non-curable)	Improved	Not improved	Proportion improved	95% CI
Vitreous and Retina	3	6	50%	18.76 – 81.24
Optic Nerve Disorders	0	14	0	0
Cortical visual impairment	7	16	43.75%	23.07%-66.84%
Cortical blindness	0	10	0	

**Discussion**

In the present study, a total of 495 patients, between 0-16 years were studied. There were 317 males and 178 females. The prevalence of ophthalmic morbidity was 49.09%.

A study by Chaturvedi and Agarwal reported a prevalence of 40% which is comparable with our study.<sup>14</sup> Gupta et al reported a prevalence of 31.6% in Shimla.<sup>6</sup> Nepal et al found a prevalence of 11%<sup>9</sup> International studies by Lu et al in Tibet and Shrestha et al in Kathmandu reported an overall prevalence of ophthalmic morbidity as 18.36%<sup>15</sup> and 34.2% respectively.<sup>13</sup>

These results were not comparable with our study due to differences in sample size, sample selection and prevalence of ophthalmic morbidity in different regions in the country and abroad.

Our study had 47.31% prevalence of morbidity in males while 54.49% in females. These results are comparable with the study by Qamruddin, with a prevalence of 53.3% in males and 46.6% in females.<sup>5</sup> Also P. Gupta reported a prevalence of 57% in males and 43% in females.<sup>12-16</sup>

In our study maximum prevalence of ophthalmic morbidity was found in (9-12 years) group (P-Value < 0.001). Also highest prevalence in this group was reported by H. Singh in his study in school children.<sup>4</sup>

In our study refractive error was most common cause of ophthalmic morbidity with a prevalence of 33.74%. Studies by H. Singh with 47.9% prevalence<sup>4</sup> and by Qamruddin with 31.79% prevalence<sup>5</sup> are comparable with our study. Among all morbidities highest prevalence of refractive error was also reported by Bedi et al,<sup>7</sup> V Singh,<sup>8</sup> V.B. Pratap<sup>11</sup> and Gupta et al.<sup>12</sup> In another study by Nepal et al refractive error was the commonest cause followed by strabismus.<sup>9</sup> Also in a study conducted by Biswas et al in kolkata, refractive error was found to be the commonest cause.<sup>10</sup>

In our study prevalence of curable causes of ophthalmic morbidity was 79.85% while that of non-curable causes was 20.16%. However we found that even some of non-curable causes if intervened early showed improvement. In our study, 50% cases with vitreous and retinal pathology and 43.75% cases with cortical visual impairment showed improvement.

Our study is first of its kind as it has addressed non-curable causes of ophthalmic morbidity like optic nerve disorder and cortical visual impairment.

Our study is based on a concentrated pediatric population attending a tertiary disability centre. Many from remote areas may not have access or knowledge of these centres. It can be one bias in our study. Suggestion is to integrate these centre with rural health centres and to involve paramedicals and telemedicine to catch the visual ailments at an early stage for early intervention. Social workers and councillors can bring hope among patients and parents that even so called untreatable cases can have useful vision with prompt management. Also vocational rehabilitation with financial aids, government schemes for jobs and upcoming gadgets like advanced low vision aid, bionic eyes and future research are our recommendations for brighter futures of these children.

## Conclusion

This study conducted in DEIC emphasizes on the fact that early diagnosis and management of ophthalmic morbidities in children prevents irreversible visual loss and amblyopia and patients with many of non-curable morbidities can have some useful vision. Childhood blindness is a mammoth economic and social burden for the country as today's child carries future of the nation on his shoulders. These centers and our study may serve as a ray of hope in the dark tunnel of blindness.

**Source of Finding:** None.

**Conflict of Interest:** None.

## References

1. Ocular morbidity prevalence among school children in Shimla, Himachal, North India. – PubMed – NCBI [Internet]. [cited

- 2019 Jul 19]; Available from: <https://www.ncbi.nlm.gov/pubmed/19237787?dopt=Abstract>
2. Pattern and distribution of ocular morbidity in primary school children of rural Delhi. – PubMed – NCBI [Internet]. [cited 2019 July 19]; Available from: <https://www.ncbi.nlm.nih.gov/pubmed/10829825>
3. (PDF) Prevalence of ocular morbidity among school going children (6-15 years) in rural area of Karnataka, South India [Internet]. [cited 2019 Jul 19]; Available from: [https://www.researchgate.net/publication/311669650\\_Prevalence\\_of\\_ocular\\_morbidity\\_among\\_schoolgoing\\_children\\_6-15\\_years\\_in\\_rural\\_area\\_of\\_Karnataka\\_South\\_India](https://www.researchgate.net/publication/311669650_Prevalence_of_ocular_morbidity_among_schoolgoing_children_6-15_years_in_rural_area_of_Karnataka_South_India)
4. Singh H. Pattern of Ocular Morbidity in School Children in Central India. *Natl J Community Med.* 2011;2.
5. Khan IA, Qamruddin M. Assessment of Ocular Conditions among Pediatric Patients. 2015;4(1):4.
6. Gupta PN, Gupta V Kumar. Ocular morbidities in pediatric outpatient population at a tertiary care ophthalmic centre: a descriptive study. 2018.
7. Bedi R, Bedi DDK, Nizamuddin D, Dudule CN, Gupta R, Sharma S. Prevalence of ocular morbidity among school children in Ajmer city. A comparative study across social categories in Ajmer city. *Natl J community Med.* 2016;7(3):184-8.
8. Singh V, Malik KPS, Malik VK, Jain K. Prevalence of ocular morbidity in school-going children in West Uttar Pradesh. *Indian J Ophthalmol.* 2017;65(6):500.
9. Nepal BP, Koirala S, Adhikary S, Sharma AK. Ocular morbidity in school children in Kathmandu. *Br J Ophthalmol.* 2003;87(5):531-4.
10. Biswas J, Saha I, Das D, Bandyopadhyay S, Ray, Biswas G. Ocular morbidity among children at a tertiary eye care hospital in Kolkata, West Bengal. *Indian J Public Health.* 2012;56:293-6.
11. Pratap V B, Lal HB. Pattern of pediatric ocular problems in North India. *Indian J Ophthalmol.* 1989;37:171-2.
12. Gupta P, Gupta V. Ocular morbidities in pediatric outpatients population at a tertiary care ophthalmic centre: A descriptive study. *Int. jour. of contemp. Paediatr* 2018;5(4):1195-8.
13. Shrestha RK, Joshi MR Ghising R Pradhan P, Shakya S, Rizyal A: Ocular morbidity among children studying in private schools of Kathmandu valley: A prospective cross sectional study. *Nepal Med Coll J.* 2006;8(1):43-6.
14. Chaturvedi S, Aggarwal OP. Pattern and distribution of ocular morbidity in primary school children of rural Delhi. *Asia pac. J Public Health.* 1999;11:30-3.
15. Lu P. Chen X, Zhang W. Chen S, Shu L. Prevalence of ocular discase in Tibetan primary school children. *Can J Ophthalmol.* 2008;43:95-9.
16. Maurya RP, Bhushan P, Singh VP, Singh MK, Upadhyay OP, Sen PR. Prevalence of oculo-visual disorders amongst university students in Varanasi district, North India. *Pak J Oph.* 2012;28(2):86-90.

**How to cite this article:** Akhtar N, Khalid A, Firdaus U. Prevalence and pattern of ophthalmic morbidity in pediatric patients at a district early intervention centre of North India. *Indian J Clin Exp Ophthalmol* 2019;5(3):370-2.