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Retrospective Study of Pattern of Blindness among Patients Seeking Visual Disability Certificate in Guru Gobind Singh Government Hospital, Jamnagar District

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A B S T R A C T

Introduction:The disability experienced by persons on account of blindness and visual impairment (VI) has been a well-recognized concern since centuries**.** In 2017, the Indian definition was also revised and was made consistent with the international definition and blindness is now defined as – presenting distance visual acuity less than 3/60 in the better eye and limitation of field of vision to be less than 10^0 from center of fixation. ***Aim and Objective*****:** To Identify Various Causes of Blindness in patients seeking visual disability certificate. ***Material and Method*****:** A retrospective study of patients seeking visual disability certificate in the Department of Ophthalmology, Guru Gobind Singh Government Hospital, Jamnagar district from January 2017 to December 2021. ***Result*****:** Out of 283 cases in the study, most of them were in the age group of 31-40 years. Oldest in the study group was 86 years, and youngest was 3 years. Males were more compared to females in this study. ***Conclusion*****:** Safety education for every factory worker should be made mandatory. Visual disability certificates should be minimised through awareness and education of people on other hand.

Keywords: Blindness, Distance visual acuity, Vision Impairment, Visual Disability.

INTRODUCTION

Blindnessis a global public health problem and adversely impacts the productivity of populations. The problem is more evident in the developing world where a high prevalence of blindness is further compounded by poor access to eye care facilities.Blindness affecting millions in both the developed countries, as well as the developing countries, though the underlying sociopath-logical causes may vary widely from continent to continent.The disability experienced by persons on account of blindness and visual impairment (VI) has been a well-recognized concern since centuries [1]. WHOin 1972 proposed a uniform criteria and defined blindness as, "Visual acuity of less than 3/60 (Snellen) or its equivalent." WHO in 1979 added the "Inability to count fingers indaylight at a distance of 3 meters" to indicate vision less than 3/60 or is equivalent [2]. Visual field less than 10^0, irrespective of the level of visual acuity is also labelled as Blindness (WHO 1977) [3]. In 2017, the Indian definition was also revised and was made consistent with the international definition and blindness is now defined as – presenting distance visual acuity less than 3/60 in the better eye and limitation of field of vision to be less than 10^0 from centre of fixation [4]. National programme for control of blindness (NPCB) In India in 1976, blindness was defined as presenting distance visual acuity of <6/6O or central visual fields <20° in the better eye [5]. In 2017, the Indian definition was revised, NPCB has defined blindnessin India as: *Distance visual acuity less than 3/60(Snellen) or Counting finger at a distance of 3 metre or Central visual field less than 10 °*[6]. *Definitions of blindness are listed in a WHO publication (1996):*Economic blindness: Vision in better eye <6/60

to 3/60, Social blindness: Vision in better eye<3/60 to 1<60, Legal /manifest blindness: Vision in better eye <1/60 to perception light, Absolute blindness: No light perception (PL-ve) [7]. Categories and percentage of visual disability: As per National Programme for Control of Blindness and Visual Impairment (NPCB &VI) of India [8]. A new criteria of visual disability categories and percentage has been evolved in 2017. *ICD-10 codes for blindness and low vision are effective Oct. 1,* 2017 *and reflect parameters from the World Health Organization (WHO).*A new set of codes was released for use beginning on Oct. 1, 2017. The new codes introduce categories. Documentation will need to include: Type, Stage (category), Laterality. Categories are as follows: Mild or no visual impairment, Moderate visual impairment, Severe visual impairment [9]. According to WHO estimates (2020) is Number of blind World over: 43.28 million, Number of people with moderate to severe distance vision impairment (MSVI): 295 million, Over 80% of all vision impairment (blindness plus and MSVI) is avoidable [10].

