

ORIGINAL RESEARCH

Retrospective analysis of visual disability patterns in patients seeking visual disability certificate in a hilly district of Jammu and Kashmir, India

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ABSTRACT

Purpose: To evaluate the patterns of vision impairment in patients seeking visual disability certificates. **Methods:** A retrospective analysis of applications received for blindness certificates done over a period of two and half years. The main causes of visual impairment and blindness were ascertained. Percentage of visual disability calculated as per the guidelines issued by the Department of Empowerment of Persons with disabilities, Ministry of Social Justice and Empowerment, Govt of India 2024. **Results:** 626 applications were reviewed. Male preponderance (388 Males, 238 Females) was seen. The age group range was from 2 months upto 87 years. The mean age at presentation was 32.91 years. Most of the applicants (56.7%) were in 11-40 years of age group. 19% of the study group had Refractive Errors & amblyopia, 14.43% had chorioretinal abnormalities, 13.37% had Phthisis Bulbi, 12.33% Cataract & Cataract Surgical Complications, 8.94% had Congenital malformations, 8.46% had glaucoma & optic atrophy, 7.18% Corneal Opacities and Scars whereas 15.81% had other non-specified causes. Majority of the causes were preventable. The study found that 76.6% of cases had significant visual disability (40% or more), while 23.4% had relatively less visual impairment (30% or less), highlighting the substantial impact of visual impairment in the majority of cases. **Conclusion:** This study gives an idea about the visual disability patterns and helps the authorities to plan the preventive measures as Majority of the causes were preventable.

Keywords: Visual impairment, Disability certificate.

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INTRODUCTION

Vision impairment is a visual state that affects the ability of an individual to do his daily activities independently and is an important impediments to social acceptance and is considered a common form of disability. Blindness has been recognised as an important public health problem in India [1]. Blindness affects not only the individual but also the family and the community [2,3]. Blindness is the most catastrophic reality in the lives of the visually handicapped. 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 [4]. Globally, around 2.2 billion people have near or distance vision impairment and of these 1 billion have a vision impairment that could have been prevented or is yet to be addressed [5]. Vision loss can affect people of all ages but maximum visual

impairment is seen in the population above 50 years of age [6]. Vision Loss Expert Group (VLEG) of Global Burden of Disease (GBD) shows approx 33.6 million blind people and 206 million people with moderate to severe visual impairment globally [7]. The international classification of diseases classifies vision impairment into two groups [8].

The government offered a number of benefits for the rehabilitation of visually handicapped people. According to the government of India's ministry of social justice and empowerment, a person must have a minimum of 40% disability in order to qualify for any benefits or concessions [9].

MATERIALS AND METHOD

A retrospective analysis of 626 visual disability certificate applicants, who were sent from the social welfare department for pension purposes was

conducted at Govt Medical College, Doda. Data was categorized by age, sex, disability percentage, and type of visual disability. The disability certificates were issued by our board of members as per the guidelines of the Ministry of Social Justice and Empowerment 2024 [10].

For Visual Acuity the line should be read completely, in case of partial line read, one line below that line should be taken for visual acuity.

RESULTS

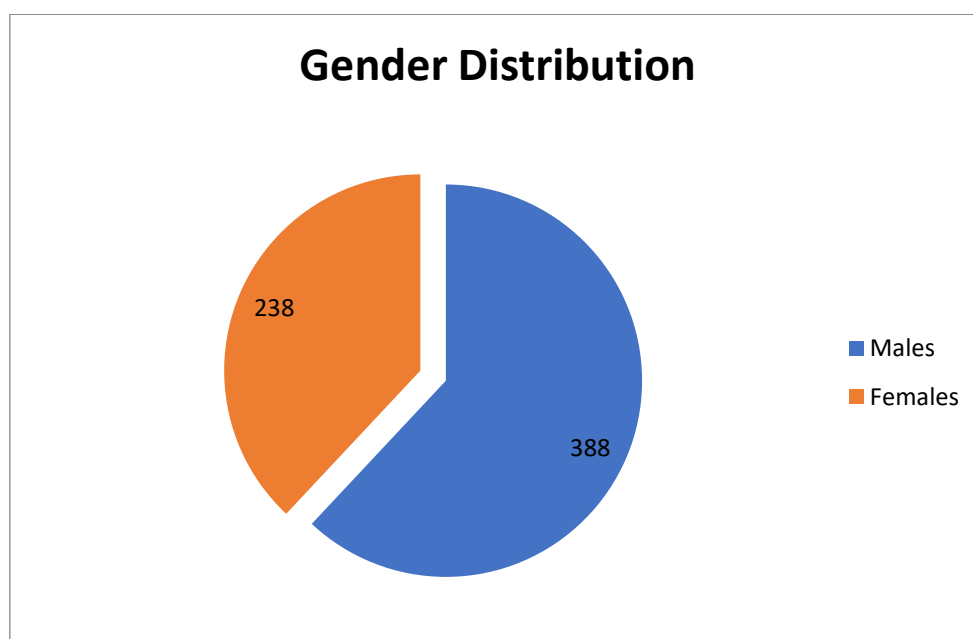
626 patients who had come to the hospital for disability certificates were examined in the department of ophthalmology GMC Doda, among which 388(61.9%) were male and 238 (38.01%) female with M: F ratio of 1.63:1 (Pie Chart). Majority of the patients were in the age group of 11-40 years followed by 41-60 years age group and <10 years age group(Table01)

