

THE PATTERN OF VISUAL IMPAIRMENT AMONG INDIVIDUALS SEEKING DISABILITY CERTIFICATE AT A TERTIARY CARE HOSPITAL: A CROSS-SECTIONAL STUDY

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Abstract

Background: The objective of the current study is to study the pattern of visual impairment and to classify the various causes of visual impairment among individuals seeking disability certificate. This cross-sectional study aims to investigate the pattern of visual impairment among individuals applying for a disability certificate at a tertiary care hospital in Pimpri, Pune, India. **Materials and Methods:** A cross-sectional study was conducted to collect data on individuals seeking a disability certificate for visual impairment. The study was conducted at a tertiary care hospital in Pimpri Chinchwad, Pune, which serves as a referral center for patients with visual impairments. The study included individuals who presented to the hospital's disability certification unit seeking a disability certificate for visual impairment. The sample size was determined based on the prevalence of visual impairment in the population. The data was collected through face-to-face interviews of study subjects and assessing their medical records. **Result:** Out of 148 study subjects, 6 (4.1%) subjects were Category 0, 56 (37.8%) were Category I, 9 (6.1%) were Category II, 15 (10.1%) were Category III, 24 (16.2%) were category IV and 38 (25.7%) were only one-eyed. The leading causes of visual impairment include Congenital anomalies (27.03%), Retinitis pigmentosa (25.0%), Refractive errors with amblyopia (22.30%), and Corneal opacity related to trauma and infectious keratitis (9.46%). **Conclusion:** Most of the subjects seek visual impairment certificate for job-related reasons (32.4%) government allowance (29.1%) and travel (22.3%). The findings of this study will contribute to the development of targeted interventions and support services for individuals with visual impairments in the region, aiming to improve their overall quality of life and social inclusion.

INTRODUCTION

Visual impairment is a significant health concern globally, affecting millions of individuals and impacting their daily lives, independence, and overall quality of life. Understanding the patterns of visual impairment among individuals seeking a disability certificate is crucial for appropriate healthcare planning and resource allocation.

Eye conditions are remarkably common. Those who live long, experience at least a single eye condition throughout their lifetime.^[1] Blindness is a well-known public health problem in India. Currently, India has approximately 8.9 million blind persons.^[2] India was the first country in the world to launch a 100% public-funded program for the control of

blindness. In India, the leading causes of blindness and visual impairment are cataracts and refractive error.^[2] Blindness is a distressing physical condition having deep emotional and economic implications not only for the individual but also for the family and the community.^[3] Worldwide approximately 2.2 billion people are visually disabled out of which around 45 million are blind.^[1] Out of these estimated 45 million blinds worldwide, India alone constitutes approximately one-fifth of the blind people in the world which is nearly 8.9 million blinds. In India, the problem of blindness is not only its huge extent but also the causes behind it and these causes are mostly avoidable thus nearly 80% of the blindness cases are potentially preventable.^[1,4] The prevention of visual impairment is a priority issue at the international

level. Based on the primary baseline data on incidence, prevalence, and causes of blindness, the priorities for prevention, treatment, and management can be acknowledged. The causes behind blindness differ from region to region according to the availability of health services, Socioeconomic status, and lifestyle of the community.^[4] As a part of rehabilitation, based on standard guidelines of the Ministry of Social Justice and Empowerment, a certificate of blindness is issued. Under this scheme, a person with at least 40% disability is considered handicapped and is eligible for the various benefits and concessions given by the government of India.^[5]

Causes of Blindness

Cataracts are the leading cause of blindness worldwide. They occur when the lens of the eye becomes cloudy, leading to blurry vision and eventual vision loss if left untreated. Cataracts are often age-related, but they can also result from injury, certain medications, or underlying medical conditions. Glaucoma is a group of eye conditions characterized by damage to the optic nerve, often caused by increased pressure within the eye. If left untreated, glaucoma can lead to gradual vision loss and irreversible blindness. It is a major cause of blindness globally. Age-related Macular Degeneration (AMD) affects the central part of the retina called the macula, which is responsible for central vision. It causes a progressive loss of central vision, making it difficult to see fine details, read, or recognize faces. AMD is more common in older adults. Diabetic retinopathy is a complication of diabetes that affects the blood vessels in the retina. It can lead to vision loss or blindness if not properly managed. The condition progresses over time and is more common in individuals with poorly controlled diabetes. Trachoma is a bacterial infection of the eye that can cause scarring of the inner surface of the eyelids. Repeated infections can lead to the eyelashes turning inward and scratching the cornea, resulting in vision impairment and blindness. Trachoma is more prevalent in developing countries with poor sanitation and limited access to healthcare. Refractive errors, including nearsightedness (myopia), farsightedness (hyperopia), and astigmatism, are common causes of vision impairment and can lead to blindness if left uncorrected. These conditions can usually be addressed with prescription glasses, contact lenses, or refractive surgery. Childhood blindness can be caused by a range of factors, including congenital conditions (present at birth), genetic disorders, infections, trauma, and certain developmental disorders. Early detection and intervention are crucial in managing and preventing childhood blindness.