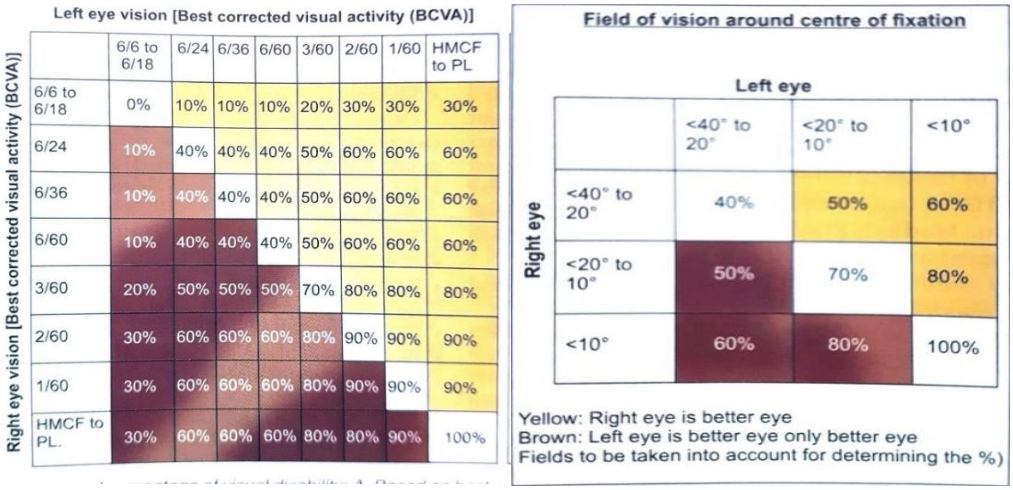

Figure 1: Best corrected visual acuity and extent of visual field

AIM & OBJECTIVES

Aim of this study isto Identify Various Causes of Blindness in patients seeking visual disability certificate in Guru Gobind Singh Government Hospital Jamnagar, District, Categorisation of disability as per ICD 10 last updated on January 05, 2018 and to find out Age and sex wise distribution, percentage wise distribution.

Material & Methods

A retrospective study of patients seeking visual disability certificate in the Department of Ophthalmology, Guru Gobind Singh Government Hospital, Jamnagar district from January 2017 to December 2021. Patients' additional data collected from record details and noted in a specially designed proforma and transferred to master sheet.

Inclusion Criteria: Patients who have already been allotted visual disability certificate within the period of study, Patients of Jamnagar district.

Exclusion Criteria: Individuals with temporary causes of visual impairment.

RESULTS

Study done from 283 patients' visual disability certificates' data from the period of last five years from January-2017 to December-2021.Out of 283 cases in the study, most of them were in the age group of 31-40 years. Oldest in the study group was 86years, and youngest was 3 years. Males were more compared to females in this study. Male: female ratio was 1.95: 1. In this study the cause for which most disability certificate issued was post traumatic eye destruction or post trauma sequelae include phthisis bulbi (33.95%), corneal blindness (23.91%). Other retinopathy (17.42%) is the second most common cause related to blindness followed by optic atrophy (28.46%), congenital anomalies (22.92%). Among 283 case major 50.53 % visual disability certificate with 100% disability. Globe (36.39%) was the major anatomical site that affect the most among 283 cases. Retina was second Most common involved anatomical site.

Table 1: Age wise distribution

Age in years	Male	Female	Total	Percentage
0-10	11	9	20	7.07
11-20	24	10	34	12.01
21-30	26	9	35	12.36
31-40	42	32	74	26.14

41-50	24	19	43	15.19
51-60	33	9	42	18.84
61-70	12	6	18	6.36
71-80	12	2	14	4.94
81-90	3	0	3	1.06
91-100	0	0	0	0
Total	**187**	**96**	**283**	

