

A study to evaluate the cause of blindness/ low vision among certified visually disabled individuals in Mandya district of Karnataka

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Abstract

Aim: To identify the demographic characteristics, degree and cause of visual disability among certified visually disabled individuals in Mandya district, Karnataka, India in patients attending Ophthalmology OPD.

Materials and Methods: Retrospective record based observational study was carried out in teaching Hospital of Mandya district. Data was collected from visual disability certificates of patients who attended our OPD during the period May 2013 to May 2016. The cause of the visual loss was ascertained. Information from the history, clinical examination and investigations was compiled.

Results: In our study, a total of 152 patients were enrolled out of 170 cases. Children and young adults up to age of 30 years constituted around (48, 31.57%) of cases. Among certified visually disabled individuals there were more males (105, 69.08%) compared to females (47, 30.92%). Amount of visual disability percentage of 100%, 75% and 40% was seen in 102(67.10%), 36(23.68%) and 14(9.21%) people respectively. Congenital ocular malformations (32, 21.05%), Retinitis pigmentosa (27, 17.76%) and Optic atrophy (21, 13.81%) were responsible for more than 50% of the cases.

Conclusion: Children and young adults constitute around one third of disabled individuals. Men are more common beneficiaries when compared to women showing gender bias. Congenital ocular malformation and Retinitis pigmentosa were the most common causes of certified visual disability.

Keywords: Certification, Congenital Ocular malformation, Retinitis pigmentosa, Visually disabled, Optic atrophy.

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the blind is a global problem.^[4,5] Very little data is available on this from the state of Karnataka. The present study is designed to know the demographic profile and cause for low vision/ blindness among individuals hailing from Mandya District in Karnataka. This will help to understand the problem and assist in developing newer strategies that will help governmental agencies plan, treat and prevent visual handicap.

Introduction

Blindness is a major public health problem in developing countries like India.^[1,2] Some ocular diseases are treatable and others are not. Non-treatable diseases lead to permanent visual handicap which affect an individual, his/her family and the society. The registration as blind/low vision in India is voluntary and it is certified by an ophthalmologist. According to guidelines of the Ministry of Social Justice and Empowerment, Government of India, the minimum degree of disability should be 40% for an individual to be eligible for any concessions or benefit.^[3]

The 58th round data from the National Sample Survey Organization (NSSO) revealed that out of all the disabled individuals in India, 10.88% were blind and that 4.39% had low vision.^[3] As per the Census of India 2001, the prevalence of the totally blind persons was found to be 156 per lakh population and the prevalence of low vision was found to be 61 per lakh population.

The prevention of visual impairment and blindness is a priority, and its planning requires data regarding its incidence and causes. However, under-registration of

Materials and Methods

The present study was a Retrospective record based observational study done during a period of three months. The study was conducted after obtaining approval from the Institutional Ethics Committee, MIMS, Mandya. Patient data was collected from visual disability certificates of patients who attended our OPD during the period May 2013 to May 2016. Subjects of all age groups and both the sexes with visual disability of 40% and above were included in the study. Patients with visual disability of less than 40% and incomplete visual disability certificates, where the cause for decreased vision was not ascertained were excluded from the study. A specially designed proforma was used to record patient history, clinical examination details like visual acuity by Snellen chart (5 years and above) slit lamp examination of anterior segment, fundus examination by indirect ophthalmoscopy and recording of intraocular pressure. Patient's demographic details such as age, sex and causes for decreased vision / blindness were ascertained.

Results

Of the 170 cases, 152 were found to be eligible and were included in the study. Majority of certified visually disabled individuals are in the age group of 21-60 years (111, 73.02%). Children and young adults up to the age of 30 years constituted 48 (31.57%) of cases. Among certified visually disabled individuals 105 (69.08%) were males and 47(30.92%) were females. [Table 1] Category of visual disability was classified according to guidelines of the Ministry of Social Justice and Empowerment, Government of India. [Table 2]

Among certified visually disabled individuals: visual disability of 100%, 75%, 40% were seen in 102 (67.10%), 36 (23.68%), 14 (9.21%) subjects. Among 100% visual disability 76(50%) of the subjects were males and 26 (17.10%) were females. Among 75% visual disability, 18(11.84%) subjects were males and 18 (11.84%) were females. Among 40% visual

disability, 11(7.2%) subjects were males and 3 (1.97%) were females 71 (46.71%) subjects who had 100% visual disability belong to the age group of 21-60 years. [Table 3]

Congenital ocular malformation, retinitis pigmentosa and optic atrophy were the leading causes for visually disabled certification in 32(21.05%), 27(17.76%) and 21(13.18%) cases. Anterior segment, posterior segment and mixed cause of loss of vision was seen in 37(24.34 %), 73(48.02%) and 52(34.21%) among visually disabled certified individuals. [Table 4]

Congenital ocular malformation is the leading cause for visually disability certificates across all the subgroup of Visual disability. 22(20.95%) males and 10(21.27%) females were equally affected. Retinitis pigmentosa constituted the second most common cause with 15(14.28%) males and 12 (25.53%) females. [Table 4]

Table 1: Profile of the study subjects with age and sex wise distribution

Age in years	Male	%	Female	%	Total	%
0-10	3	1.97%	2	1.31%	5	3.28%
11-20	13	8.55%	4	2.63%	17	11.18%
21-30	16	10.52%	10	6.57%	26	17.10%
31-40	25	16.44%	9	5.92%	34	22.36%
41-50	18	11.84%	8	5.26%	26	17.10%
51-60	16	10.52%	9	5.92%	25	16.44%
61-70	6	3.94%	4	2.63%	10	6.57%
71-80	8	5.26%	1	0.65%	9	5.92%
Total	105	69.08%	47	30.92%	152	100%

