

## Original Research Article

# A clinical study of patients attending disability clinic in a tertiary care hospital of Assam, India

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## ABSTRACT

**Background:** The aim of the study was to determine the various types of congenital or acquired disorders causing permanent disability and their association with age, sex and visual acuity in patients attending disability clinic of department of ophthalmology, Jorhat medical college and hospital, Assam, from January 2018 to December 2018.

**Methods:** A hospital-based cross-sectional study. 200 patients were enrolled in the duration of January 2018 to December 2018 and were analyzed for anomalies, etiology, sex and age at presentation.

**Results:** Out of 200 cases analysed, 116 males and 84 females (Male: Female = 1.38:1) observed. The most common age group at presentation was 11-20 years (28.5%). 23% of cases were congenital. The most frequent ocular anomaly noted was microphthalmos (19%) followed by uveal coloboma (15%) and phthisis bulbi (14%).

**Conclusions:** In a developing country like India, a large proportion of the childhood and adult blindness is avoidable. Action is needed to prevent blindness from vitamin A deficiency, measles, external ocular infections and chemical injuries. Specialist paediatric and optical services are required to manage cataract and glaucoma. Further work is indicated to elucidate the causes of anophthalmos, microphthalmos and coloboma. It would be useful to document the changing patterns in the causes of ocular disability to allow early action against emerging avoidable causes.

**Keywords:** Acquired, Certification, Congenital, Disability clinic, Ocular

## INTRODUCTION

In India, over 2.68 Cr persons are disabled, which is 2.21% of total population. Among the total disabled, 1.5 Cr (56%) are males and 1.18 Cr (44%) are females.

The percentage of disabled to the total population increased from 2.13% in 2001 to 2.21% in 2011. In rural areas, the increase was from 2.21% in 2001 to 2.24% in 2011 whereas, in urban areas, it increased from 1.93% to 2.17% during this period. The same trend was observed among males and females during this period.

20% of the disabled persons are having disability in movement, 19% are with disability in seeing, and another 19% are with disability in hearing, 8% has multiple disabilities.

Across the country, the highest number of disabled persons is from the State of Uttar Pradesh. Nearly 50% of the disabled persons belonged to one of the five States namely Uttar Pradesh (15.5%), Maharashtra (11.05%), Bihar (8.69%), Andhra Pradesh (8.45%), and West Bengal (7.52%). Assam has a share of 1.79% of disabled persons.<sup>1</sup>

In the 10th revision of the WHO international statistical classification of diseases, injuries and causes of death, 'low vision' is defined as visual acuity of less than 6/18 but equal to or better than 3/60, or a corresponding visual field loss to less than 20°, in the better eye with the best possible correction. 'Blindness' is defined as visual

acuity of less than 3/60, or a corresponding visual field loss to less than 10°, in the better eye with the best possible correction. 'Visual impairment' includes both low vision and blindness.<sup>2</sup>

**Categories of Visual Disability<sup>3</sup>**

**Table 1: Categories with visual correction.**

Category	Better eye	Worse eye	%age impairment
Category 0	6/9-6/18	6/24 to 6/36	20%
Category I	6/18-6/36	6/20 to Nil	40%
Category II	6/40-4/60 or field of vision 10°-20°	3/60 to Nil	75%
Category III	3/60 to 1/60 or field of vision 10°	F.C. at 1 ft. to Nil	100%
Category IV	F.C. at 1 ft. to Nil or field of vision 10°	F.C. at ft. to Nil	100%
One eyed person	F.C. at 1 ft. to Nil or field of vision 10°	6/6	30%

F.C. means finger count.

**Problem definition**

To determine the causes of visual impairment and blindness amongst children and adults attending the disability clinic of department of ophthalmology, Jorhat medical college and hospital; to identify the avoidable causes of visual impairment and blindness; and to provide spectacles, low vision aids, orientation and ophthalmic treatment where indicated.

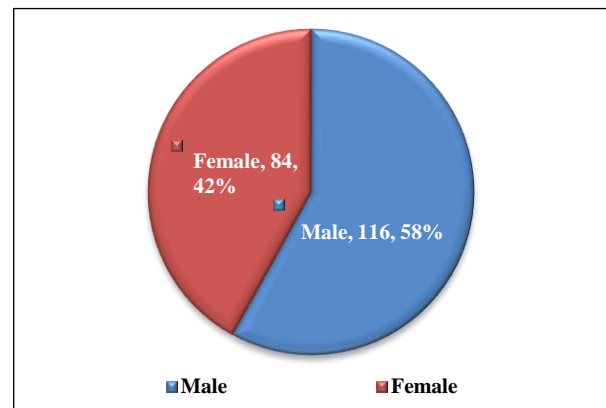
**METHODS**

A proforma was drawn up and ethical clearance was obtained from the Institution's ethical and research committee.