Right Eye Vision [Best Corrected Visual Acuity (BCVA)]	6/6 to 6/18	6/24	6/36	6/60	3/60	2/60	1/60	HMCF to PL-
	0%	10%	10%	10%	20%	30%	30%	30%
	10%	40%	40%	40%	50%	60%	60%	60%
	10%	40%	40%	40%	50%	60%	60%	60%
	10%	40%	40%	40%	50%	60%	60%	60%
	20%	50%	50%	50%	70%	80%	80%	80%
	30%	60%	60%	60%	80%	90%	90%	90%
	30%	60%	60%	60%	80%	90%	90%	90%
	30%	60%	60%	60%	80%	90%	90%	100%

Field of Vision around the centre of fixation

Left Eye

Right Eye	<40° to 20°	<20° to 10°	<10°
	40%	50%	60%
	50%	70%	80%
	60%	80%	100%



Pie chart showing the gender distribution

Table: 1 depicting the different age group having disabled visually as per gender

Age Group (Years)	Total No of visually Disabled (N=626)	Percentage	Male (N=388)	% of Males	Female (N=238)	% of Females
Up to 10	59	9.4%	29	7.5%	30	12.6%
11–20	138	22.0%	80	20.6%	58	24.4%
21–30	116	18.5%	76	19.6%	40	16.8%
31–40	101	16.1%	67	17.3%	34	14.3%
41–50	94	15.0%	67	17.3%	27	11.3%
51–60	75	12.0%	43	11.1%	32	13.4%
Above 60	43	6.9%	26	6.7%	17	7.1%
Total	626	100%	388	100%	238	100%

Visual disability of 40% and above was observed in 78.4% of the patients. Majority of the visual impairment and disability was preventable with early intervention.

Table: 2 depicting the different causative agents with percentages.

S. No	Causative Agents	Number of Cases	% of Total
1	Refractive Errors with Amblyopia	119	19.00%
2	Phthisis Bulbi	86	13.73%
3	Cataract and Cataract Surgical Complications	77	12.33%
4	Congenital Malformations	56	8.94%
5	Glaucoma and Optic Atrophy	53	8.46%
6	Corneal Opacities and Scars	45	7.18%
7	Unspecified	37	5.91%
8	Nystagmus and Albinism	39	6.23%
9	Retinitis Pigmentosa and Fundus Dystrophies	31	4.95%
10	Untreated Retinal Detachments & Failed RD Surgeries	27	4.31%
11	Chorioretinitis and Maculopathies	25	3.9%
12	Traumatic Loss of Vision	23	3.67%
13	Age-Related Macular Degeneration (ARMD)	8	1.27%
	Total	626	100%

The most common causes identified in all age groups was Refractive Errors with amblyopia (19%) followed by Phthisis Bulbi (13.57%) and Cataract & cataract surgical complications (11.98%).

The age group stratification was done. Different causes of disability were found in each age group.

Table: 3 Causes of Visual Disability in Children (Up to 10 Years, N = 59)

S. No	Cause of Disability	No. of Cases	% of Age Group
1	Congenital Anomalies	18	30.5%
2	Nystagmus	17	28.8%
3	Refractive Errors with Amblyopia	12	20.3%
4	Cataract and Cataract Surgery Related	3	5.1%
5	Corneal Opacities, Scars & Dystrophies	3	5.1%
6	Retinitis Pigmentosa and Other Fundus Dystrophies	2	3.4%
7	Congenital Glaucoma	1	1.7%
8	Phthisis Bulbi	1	1.7%
9	Miscellaneous	2	3.4%
	Total	59	100%

Among the patients aged less than 10 years, congenital anomalies (30.5%) were present in majority of the cases, followed by refractive errors with amblyopia and nystagmus.

