

Original Research Article

Analysis of visually handicapped patients attending outpatient department of a tertiary eye care hospital for visual disability certification in North Bihar

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ABSTRACT

Background: This study aimed to analyse the demographic details, causes and severity of visual disability of the patients coming for Visual Disability Certificate in North Bihar.

Methods: A retrospective study including patients applied for visual disability certificates between January 2023 and August 2024 (20 months) was performed from medical record of tertiary centre in North Bihar. The demographics, aetiologies, grades and classification of visual impairment according to the new guidelines provided in the Gazette of India published in 2018 of the study subjects were analyzed. Results were compared with data from studies on blindness certificates and population-based studies.

Results: Out of total, 104 patients eligible for 40% or above visual disability certification of which 66 patients were males. The age range was 1-90 years with the maximum number of patients in 11-20 years range. According to the grade and percentage of disability, low vision grade 3c (60%) was most commonly seen in 28.92% of individuals followed by 3a (40%). Blindness 4a and 4b (90-100%) was seen in 40 patients (38.46%). Most common cause for visual disability found was glaucomatous optic atrophy followed by retinitis pigmentosa and fundal coloboma.

Conclusions: Analysis of blindness certificates provides valuable information regarding different causes of visual disability and provides an insight into the overall trends in visual disability profile and help in rehabilitation.

Keywords: Visual disability, Blindness, Certificates, Visual impairment

INTRODUCTION

Blindness is a complex and multifaceted issue that affects not only individuals but also families, communities, and societies as a whole. Despite advances in medical technology and rehabilitation services, visual impairment and blindness remain significant public health concerns. In India, the Ministry of Social Justice and Empowerment (MoSJE) is responsible for developing programs to support persons with disabilities including visual impairment. Globally, at least 2.2 billion people have near or distant vision impairment.¹ In India, currently, there are an estimated 4.95 million blind persons and 70 million

visually impaired individuals, out of which 0.24 million are blind children.² Registration as blind or visually handicapped in India is purely voluntary and is performed by certification issued by a duly constituted board that includes a district ophthalmic surgeon after verification of the domicile of the person. The Unique Disability Identification (UDID) project serves as a tool to enhance and enrich the lives of the visually disabled by not only providing them a certification of their blindness but also playing a pivotal role in their rehabilitation.

The UDID project was instituted and organized by MoSJE in India in 2016.

According to a guideline by the ministry of social justice and empowerment of government of India, the minimum degree of disability should be 40% for an individual to be eligible for any concessions or benefit.³

The aim of the study was to analyse the demographic details, causes, and severity of visual disability of the patients coming for a Visual Disability Certificate in Bihar.

METHODS

Patients applied for visual disability certificates during January 2023 to August 2024 were retrospectively analyzed.

This was a retrospective cross sectional study, conducted in Eye Department of Darbhanga Medical College and Hospital, Darbhanga.

Inclusion criteria

All patients with visual disability of more than 30%, irrespective of age/sex were included in the study.

Exclusion criteria

Patients with visual disabilities of 30% or less were excluded from the study.

The percentage of disability was calculated based on the guidelines for the evaluation of various disabilities and procedure for certification. For the purpose of certification, Government of India guidelines were followed, which says that disability should be assessed when the specialist is satisfied that further medical treatment/intervention is not likely to reduce the extent of impairment.⁴ In case the patient had multiple ocular conditions, the one that was most likely responsible for visual disability was taken into account.

Patient data were collected from records in the disability register of our tertiary eye care hospital, Darbhanga Medical College and Hospital (Darbhanga) in North Bihar in India. The team of three ophthalmologists from the hospital examined every case. We analyzed all 104 cases, eligible for the visual disability certificate at the center over a 1-and-a-half-year period. Informed consent was obtained from all the patients. In all the subjects, a detailed ophthalmic examination was done in the outpatient department, which included a recording of uncorrected and best-corrected visual acuity (BCVA) using the Snellen chart, anterior segment examination with slit-lamp bio microscope, posterior segment evaluation with direct and indirect ophthalmoscope and 90 D lens, retinoscopy, automated refractometry (AR), tonometry, gonioscopy, optical coherence tomography (OCT), visual field charting

using an Octopus Automated Perimeter, and ultrasonography (B-SCAN) of the eye as needed.

The percentage and category of visual disability were assessed according to the guidelines provided in the Gazette of India published on January 5, 2018, by the Ministry of Social Justice and Empowerment, India, based on best-corrected visual acuity and visual fields (Table 1).⁵

Table 1: Categories of visual impairment.