Objectives

The objective of the current study is to study the pattern of visual impairment and to classify the various causes of visual impairment among individuals seeking disability certificate. This cross-sectional study aims to investigate the pattern of visual impairment among individuals applying for a

disability certificate at a tertiary care hospital in Pimpri, Pune, India.

MATERIALS AND METHODS

Study Design: This study utilized a cross-sectional design to collect data on individuals seeking a disability certificate for visual impairment.

Study Setting: The study was conducted at a tertiary care hospital in Pimpri Chinchwad, Pune, which serves as a referral center for patients with visual impairments.

Sample Selection: The study included individuals who presented to the hospital's disability certification unit seeking a disability certificate for visual impairment. The sample size was determined based on the prevalence of visual impairment in the population.

Data Collection: Data was collected through face-to-face interviews of study subjects and assessing their medical records. The demographic information, clinical history, and visual acuity measurements of study subjects were noted on a structured case report form. The World Health Organization (WHO) criteria was applied for Visual impairment classification.

The study was carried out over a period of 18 months period starting from July 2021 to December 2022. During the study period, total 148 visually impaired certificates were issued. The records of these 148 study subjects were assessed and information was collected retrospectively using a structured case record form. The information about study subject's socio-demographic variables like age (in years), sex, education, marital status, and occupation was collected. The clinical history like cause of blindness, blindness percentage, blindness duration etc was noted using a structured case record form.

At the time of issuance of the visual impairment certificate, the cause of blindness was ascertained with the help of detailed clinical examination like the direct and indirect ophthalmoscopy, slit-lamp examination, slit-lamp biomicroscopy with 78D lens, applanation tonometry, Humphrey visual field analysis wherever necessary and feasible. The degree of visual impairment was reported according to the guidelines of Ministry of Social Justice and Empowerment 1999.^[6]

Data Analysis: The collected data was entered into MS-Excel worksheet and further analysis was carried out using Statistical Package IBM Corp. Released 2019. IBM SPSS Statistics for Windows, Version 26.0. Armonk, NY: IBM Corp. The qualitative variables were presented using frequency and percentage whereas the quantitative variables were presented using descriptive statistics like Mean and standard deviation.

RESULTS

Demographic Characteristics: The study included a total of 148 study subjects seeking a disability

certificate for visual impairment at a tertiary care hospital in Pimpri Chinchwad, Pune. Table 1 shows the demographic characteristics of the participants, including gender, age, education, occupation, and marital status were analyzed. Out of 148 study subjects, 95 (64.19%) were male and 53 (35.81%) were female. The average age of study subjects was 31.35 (± 21.33) years and 57 (38.51%) subjects were below 20 years of age, 44 (29.73%) were between 21-40 years, 31 (20.95%) were between 41-65 years and 16 (10.81%) were above 65 years of age. According to the literacy, 29 (19.59%) study subjects were illiterate, 45 (30.41%) had education up to primary level, 38 (25.68%) had education up to middle level, 23 (15.54) had education up to high school and 13 (8.78%) had education up to college and above. Among the 148 study subjects included in the study, 9 (6.08%) were student, 28 (18.92%) were service class, 52 (35.14%) were farmers, 30 (20.27%) were labourers, 14 (9.46%) were businessmen, 8 (5.41%) were beggars, and 7 (4.73%) were not working. Out of 148 study subjects, 51 (34.46%) were unmarried, 76 (51.35%) were married, and 11 (7.43%) were divorced, and 10 (6.76%) were widowed.

Reason for seeking visual disability certificate: [Figure 1] shows distribution of study subjects according to the reason for seeking visual disability certificate. Out of 148 study subjects, 48 (32.4%) needed visual disability certificate for job related purposes, 43 (29.1%) for various schemes of government allowances, 33 (22.3%) for the purpose of travel related reasons, 15 (10.1%) needed for education purpose, and 9 (6.1%) needed it for income tax propose.

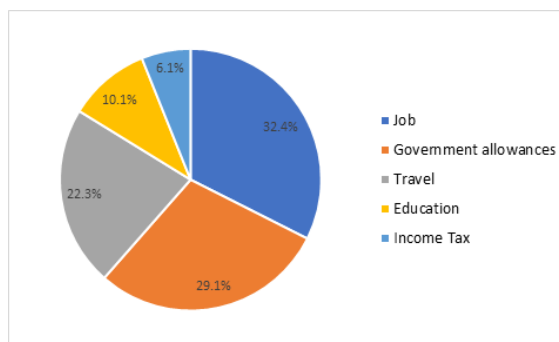


Figure 1: Reason for seeking visual disability certificate

Types and Causes of Visual Impairment: The study assessed the types and causes of visual impairment among the participants. Visual impairments were categorized as low vision or blindness. [Table 2] indicates distribution of study subjects according to the various Cause of visual impairment. The causes of visual impairment such as Congenital anomalies (27.03%), Retinitis pigmentosa (25.0%), Refractive errors with amblyopia (22.30%), Corneal opacity related to trauma and infectious keratitis (9.46%), Glaucoma (6.08%), Phthisis bulbi (4.73%), Age-related Macular Degeneration (ARMD) (1.35%) and other miscellaneous causes (4.05%) were recorded.