Table: 4 Causes of Visual Disability in 11–20 Years Age Group (N = 138)

S. No	Cause	No. of Cases	% of Age Group
1	Amblyopia & Refractive Errors	43	31.15%
2	Congenital Anomalies	22	15.94%
3	Phthisis Bulbi	17	12.31%
4	Nystagmus	13	9.42%
5	Corneal Opacities, Scars & Dystrophies	8	5.8%
6	Glaucoma & Optic Atrophy	7	5.07%
7	Cataract & Cataract Surgery Complications	6	4.3%

8	Trauma	4	2.9%
9	Retinitis Pigmentosa & Fundus Dystrophies	4	2.9%
10	Retinal Detachment	3	2.2%
11	Miscellaneous	11	7.97%
	Total	138	100%

Among those aged 11-20 years, the most common causes identified were Amblyopia & Refractive Errors, followed by Congenital Anomalies and Phthisis bulbi.

Table: 5 Causes of Visual Disability in 21–30 Years Age Group (N = 116)

S. No	Cause	No. of Cases	% of Age Group
1	Amblyopia & Refractive Errors	30	25.8%
2	Phthisis Bulbi	19	16.4%
3	Congenital Anomalies	9	7.8%
4	Chorioretinitis and Maculopathies	9	7.8%
5	Retinitis Pigmentosa and Other Fundus Dystrophies	8	6.9%
6	Retinal Detachment	8	6.9%
7	Glaucoma & Optic Atrophy	6	5.2%
8	Cataract & Cataract Surgery Complications	6	5.2%
9	Nystagmus	5	4.3%
10	Trauma	5	4.3%
11	Corneal Opacities, Scars & Dystrophies	5	4.3%
12	Miscellaneous	6	5.1%
	Total	116	100%

Among those aged 21-30 years, the most common causes identified were Amblyopia & Refractive Errors, followed by Phthisis bulbi, Congenital Anomalies, Chorioretinitis and Maculopathies.

Table: 6 Causes of Visual Disability in 31–40 Years Age Group (N = 101)

S. No	Cause	No. of Cases	% of Age Group
1	Amblyopia & Refractive Errors	19	18.8%
2	Phthisis Bulbi	15	14.9%
3	Cataract & Cataract Surgery Complications	15	14.9%
4	Corneal Opacities, Scars & Dystrophies	9	8.9%
5	Glaucoma & Optic Atrophy	8	7.9%
6	Chorioretinitis and Maculopathies	7	6.9%
7	Congenital Anomalies	7	6.9%
8	Trauma	5	5.0%
9	Retinal Detachment	5	5.0%
10	Retinitis Pigmentosa and Other Fundus Dystrophies	5	5.0%
11	Miscellaneous	6	5.9%
	Total	101	100%

Table: 7 Causes of Visual Disability in 41–50 Years Age Group (N = 94)

S. No	Cause	No. of Cases	% of Age Group
1	Cataract & Cataract Surgery Complications	16	17.0%
2	Phthisis Bulbi	13	13.8%
3	Glaucoma & Optic Atrophy	12	12.7%
4	Corneal Opacities, Scars & Dystrophies	10	10.6%
5	Amblyopia & Refractive Errors with Degenerative Myopia	13	13.8%
6	Retinal Detachment	8	8.5%
7	Retinitis Pigmentosa and Other Fundus Dystrophies	6	6.4%
8	Trauma	5	5.3%
9	Nystagmus	4	4.3%
10	Miscellaneous	7	7.4%
	Total	94	100%

Table: 8 Causes of Visual Disability in 51–60 Years Age Group (N = 75)

S. No	Cause	No. of Cases	% of Age Group
1	Cataract & Cataract Surgery Complications	17	22.6%

2	Phthisis Bulbi	14	18.6%
3	Glaucoma & Optic Atrophy	12	16.0%
4	Corneal Opacities, Scars & Dystrophies	7	9.3%
5	Retinitis Pigmentosa and Other Fundus Dystrophies	6	8.0%
6	Trauma	4	5.3%
7	Chorioretinitis and Maculopathies	4	5.3%
8	Retinal Detachment	3	4.0%
9	Amblyopia & Refractive Errors	2	2.7%
10	Vascular Occlusions	2	2.7%
11	Miscellaneous	4	5.3%
	Total	75	100%

Table: 9 Causes of Visual Disability in Above 60 Years Age Group (N = 43)