The study design was a hospital-based cross-sectional study of all the subjects who presented to the Disability Clinic of Department of Ophthalmology, Jorhat Medical College and Hospital, Assam between January 2018 and December 2018. Demographic data such as age and sex were noted. Recording of VA for distance, unaided and aided with pinhole or correction was done. Blindness and visual impairment (VI) according to WHO classification was used. Findings of anterior and posterior segment examination of the eyes using slit lamp biomicroscope with ±90 D lens and/or binocular indirect ophthalmoscope were recorded. Gonioscopy examination of glaucoma cases was done. Refraction results were recorded. Other causes of VI and blindness were also noted.

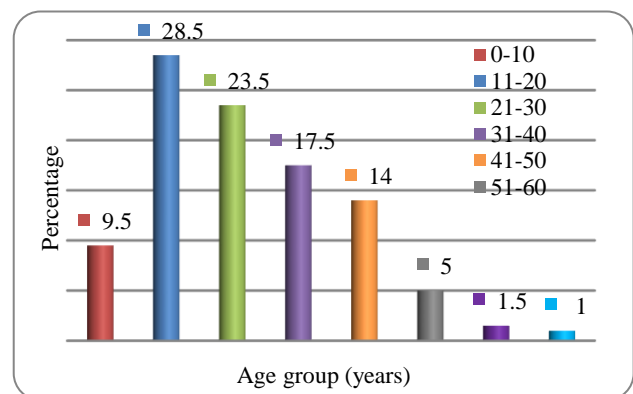
**RESULTS**

In the present study, the male (58%) to female (42%) ratio is male:female = 1.38:1 (Figure 1).



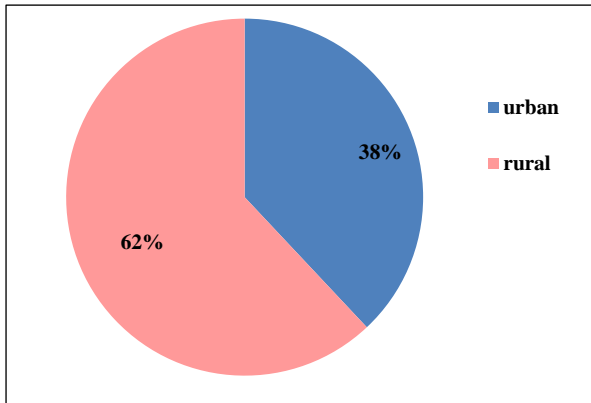
**Figure 1: Sex distribution of patients.**

The most common age group at presentation was between 11-20 years (28.5%) followed by the age group of 21- 30 years (23.5%). Other between 0-10 years (9.5%), between 31-40 years (17.5%), between 41-50 years (14%), between 61-70 years (1.5%), between 71-80 years (1%) (Figure 2).



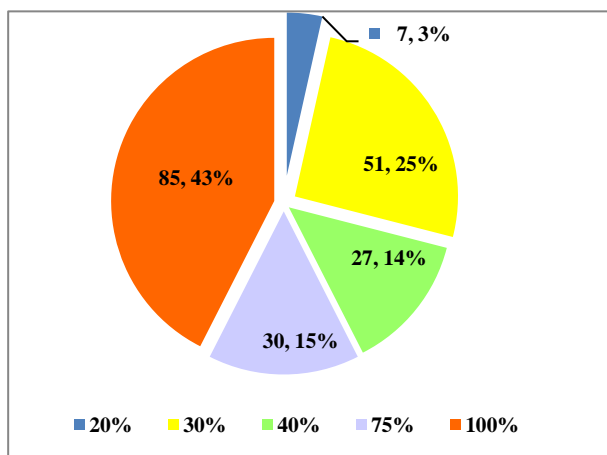
**Figure 2: Age distribution of patients.**

The majority of patients under the present study resided in rural areas. 62% patients hailed from rural areas and 38% patients were from urban regions (Figure 3).