Better eye BCVA	Worse Eye BCVA	% of Impairment	Disability category
6/6 to 6/18	6/6 to 6/18	0	0
	6/24 to 6/60	10	0
	Less than 6/60 to 3/60	20	1
	Less than 3/60 to no light perception	30	2 (one-eyed persons)
6/24 to 6/60 or visual fields less than 40 to 20 degrees around the center of fixation or hemianopia involving the macula	6/24 to 6/60		
	Less than 6/60 to 3/60	40	3a (Low vision)
	Less than 3/60 to no light perception	50	3b (Low vision)
	Less than 3/60 to no light perception	60	3c (Low vision)
Less than 6/60 to 3/60 or visual field less than 20 to 10 degrees around the center of fixation	Less than 6/60 to 3/60	70	3d (Low vision)
	Less than 3/60 to no light perception	80	3e (Low vision)
Less than 3/60 to 1/60 or visual field less than 10 degrees around the center of fixation	Less than 3/60 to "no light perception"	90	4a (blindness)
Only HMCF or only light perception or no light perception	Only HMCF or only light perception or no light perception	100	4b (blindness)

The contents for analysis of this study included: age, gender, percentage of disability, and causative factor for visual handicap. The data were entered into a database and analyzed using MS Excel.

RESULTS

The study was conducted on 104 individuals, eligible for 40% or above visual handicap certification at a tertiary eye hospital in North Bihar in India. Out of total 104 patients, 66 (63.46%) were males and 38 (36.53%) were females. The males to females' ratio is 1.73:1 indicating a male preponderance (Figure 1).

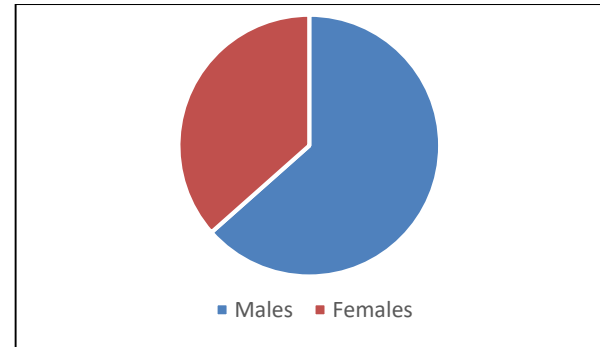


Figure 1: Gender distribution.

Table 2: Age distribution of subjects.

Age group (in years)	No. of study subjects	Percentage (%)
1-10	3	2.88
11-20	30	28.8
21-30	26	25
31-40	18	17.30
41-50	12	11.53
51-60	8	7.69
61-70	5	4.80
71-80	1	0.96
81-90 years	1	0.96

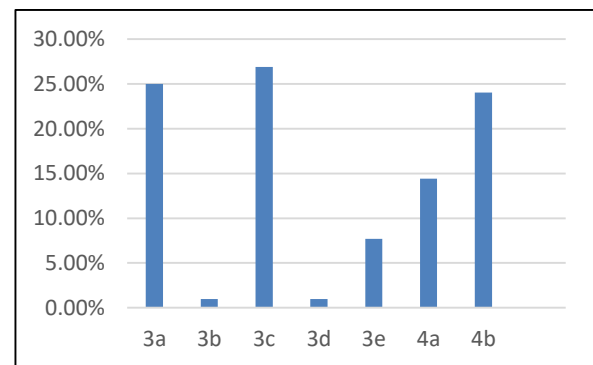


Figure 2: Distribution of study subjects according to the visual disability category.

Table 3: Causes of visual impairment among low vision and blind individuals according to age (in years).

Diseases	0-20 years	21-40 years	41-60 years	61-80 years	81-100 years	Total, N (%)
Optic atrophy	4	1	3	-	-	8 (7.69)
Anophthalmic socket	1	-	-	-	-	1 (0.96)
Retinopathy of prematurity	1	-	-	-	-	1 (0.96)
Leucoma grade corneal opacity	1	4	1	1	-	7 (6.73)
Severe DED/ corneal xerosis /SJS	-	2	-	-	-	2 (1.92)
Glaucomatous optic atrophy	-	6	9	2	1	18 (17.31)
Phthisis bulbi	-	2	1	1	-	4 (3.85)
Coloboma(Fundal)	4	10	-	-	-	14 (13.46)
Retinal detachment	-	1	-	-	-	1 (0.96)
Rod-cone dystrophy	-	1	-	-	-	1 (0.96)
Retinitis pigmentosa	7	4	4	-	-	15 (14.42)
Amblyopia	5	4	1	-	-	10 (9.61)
Nystagmus/squint	5	-	-	-	-	5 (4.81)
Band-shaped keratopathy	-	1	-	-	-	1 (0.96)
High refractive errors	2	3	-	-	-	5 (4.81)
Chorioretinal scarring/ macular diseases	2	5	1	-	-	8 (7.69)
Choroidal dystrophy	1	-	-	-	-	1 (0.96)
Chronic iridocyclitis	1	-	-	-	-	1 (0.96)
ARMD	-	-	-	1	-	1 (0.96)