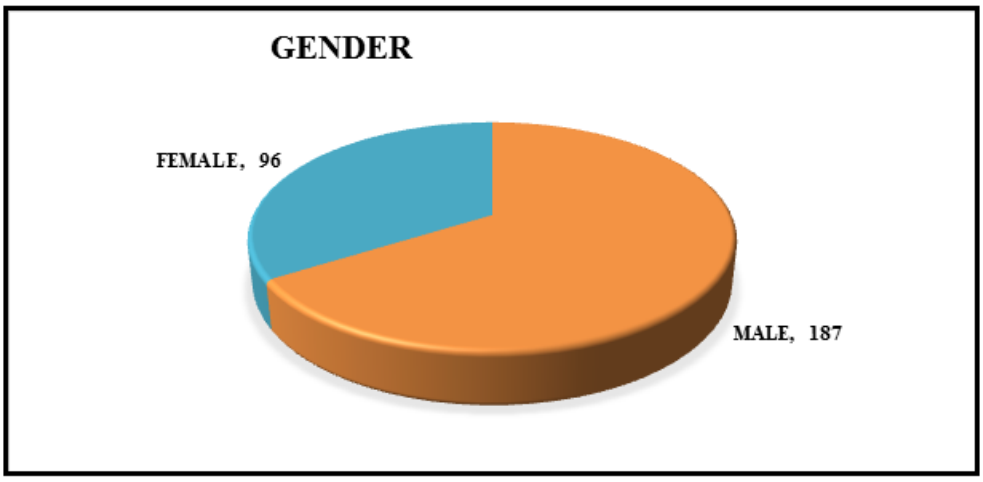

Figure 2: Gender wise distribution

Table 2: Causes wise distribution

Causes	**No. of Patient**									**%**		
	B/E			**O/E**			**Total Eye**					
	M	**F**	**T**	**M**	**F**	**T**	**M**	**F**	**T**	**M**	**F**	**T**
Congenital anomalies	16	9	25	5	1	6	37	19	56	11.41	11.51	22.92
Retinitis pigmentosa	10	9	19	0	0	0	20	18	38	6.17	10.90	17.01
Phthisis bulbi	22	11	33	13	5	18	57	27	84	17.59	16.36	33.95
Optic atrophy	24	9	33	3	3	6	51	21	72	15.74	12.72	28.46
Amblyopia	7	4	11	4	1	5	18	9	27	2.22	5.45	7.67
Pathological myopia	9	5	14	0	0	0	18	10	28	5.55	6.06	11.61
Corneal pathology	21	4	25	10	5	15	52	13	65	16.04	7.87	23.91
Staphyloma	2	1	3	1	1	2	5	3	8	1.54	1.81	3.35
Empty socket	1	1	2	5	8	13	7	10	17	2.16	6.06	8.22
Complicated cataract	6	1	7	0	0	0	12	2	14	3.70	1.21	4.91
Coloboma	4	5	9	2	0	2	10	10	20	3.08	6.06	9.14
Cortical Blindness	3	0	3	0	0	0	6	0	6	1.85	0	1.85
Albinism	2	4	6	0	0	0	4	8	12	1.23	4.84	6.07
other retinopathy	10	6	16	7	3	10	27	15	42	8.33	9.09	17.42
Total	137	69	206	50	27	77	324	165				

Table 3: Percentage of visual disability

Percentage of Visual Disability	**No. of Patient**			**Percentage**
	M	**F**	**T**	
30%	51	22	73	25.79
40%	14	9	23	8.12
50%	0	0	0	0
60%	12	3	15	5.30
70%	2	2	4	1.41
80%	4	2	6	2.12
90%	11	8	19	6.71
100%	93	50	143	50.53
TOTAL	187	96	283	

Table 4: Major anatomical site involvement

Major anatomical site	M	F	T	percentage
Whole globe	70	33	103	36.39
Optic nerve	24	11	35	12.36
Retina	52	38	90	31.91
Uvea	7	5	12	4.24
Cornea	31	7	38	13.42
Sclera	3	2	5	1.76
Total	187	96	283	