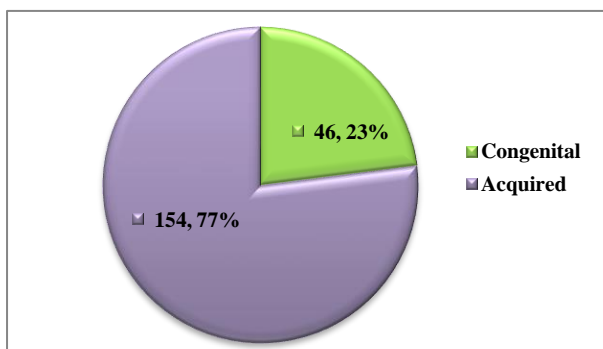


**Figure 3: Socioeconomic background of patients.**

In the study, 43% patients had 100% visual impairment followed by 25% patients of 30% visual impairment (one-eyed). 15% patients had 75% visual impairment, 14% patients had 40% visual impairment, 3% patients had 20% visual impairment (Figure 4).



**Figure 4: Distribution of patients according to percentage visual impairment.**



**Figure 5: Type of ocular anomaly of the patients.**

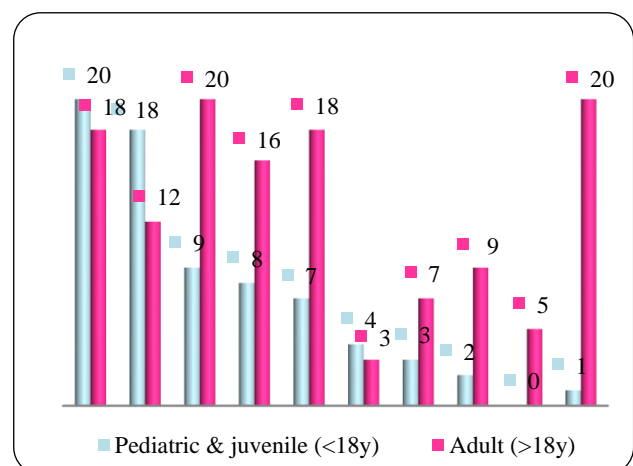
On examination of patients, 23% had some congenital anomaly and the rest 77% had acquired disorders. Most common congenital anomalies observed microphthalmos, followed by iris and choroidal coloboma. Most common acquired observed corneal opacity (Figure 5).

**Table 2: The most frequent anomaly found in each age group.**

Age group (year)	No. of eyes	Most frequent anomaly
0-10	35	Microphthalmos
11-20	51	Iris and choroidal coloboma
21-30	38	Phthisis bulbi
31-40	34	Corneal opacity
41-50	28	Optic atrophy
51-60	13	PDR
61-70	5	Surgical anophthalmos
71-80	2	ARMD

The most frequent anomaly observed in the age group of 0-10 years is microphthalmos. Uveal coloboma is most commonly seen in 11-20 years, phthisis bulbi in 21-30 years, corneal opacity in 31-40 years, optic atrophy in 41-50 years, proliferative diabetic retinopathy (PDR) in 51-60 years, surgical anophthalmos in 61-70 years and age-related macular degeneration (ARMD) in the age group of 71-80 years (Table 2).

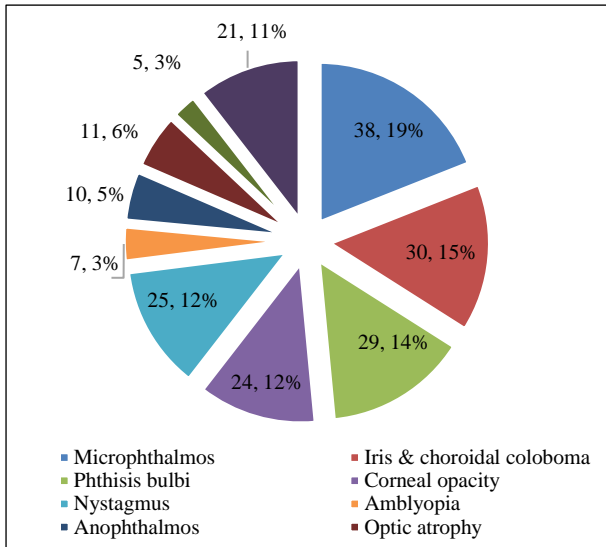
The conditions of microphthalmos (20 cases) and uveal coloboma (18 cases) are more frequent in pediatric and juvenile age group. Whereas, phthisis bulbi, nystagmus, corneal opacity, etc. are more common in the adult age group. The conditions grouped under Others category are chemical injuries, retinitis pigmentosa, aphakia with vitreous degeneration, anterior staphyloma and congenital glaucoma (Figure 6).



**Figure 6: Age distribution of patients according to their ocular anomalies.**

The most frequent anomaly observed is microphthalmos (19%) followed by uveal coloboma (15%) and phthisis

bulbi (14%). Others, nystagmus and corneal opacity (12%), anophthalmos (5%), amblyopia (3%), optic atrophy (6%), severe PDR 3% (Figure 7).