The age range in our cohort was 1-90 years, with the maximum number of patients (n=30, 28.8%) falling under the age group of 11-20 years (Table 2).

Of the total patient studied, 40 patients (38.46%) were categorized as blind (visual disability grade 4a, i.e., 90% and grade 4b, i.e., 100%) and 64 (61.54%) patients were under the low vision category (visual disability grade 3a, i.e., 40% to grade 3e, i.e., 80%) (Figure 2).

Among all the common causes, glaucomatous optic atrophy (n=18; 17.31%) was found to be the most common cause of visual disability, followed by retinitis pigmentosa (n=15; 14.42%) and fundal coloboma (n=14; 13.46%). According to age groups, in the 0-20 years, retinitis pigmentosa was more common. Fundal coloboma and glaucomatous optic atrophy were the notable causes found more commonly in the age groups 21-40 years and 41-60 years respectively (Table 3).

DISCUSSION

Visual impairment is an important public health problem, especially in developing countries like India, as it impairs the quality of life and limits career choices and job opportunities, thereby constituting a socioeconomic burden on society.⁶

The possession of a disability certificate, such as one for visual impairment, unlocks a range of benefits, including priority access to education and employment opportunities, financial concessions, and social security entitlements, making it a highly sought-after document. However, only people with a disability percentage of $\geq 40\%$ are considered handicapped and entitled to these benefits.⁷ This is not known to most individuals, and creating awareness regarding this fact becomes important as examination and generation of certificates in persons having $<40\%$ percent disability causes unnecessary burden on the medical system.

The certification methodology employs best-corrected visual acuity (BCVA) as the assessment criterion, diverging from presenting visual acuity (PVA) measurements. Moreover, certification eligibility is restricted to individuals with irreversible visual impairment or blindness, thereby excluding transient visual deficiencies such as non-operated senile cataracts.

In the current study, the ratio between males and females found was 1.73:1, clearly indicating a male preponderance.

Similar gender bias was seen in other studies including Dhabarde et al, Sadananda et al and Sen et al.⁸⁻¹⁰ Male applicants outnumbered females in seeking certification, likely due to societal expectations surrounding their roles as financial providers and their increased participation in the workforce.

Our study showed the maximum number of patients falling in the age group of 11-20 years (n=30, 28.8%) followed by 21-30 years (n=26, 25%). This result was consistent with the result found in a study by Dhabarde et al, but Sen et al found 31-40 years to be the most common.

The age distribution of individuals seeking certification revealed a notable concentration among those aged 11-20, who were likely motivated by educational benefits, and those aged 21-40, who were probably seeking certification to access employment opportunities.

In contrast to other age groups, the UDID certification rates were notably low among children below 10 years and elderly individuals above 70 years. This phenomenon may be explained by limited awareness, reduced demand for certification, and greater dependence on family support.

In our study, 25 (24.03%) patients were found to be 100% blind and 28 (26.92%) patients were in category 3c i.e., 60%, formed a majority group as compared with disabilities of the other grade while Kareemsab et al, Ghosh et al found maximum number of patients in 100% disability category.^{11,12}

Our study found glaucomatous optic atrophy in 18 (17.31%) patients as the most common cause of visual disability. Other common causes found were retinitis pigmentosa and fundal coloboma. Kareemsab et al in their study found congenital and developmental conditions to be the most common cause, while Khan et al found phthisis to be as most common cause, and Sadananda et al., Joshi et al Dhabarde et al reported retinitis pigmentosa to be the most common cause of blindness/visual handicap in their studies.^{13,14}

Early diagnosis and management are required to prevent blindness arising due to glaucoma and optic atrophy caused by various causes.

