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Corresponding Author
Jyothi N. Sanganal,
Department of Ophthalmology, ESIC Medical College and Hospital Kalaburagi, India

Author Designation
[1,2,3]Assistant Professor
[4]Professor

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Evaluation of Severity of Visual Impairment in Patients Seeking Visual Impairment Certificates

[1]Swetha Mallikarjun, [2]Geetha S. Bandi, [3]Ramya Karjol and [4]Jyothi N. Sanganal
[1-4]Department of Ophthalmology, E.S.I.C., Medical College and Hospital Kalaburagi, India

ABSTRACT
To evaluate severity of visual impairment in patients seeking visual impairment certificates. 105 patients above 5 years of age with visual impairment, seeking visual impairment certificates attending ophthalmology OPD at KIMS Hospital Hubli, from December 2018 to December 2019 of both genders were enrolled and the severity of visual impairment in patients was recorded. Out of 105 patients, males were 73 (69.5%) and females were 32 (30.5%). Among 105 visually impaired, about 69.6% were certified as 100% of visual impairment, 12.4% certified as 75% of visual impairment, 7.6% certified as 40% of visual impairment and 10.4% certified as 30% of visual impairment. According to the revised categorization of visual impairment, among 105 visually impaired, 53.3% had a visual impairment of 100%. 81.4% of the retinal pathologies, 85% of the optic nerve pathologies, 59.4% of the whole globe pathologies were certified as >80% of VI. Old categorization of visual disability misses few combinations of bilateral low vision whereas the new revised categorization misses none. Thus, the new revised categorization, categorizes all the visually impaired individuals with specific percentage of visual disability according to their best corrected visual acuity. A quality of life of the blind should be improved through available accessible and affordable rehabilitation services.

INTRODUCTION

Blindness is defined as, visual acuity of <3/60, or a corresponding visual field loss to <10 degrees, in a better eye with the best possible correction[1]. Blindness is one of the major public health problems in India. Many of the ocular diseases lead to partial or total blindness. But most of them are non- treatable. These non-treatable conditions cause permanent visual impairment or blindness, which affects not only the disabled individual but also his/her family[2].

Registration as blind or partially sighted in India is voluntary, categorization is based on the severity of visual impairment and is performed by a duly constituted board of certification that includes ophthalmologists[3]. For an individual to be eligible for any concessions or benefit the minimum degree of visual disability that an individual should perceive is 40%, according to the guidelines by the Ministry of Social Justice and Empowerment, Government of India[4].

Uncorrected refractive errors and un-operated cataract are the two main causes of visual impairment globally[5]. Un-operated cataract remains the leading cause of blindness in developing countries. Earlier Trachoma and Onchocerciasis were one of the major infective causes of visual impairment but now, the prevalence of infectious eye diseases, has reduced significantly over the last 25 years. Increasing age is associated with a higher prevalence of blindness. Prevalence among adults is 10 times higher than in children. 90% of the blind and visually impaired live in the developing countries of the world. Prevalence is much higher among illiterates[6]. We performed this study to evaluate the severity of visual impairment in patients seeking visual impairment certificates.

MATRIALS AND METHODS

The present study comprised 105 patients above 5 years of age with visual impairment, seeking visual impairment certificates attending ophthalmology OPD at KIMS Hospital Hubli, from December 2018 to December 2019 of both genders. The study approval from ethical review committee was obtained before starting the study. Patients' consent was obtained.

Data such as name, age, gender etc. was recorded. All were subjected to visual acuity testing using Snellen chart. Distance and near visual acuity, both presenting and best corrected after refraction, were measured for each eye separately using Snellen chart. Objective refraction was performed, followed by subjective acceptance with which the best corrected visual acuity was measured and recorded. External eye examination, assessment of pupillary reaction and anterior segment examination will be done with slit lamp bio-microscope. Stereoscopic fundus examination was also done. The results were compiled and subjected for statistical analysis using chi-square test. $p<0.05$ was considered significant.

RESULTS

Out of 105 patients, males were 73 (69.5%) and females were 32 (30.5%) (Table 1). Among 105 visually impaired, about 69.6% were certified as 100% of visual impairment, 12.4% certified as 75% of visual impairment, 7.6% certified as 40% of visual impairment and 10.4% certified as 30% of visual impairment (Table 2). According to the revised categorization of visual impairment, among 105 visually impaired, 53.3% had a visual impairment of 100% (Fig .1).

In this study, old categorization of visual impairment was compared with the new revised categorization of visual impairment. According to old categorization there were 8 individuals who were categorized under category 1(40% of VI) whereas in the new revised categorization, out of these 8, only 5 were categorized under category 3A (40% of VI), 2 were categorized under category 2 (30% of visual impairment) and 1 was categorized under category 3C (60% of VI). Old categorization of VI had 13 individuals with category 2 (75% of VI), whereas according to the new revised categorisation, 6 were categorized under category 3C (60% of VI), 4 under category 3E (80% OF VI), 2 under category 3B (50% of VI) and 1 under category 4 (90% of VI). Old categorization had 17 individuals under category 3 (100% of VI), out of which only 2 individuals were categorised under 100% VI according to new revised categorization. Old categorization had 55 individuals under category 4

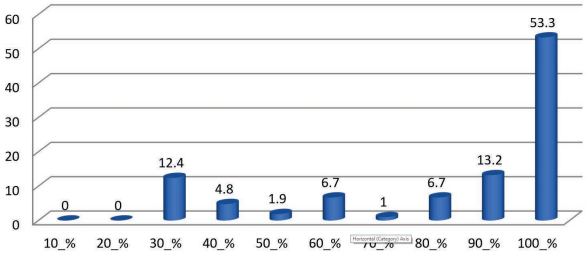

Fig. 1: Severity of visual impairment among the study participants as per the guidelines notified by Gazette of India, Extraordinary part II-sec 3(ii) (Revised categorization)