DISCUSSION

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. 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. States have their own programs benefiting legally blind residents that include temporary assistance for needy families, travel pass, scholarships, tax benefits and deductions. In addition to a monthly cash grant, eligible blind residents also receive health care coverage. Data collected in this study may be useful to plan the strategies for rehabilitation and prevention. 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. Patients in the age group of 31-40 years were significantly large in number as compared to above 60 years and below 10 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 monitory benefits, employment, education and conveyance; which was more likely to serve the purpose of young subjects than the elderly. Study done by Dr. Rajesh S Joshi in central India in 2013 showed mean age was 35 [11]. Male: female ratio is 1.95: 1. This may suggest that men are more prone to injury at work place or more chances to chemical exposure, trauma, road traffic accident. In 2008, Sam buddhaGhosh*et al*., study in Kolkata, west Bengal M:F ratio being 2.37:1 [12]. In 2016 Dr NeetiShet*et al*., showed 352 male and 125 female patients. M:F ratio being 2.8:1. This could be attributed to the increased outdoor activities of males, or males may have more need of certification [13]. In descriptive study at Ballari, (2019) Karnataka by Dr.NaliniMahendrakar, Male were more compared to female. Among 200, 141 (70.5%) were male and 59 (29.5%) were female. male to female ratio was 2.4: 1 [14]. Among the visually disabled, impairment due to post traumatic destruction of eyeball was the most common. 33.95% are phthisical eyes. Due to previous history of trauma, hypotony, post traumatic secondary infection, inflammation, post-surgery, vascular lesion or others. Post traumatic corneal opacity, corneal scar, can lead to corneal blindness (23.91%). Second most common cause of visual disability is optic atrophy (28.46%). Retinitis pigmentosa (17.01%), Pathological Myopia (11.61%), Albinism (6.07%) and other retinopathy (17.42%) are the common causes of visual disability related to retina.Congenital abnormalities worldwide (microphthalmos, anophthalmos and coloboma) account for severe visual impairment and blindness. (22.92%). Other causes include: Amblyopia (7.67%), staphyloma (3.35%). Among the visually disabled, according to a study conducted at Ballari, Karnataka 2019 by Dr.NaliniMahendrakar, congenital anomalies were the most common cause of disability which include 37 patients (i.e., 74 eyes 18.5%). 20 were male 54.1% and 17 were females (45.9%). In congenital anomalies majority were microphthalmos 25 individuals (67.6%) [14]. Congenital abnormalities worldwide (microphthalmos, anophthalmos and coloboma) account for severe visual impairment and blindness in 18% and 25.8% of blind school children in South and North India [15]. Congenital anomalies (18.5%) retinitis pigmentosa (16%) phthisis bulbi (14.5%) retinal pathology (13.5%) optic atrophy (10.75%) were the leading causes of visual impairment in study analysis, reported from West Bengal, eastern India and the study from Oman [16]. Whole globe (36.39%), retina (31.91%) and optic nerve (12.36%), involvement, uvea (4.24%), cornea (13.42%) and sclera (1.76%). The most common major anatomical sites involved whole globe (47.5%), retina (28.5%), optic nerve(19.5%), uvea(3%), cornea and sclera(1.5%) according Ballari, study at Kalkatta, 2019 [14].

CONCLUSION

Results have shown that high number of disabilities are due to sequelae of post traumatic destruction of eye which includes phthisical eye, corneal blindness, empty socket, complicated cataract explaining the need for workshop counselling. Safety education for every factory worker should be made mandatory. Integrated education has been initiated in the state regarding safety and preventive measures. Avoidable causes (preventative and curative) of visual impairment were found in individuals with phthisis, corneal opacity, diabetic retinopathy, glaucoma, retinal detachment. Avoiding trauma to eyes can reduce the visual disability due to corneal scarring and infections to a large extent. Also, early diagnosis and treatment are necessary to prevent blindness from avoidable causes like post traumatic corneal pathology, perforated globe, diabetic retinopathy, glaucoma and retinopathy of prematurity. A quality of life of the blind

should be improved through available, accessible and affordable well-maintained and sustained rehabilitation services and education.

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