**Figure 7: Frequency of ocular anomalies.**

**DISCUSSION**

In the present study conducted on 200 patients attending the disability clinic of Jorhat medical college and hospital, Assam in the time period of 1 year from January 2018 to December 2018, male (58%) to female (42%) ratio is male: female=1.38:1. In a similar study conducted by Patil B et al, Pujar C et al, Manasa CN et al, and Mallikarjun CS et al, the number of males were found to be more than females (Male: Female ratio was 1.5:1).<sup>4</sup> This could be attributed to the increased outdoor activities of males in this region, or males may have more need of certification of disability.

The most common age group at presentation is between 11-20 years (28.5%). In the study conducted by Ghosh S et al, Mukhopadhyay S et al, Sarkar K et al, Bandyopadhyay M et al, Maji D et al, and Bhaduri G et al, in 2008, the most common age group was also between 11- 20 years (27.74%).<sup>5</sup> This could be due to the increased awareness of the usefulness of a disability certificate early on in life.

The majority of patients under the present study resided in rural areas. 62% patients hailed from rural areas and 38% patients were from urban regions. This was similar to the Figures obtained by the disabled persons in India Statistics 2016 where 69% of the disabled population resided in rural areas while the remaining 31% resided in urban areas.<sup>1</sup> This may be due to the lack of awareness among the rural population for the need of early diagnosis and treatment of curable diseases. They consult the medical professionals at such late stages of the disease when it is no longer reversible. The only option for them remains to avail a disability certificate.

In the present study, 43% patients had 100% visual impairment followed by 25% patients of 30% (one-eyed) visual impairment. In a similar study conducted by S Bandyopadhyay S et al, Bandyopadhyay M et al, Biswas J et al, Saha M et al, Dey AK et al, Chakrabarti A et al, 72.98% patients had 100% visual impairment.<sup>6</sup> This could again be attributed to the delayed consultation with ophthalmologists until the visual acuity deteriorates to category III- 3/60 to 1/60 or field of vision 10o (better eye) and F.C. at 1 ft. to Nil (worse eye) or category IV- F.C. at 1 ft. to Nil or field of vision 10o (better eye) and F.C. at ft. to Nil (worse eye).

In this study, 23% had some congenital anomaly and the rest 77% had acquired disorders. In a similar study conducted by Siddegowda S et al, Venkataramana PA et al, Ramamurthy MT et al, and Shiveshi P et al, 21.05% patients had a congenital ocular condition.<sup>7</sup> In another study conducted by Hegde SS et al, it was found that 29.21% patients had some congenital anomaly out of the total number of patients in the study.<sup>8</sup> The large percentage of acquired disorders is seen due to the fact that these conditions, most of which preventable, did not receive adequate management at an early stage.

The most frequent anomaly observed in the age group of 0-10 years is microphthalmos, uveal coloboma in 11-20 years, phthisis bulbi in 21-30 years, corneal opacity in 31-40 years, optic atrophy in 41-50 years, proliferative diabetic retinopathy (PDR) in 51-60 years, surgical anophthalmos in 61-70 years and age related macular degeneration (ARMD) in the age group of 71-80 years.

The conditions of microphthalmos (20 cases) and uveal coloboma (18 cases) are more frequent in pediatric and juvenile age group. Whereas, the diseases such as phthisis bulbi, nystagmus, corneal opacity, etc. are more common in the adult age group. The conditions grouped under others category are chemical injuries, retinitis pigmentosa, aphakia with vitreous degeneration, anterior staphyloma and congenital glaucoma. In a study conducted by Joshi RS et al, the most common disorder seen in the age group of 5-19 years was congenital disorders (10.75%).<sup>9</sup> In the age group of 20-44 years, retinitis pigmentosa (8.96%) was most frequently seen. In the age group of 45-64 years, diabetic retinopathy (8.96%) was most common. In the patients above 65 years, glaucoma (5.02%) was most frequently noted in their study.

The most frequent anomaly observed is microphthalmos (19%) followed by uveal coloboma (15%) and phthisis bulbi (14%). In the study conducted by Ghosh S et al, Mukhopadhyay S et al, Sarkar K et al, Bandyopadhyay M et al, Maji D et al, and Bhaduri G et al, the most frequent condition observed was phthisis bulbi (17.74%) followed by microphthalmos (13.23%).<sup>5</sup> In the study conducted by Bandyopadhyay S et al, Bandyopadhyay SK et al, Biswas J et al, Saha M et al, Dey AK et al, and Chakrabarti A et

al, the most frequent anomaly noted was optic atrophy (15.53%) followed by microphthalmos (12.25%).<sup>6</sup>

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