Table 1: Patients distribution

Total- 105

Gender	Males	Females
No. (%)	73 (69.5%)	32 (30.5%)

Table 2: Severity of visual impairment (4) among the study participants as per the guidelines notified by Gazette of India, Extraordinary 2001 (old categorization)

Percentage of VI	Frequency	Percentage
20	0	0.0
30	11	10.4
40	8	7.6
75	13	12.4
100	73	69.6

Table 3: Comparison between the categorization of visual impairment as per old and new revised categorization of visual impairment among the study participants

Category	I	II	III A	III B	III C	III D	III E	IV A	IV B
I (n=8)	0 (0.0)	2 (25.0)	5 (62.5)	0 (0.0)	1 (12.5)	0 (0.0)	0 (0.0)	0 (0.0)	0(0.0)
II (n=13)	0 (0.0)	0 (0.0)	0 (0.0)	2 (15.4)	6 (46.2)	0 (0.0)	4 (30.8)	1 (7.7)	0 (0.0)
III (n=17)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (5.6)	2 (11.1)	13 (72.2)	2 (11.1)
IV (n=55)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (1.8)	0 (0.0)	54 (98.2)
One eye (n=11)	0 (0.0)	11 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)

Fishers exact test used, p<0.001
p<0.05 is significant.

Table 4: Relationship of site of pathology and severity of visual impairment

Anatomical site	Mild (≤40%)		Moderate (50%-70%)		Severe ≥80%)	
	No	%	No	%	No	%
Retina (n = 43)	2	4.7	6	14.0	35	81.4
Whole globe (n = 32)	9	28.1	4	12.5	19	59.4
Optic nerve (n = 30)	4	15.0	0	0.0	17	85.0
Uvea (n = 4)	0	0.0	0	0.0	4	100.0
Cornea and sclera (n = 6)	4	66.7	0	0.0	2	33.3

Non-parametric chi-square test used.

(100% of VI), according to the new revised categorization most of them i.e, 54 individuals were categorized under 100% visual impairment. One eyed persons were not differed with the percentage of VI between both the categorization. These findings were statistically significant with the p<0.001 (Table 3). 81.4% of the retinal pathologies, 85% of the optic nerve pathologies, 59.4% of the whole globe pat hologies were certified as >80% of 4 (Table 3).

DISCUSSIONS

There have been many surveys in abroad and India regarding the prevalence of blindness in the community. They provide important information related to the causes of blindness and help the health planners to put strategies to decrease the prevalence of blindness. Evidence-based information is important to plan low vision care and rehabilitation services[7] Obtaining a visual handicap certificate is a part of rehabilitation of a blind person. It helps the blind person to obtain travel and income tax benefit. Data collected in this study may be useful to the government agencies to plan the strategies for rehabilitation and prevention[8].

Our certification system is based on best corrected visual acuity rather than presenting visual acuity. Furthermore, certificates are given to patients with permanent visual impairment or blindness, so temporary causes of visual impairment, such as uncomplicated non-operated senile cataract, are excluded. The WHO (2010) estimates on visual impairment and blindness are based on presenting visual acuity rather than best corrected visual acuity[9] In contrast, the definition of visual impairment according to the International statistical classification of diseases, injuries and causes of death, 10th revision (ICD-10), H54, was based on “best-corrected” vision, i.e. visual acuity obtained with the best possible refractive correction[10]. This study done on 105 patients seeking for visual disability certificate for a period of one year from December 2018 to December 2019, study was conducted in the department of ophthalmology, KIMS HUBLI. Out of 105 patients, males were 73 (69.5%) and females were 32 (30.5%). Palchoudhury *et al*.[11] studied 240 patients (149 male and 91 female) with visual impairment. This could be attributed to the increased outdoor activities of males, or males may have more need for certification.

Among 105 visually impaired, about 69.6% were certified as 100% of visual impairment, 12.4% certified as 75% of visual impairment, 7.6% certified as 40% of visual impairment and 10.4% certified as 30% of visual impairment. According to the revised categorization of visual impairment, among 105 visually impaired, 53.3% had a visual impairment of 100%. In this study, of the 105 visually impaired individuals, according to the old categorization of visual impairment, 11 persons were categorized under 30% of visual impairment, 8 under 40% of visual impairment, 13 under 75% visual impairment and 73 under 100% of visual impairment. But, 14 of these did not fall into any of the old categories of visual impairment, for this the institutional visual disability board used its own judgment. Out of these 14 Individuals, 10 were over-graded and 4 were un-degraded according to the old categorization.

In our study 81.4% of the retinal pathologies, 85% of the optic nerve pathologies, 59.4% of the whole globe pathologies were certified as >80% of 4. Palchoudhury *et al*.[11] in their study 240 case records (149 male and 91 female) were analyzed and it was found that 79.17% patients were in the working age group (21-60 years). 42% of study population had congenital malformation as a cause of their disability followed closely by retinitis pigmentosa (38%). 65.41% were literate of which 54.14% were working while 57.84% were not working. 37.5% patients obtained the certificate to avail travel benefit.

CONCLUSION

Old categorization of visual disability misses few combinations of bilateral low vision whereas the new revised categorization misses none. Thus, the new revised categorization, categorizes all the visually

impaired individuals with specific percentage of visual disability according to their best corrected visual acuity. A quality of life of the blind should be improved through available, accessible and affordable rehabilitation services.

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