Congenital ocular anomalies (mainly microphthalmos, anophthalmos, and coloboma) accounted for 25.8% of severe visual impairment/ blindness in North India. Congenital anomalies may be due to genetic diseases or intrauterine factors, but in majority, the aetiology is unknown.¹⁵

Limitations

The data from blindness certificate applications is limited by the fact that not all eligible individuals apply, which can lead to inaccurate conclusions, and data was collected from records, and hence, missing details could not be verified or collected. Data from applications for blindness certificates should be used judiciously as it is not representative of the whole population. Bias exists in that many people who are eligible for certification are not applying for it. Under-registration of eligible blind and partially sighted individuals is a global problem.

CONCLUSION

Analyzing certificates for visual impairment offers valuable information on the diverse causes of visual impairment. This data also facilitates understanding of broader trends in visual disability, enabling the development of targeted healthcare strategies and rehabilitation programs. Emphasis should be given to comprehensive eye examinations by a healthcare professional even at the village level which can make the employment of the unique disability identification project more meaningful.

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Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

- GBD 2019 Blindness and Vision Impairment Collaborators; Vision Loss Expert Group of the Global Burden of Disease Study. Causes of blindness and vision impairment in 2020 and trends over 30 years, and prevalence of avoidable blindness in relation to VISION 2020: the Right to Sight: an analysis for the Global Burden of Disease Study. *Lancet Glob Health*. 2021;9(2):144-60.
- National programme for control of blindness and visual impairment. National blindness and Visual Impairment Survey India 2015-2019-a summary report, 2019. Available at: <https://indiavisionatlasnpcb.aiims.edu/over-50-population/>. Accessed on 15 February 2025.
- Guidelines for evaluation of various disabilities and procedure for certification. The Gazette of India extraordinary. Part 1.
- Ministry of Social Justice and Empowerment, Government of India. The Gazette of India extraordinary: Ministry of Social Justice and Empowerment New Delhi 4th January 2018. Vol. 3. New Delhi, India: Ministry of Social Justice and Empowerment, Government of India; 2018: 88-90.
- Kumar R. Disability assessment and certification guidelines and explanations, based on gazette notification (committee under chairmanship of DGHS, GOI) issued by Ministry of Social Justice and Empowerment, GOI; 2001.
- Refractive errors: magnitude of the need. *Community Eye Health*. 2000;13(33):1-2.
- Ambastha A, Kusumesh R, Sinha S, Sinha BP, Bhasker G. Causes of visual impairment in applications for blindness certificates in a tertiary center of Bihar and its role in health planning. *Indian J Ophthalmol*. 2019;67(2):204-8.
- Dhabarde KA, Wankhade AB, Doble PM, Rahul NV, Kende RP. A descriptive analysis of unique disability identification card (UDID)-certified visually disabled patients at a tertiary eye care center in Central India. *Cureus*. 2022;14(11):31106.
- Assessment of visual disability, clinical and demographic profile from Unique Disability Identification Details (UDID) card applicants in Regional Institute of Ophthalmology (RIO) in South India. Sadananda RC, Menon AM, Rathod S, Appaji A, Hanumantharayappa HB. *IP Int J Ocul Oncol Oculoplasty*. 2022;8:46-51.
- Sen S, Agrawal R, Verma P, Jain A. Spectrum of young visually disabled patients reporting for disability certificate at tertiary eye care hospital. *Indian J Comm Health*. 2024;36(5):703-7
- Kareemsab D, Rachaiah NM, Balasubramanya B. The prevalence of the leading causes of certification for blindness and partial sight in the Hassan district of Karnataka, India. *J Clin Diagnost Res*. 2011;5(8):1624-6.
- Ghosh S, Mukhopadhyay S, Sarkar K, Bandyopadhyay M, Maji D, Bhaduri G. Evaluation of registered visually disabled individuals in a district of west Bengal, India. *Indian J Community Med*. 2008;33(3):168-71.
- Khan MGG, Gawai DS, Choudhary KG, Khannar AS. Visual handicap certificate: a tool to evaluate the causes for permanent visual impairment in Northern Maharashtra. *Indian J Clin Exp Ophthalmol*. 2020;6:222-6.
- Joshi RS. Causes of visual handicap amongst patients attending outpatient department of a medical college for visual handicap certification in central India. *J Clin Ophthalmol Res*. 2013;1:17-9.
- Titiyal JS, Pal N, Murthy GV, Gupta SK, Tandon R, Vajpayee RB, et al. Causes and temporal trends of blindness and severe visual impairment in children in schools for the blind in North India. *Br J Ophthalmol*. 2003;87(8):941-5.
- Bunce C, Wormald R. Leading causes of certification for blindness and partial sight in England & Wales. *BMC Public Health*. 2006;6:58.

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