S. No	Cause	No. of Cases	% of Age Group
1	Cataract & Cataract Surgery Complications	14	32.5%
2	Age-Related Macular Degeneration (ARMD)	8	18.6%
3	Glaucoma & Optic Atrophy	7	16.3%
4	Phthisis Bulbi	7	16.3%
5	Corneal Opacities, Scars & Dystrophies	3	7.0%
6	Vascular Occlusions	2	4.7%
7	Miscellaneous	2	4.7%
	Total	43	100%

DISCUSSION

Majority of the patients were male (Male: Female ratio was 1.63:1). The predominance of male applicants reflects systemic barriers hindering women's access to certification, including social stigma, limited education, and traditional role of females in rural areas as housewives. This finding is in accordance with the findings of the study conducted by Shubhratha Satish Hegde [11], Kareemsab et al [12], and Rajesh S Joshi [13] who found male: female ratio of 1.3:1, 1.2:1, and 1.3:1 respectively. Disability certificates provide numerous benefits, including travel concessions, income tax exemptions, financial allowances, and reservations in jobs and education. These advantages aim to enhance the quality of life and opportunities for individuals with disabilities. In our study majority of the patients were in the age group of 11-40 years followed by 41-60 years age group and <10 years age group. The low number of applicants above 60 years may be due to limited awareness about certification benefits, increased reliance on family members, and a reduced need for formal certification. This 11-40 years groups comprised 56.7% of the total applicants. This was probably for seeking job opportunities and reservations. Similar findings were noted in the study conducted by Robi T *et al* (63.82%) and Ghosh S *et al* (60.6%) [14, 15] Different causes were identified in each age group. Among the patients aged less than 10 years, congenital anomalies (30.5%) were present in majority of the cases, followed by refractive errors with amblyopia and nystagmus. Increased rate of congenital anomalies in this age group was also noted in a study by Shubhratha Satish Hegde and Farooq S *et al* [11,12,13,16].Among those aged 11-20 years, the most common causes identified were Amblyopia

& Refractive Errors, followed by Congenital Anomalies and Phthisis bulbi. Ametropic Amblyopia was 2nd most common cause followed by Phthisis bulbi and Congenital Anomalies in a study by Sen S *et al* [17].Among the adults aged between 21-50 years of age group, the major causes were Amblyopia & Refractive Errors, phthisis bulbi, Cataract & Cataract Surgery Complications, Congenital Anomalies, Chorioretinitis and Maculopathies, Glaucoma & Optic Atrophy, Retinitis Pigmentosa and Other Fundus Dystrophies and Corneal Opacities, Scars & Dystrophies. Similar trends were found in the study conducted by Kritika Palchoudhary and Sagar Karmakar [18]. Trauma and infections are the main causes of phthisis bulbi and corneal scars in this age group, largely due to their high-risk activities such as agricultural work, sports, outdoor pursuits and road traffic accidents due to hilly terrains that expose them to potential injuries. Consanguineous marriages, common in this region, may contribute to the prevalence of retinitis pigmentosa, underscoring the need for genetic counseling to mitigate the risk of inherited conditions. Among the population aged more than 50 years, the major causes were cataract and cataract surgical Complications, Phthisis bulbi, age-related macular degeneration (ARMD), glaucoma and posterior segment causes including Retinal Detachment, Retinitis Pigmentosa and Vascular occlusions. This was in accordance with the study conducted by Dr Praveen Vashist *et al* [19].

CONCLUSION

This study gives an idea about the visual disability patterns and helps the authorities to plan the preventive measures. In our study, the most common causes identified in all age groups were Refractive

Errors with amblyopia (19%) followed by Chorioretinal abnormalities (14.43%), Pthisis Bulbi (13.57%) and Cataract & cataract surgical complications (11.98%). Early intervention through school screenings can effectively treat amblyopia and refractive errors, highlighting the importance of accessible eye care in educational settings. Cataract surgery complications were more common in patients operated on over 30 years ago, likely due to limited healthcare facilities. Advancements in healthcare and increased expertise among eye surgeons have contributed to a decline in such complications. Genetic counseling and discouraging consanguineous marriages can help prevent congenital malformations and retinitis pigmentosa, reducing the risk of inherited conditions. In rural areas with limited resources, eye injuries and blindness often result from trauma during agricultural work, household chores, road traffic accidents and sports. Providing better tools, promoting safe practices, and encouraging protective eyewear use can help prevent such cases of blindness. Other causes of visual disability like glaucoma, retinal detachment can also be prevented if diagnosed and treated at an early stage. Most blindness cases being preventable highlights the importance of genetic counselling, nutritional support, immunization, and eye health awareness in effectively managing and reducing their occurrence.

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CONFLICTS OF INTEREST: Nil

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