Table 2: Categories of visual disability (classification in use currently)³

S. No		Best corrected visual acuity in the better eye	Best corrected visual acuity in the worse eye	Percentage of impairment
1	Category 1	6/18 - 6/36	6/60 to nil	40
2	Category 2	6/60 - 4/60 or field of vision 10°-20°	3/60 to nil	75
3	Category 3	3/60 to 1/60 or field of vision 10°	Finger count at 1 ft. to nil	100
4	Category 4	F.C. at 1 ft. to nil or field of vision 10°	Finger count at 1 ft. to nil or field of vision 10°	100
5	One-eyed persons	20/20	20/8000 to Nil or field of vision 10° to 30°	30

Table 3: Amount of visual disability with age and sex wise distribution

Sl No	Age in Yrs	Amount of visual disability						Total no of cases
		100%		75%		40%		
		M	F	M	F	M	F	
1	0-10	2	2	0	0	1	0	5
2	11-20	9	2	2	2	2	0	17
3	21-30	8	5	5	5	3	0	26
4	31-40	19	3	2	4	4	2	34
5	41-50	15	5	3	3	0	0	26
6	51-60	11	5	4	3	1	1	25
7	61-70	5	4	1	0	0	0	10
8	71-80	7	0	1	1	0	0	9
Total		76	26	18	18	11	3	152

Percentage	67.10%	23.68%	9.21%	100%
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Table 4: Causes and sex distribution of visually disabled individuals

Sl No	Diagnosis	No of cases	Percentage disability			Male	Female
			40	75	100		
1	Congenital anomaly	32	4	7	21	22	10
2	Retinitis pigmentosa	27	2	7	18	15	12
3	Ptysis bulbi	17	0	2	15	14	3
4	Optic atrophy	21	2	3	16	17	4
5	Corneal opacity	12	1	2	9	8	4
6	Retinal detachment	3	1	1	1	2	1
7	Degenerative myopia	9	1	6	2	6	3
8	End stage glaucoma	10	0	3	7	7	3
9	Advanced diabetic eye disease	3	0	1	2	2	1
10	Anterior staphyloma	2	0	0	2	2	0
11	Cong cataract	3	0	0	3	3	0
12	Cortical blindness	2	0	0	2	2	0
13	Amblyopia	3	1	0	2	2	1
14	Macular dystrophy	8	2	4	2	3	5
Total		152	14	36	102	105	47

Discussion

There are many surveys regarding the prevalence of blindness in the community which give information related to the causes of blindness and help in preventive strategies to decrease the blindness.

In our study, 105 (69.08%) patients were males and 47 (30.92%) were females which could be attributed to increased outdoor activities of males and the need of certification.

Patients in the age group of 21-60 years were significantly large in number as compared to above 60 years and below 20 years age groups. This suggests that the driving force behind getting disability certification was more among the working age group. This is due to the presence of benefits with the disability certification such as monetary benefits, employment, education and conveyance, which was more likely to serve the purpose of young subjects than the elderly. Bunce et al in 1998 made similar observations where non-certification was found to be more common in older subjects belonging to the age group of 65 years and above than those below 65 years, with a trend of increasing odds with increasing age.^[6]

Congenital ocular malformation ($n=32$, 21.05 %) was the leading cause for obtaining disability certification which was similar to a study conducted by Ghosh S, et al in 2008 which accounted for 38.71% of all disability.^[7] This finding may be explained by the fact that consanguinity and congenital rubella syndrome are associated with such developmental disorders in India. Congenital abnormalities (Microphthalmos, Anophthalmos and Coloboma) accounts for severe visual impairment and blindness in 18% of blind school children in South India.^[8]

Retinitis pigmentosa ($n=27$, 17.76%) was the second leading cause for obtaining visual handicap

certificate which was similar to findings by Joshi et al (2008) in which it accounted for 15.05% of all disability.^[9] This is due to increased consanguinity and lack of genetic counselling.^[10] Increased burden of RP patients in this area warrants genetic counseling to be taken seriously.

In our study, Optic atrophy ($n=21$, 13.18%) was the third leading cause for obtaining visual handicap certificate in contrast to a study conducted by Brijesh Patil et al which accounted Optic atrophy for 6% of all disability.^[11] Corneal opacity ($n=12$, 7.89%) was seen in the form of corneal scar & bullous keratopathy.

Diabetic retinopathy ($n=3$, 1.97%) and glaucoma ($n=10$, 6.57%) constitute causes for preventable blindness. Early diagnosis and management can prevent blindness arising out of diabetic retinopathy and glaucoma. Gradual painless progression of the disease and lack of awareness among the general population contributes to the delayed diagnosis of these conditions.^[12]

Limitation of this study was that it was dependent on the information recorded and could not be verified. Another limitation was that since we used the hospital data, we had no specific population denominator; therefore, the rates could not be calculated and we depended only on the number of cases.

Conclusion

For most cases of blindness there is no appropriate treatment available, only preventive and rehabilitative measures can be undertaken. Hence we need to concentrate on genetic counseling, nutritional supplementation, immunization and discourage consanguineous marriage. Routine screening is a must to detect and treat glaucoma and diabetic retinopathy at the earliest in people at risk.

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