Disability Category: Disability Categories were recorded for each study subject. [Table 3] shows distribution of study subjects according to the disability category. Out of 148 study subjects, 6 (4.1%) were category 0 (20% disability), 56 (37.8%) were category I (40% disability), 9 (6.1%) were category II (75% disability), 15 (10.1%) were category III (100% disability), 21 (14.2%) were category IV (100%) disability, and 37 (25.0%) were only one eyed (30% disability).

Table 1: Distribution according to Demographic Characteristics

Parameter	Frequency	Percent
	n	%
Sex		
Male	95	64.19%
Female	53	35.81%
Age (years)		
<20	57	38.51%
21-40	44	29.73%
41-65	31	20.95%
>65	16	10.81%
Education		
Illiterate	29	19.59%
Primary	45	30.41%
Middle	38	25.68%
High school	23	15.54%
College & above	13	8.78%
Occupation		
Student	9	6.08%
Service class	28	18.92%
Farmer	52	35.14%
Labourer	30	20.27%
Businessmen	14	9.46%
Begger	8	5.41%
Not working	7	4.73%
Marital Status		
Unmarried	52	35.14%

Married	73	49.32%
Separated	24	16.22%

Table 2: Cause of visual impairment

Cause of visual impairment	n	%
Congenital anomalies	40	27.03%
Retinitis pigmentosa	37	25.00%
Refractive errors with amblyopia	33	22.30%
Corneal opacity related to trauma and infectious keratitis	14	9.46%
Glaucoma	9	6.08%
Phthisis bulbi	7	4.73%
Age-related Macular Degeneration (ARMD)	2	1.35%
Miscellaneous	6	4.05%

Table 3: Disability Category

Disability Category (% impairment)	n	%
Category 0 (20%)	6	4.1%
Category I (40%)	56	37.8%
Category II (75%)	9	6.1%
Category III (100%)	15	10.1%
Category IV (100%)	24	16.2%
Only one eyed (30%)	38	25.7%
Total	148	100.0%

DISCUSSION

The findings of this study will be helpful to provide insights into the pattern of visual impairment among individuals seeking a disability certificate at a tertiary care hospital in Pimpri Chinchwad, Pune. Many studies have been conducted in India to assess the prevalence of visual impairment in the community. The findings of these studies were helpful in providing insights into the pattern of visual impairment among individuals and understanding the types, causes, and severity of visual impairment in the community will be helpful for developing appropriate strategies for diagnosis, treatment, and rehabilitation services. The visual impairment has a deep impact on the personal, economic, and social life of an individual. The high prevalence of visual impairment in a country like India is a significant public issue.^[3,7] The results of this study will be helpful for government in order to plan the strategies for rehabilitation and prevention of visual impairment. The results of the current study conform to the results of previous studies conducted at different geographical areas in India.

The current study result shows male dominance and the possible reason behind this may be that the certification system is easily accessible to males as compared to the females due to the societal hindrances. These findings were similar to the results of the studies conducted by Hegde et al,^[8] Ghosh S et al,^[9] and Joshi et. al.^[4] In contrary, the reports of 58th round of the NSSO survey suggests that proportion of females (54%) was higher among females as compared to the males (46%).

The results of current study indicate younger individuals (≤ 40 years) are the majority of the visual impairment certificate seekers as compared to the older individuals (>40 years). These results correlate with the reason for seeking visual disability certificate, and majority of the reasons listed were related to the job (32.4%), government allowances

929.1%), travel (22.3%) and education (10.1%). Similar findings were reported by Hegde et al.⁸ and Ghosh S et al.^[9]

The results of the current study shows that the majority of the visual impairment certificate seekers belong to the disability category I (40% disability) followed by only one eyed (30% disability) and Category IV (100% disability). The findings were similar to the results of the studies conducted by Kareemsab et al,^[10] Gosh et al,^[9] and Bunce et al.^[11] The results of our study indicate that the most frequent cause of visual impairment was congenital anomalies (27.03%), Retinitis pigmentosa (25.0%), Refractive errors with amblyopia (22.30%), and Corneal opacity related to trauma and infectious keratitis (9.46%). The other causes include Glaucoma (6.08%), Phthisis bulbi (4.73%), Age-related Macular Degeneration (ARMD) (1.35%) and other Miscellaneous causes (4.05%). The similar results were reported by the authors Hegde et al,^[8] Ghosh S et al,^[9] Kareemsab et al,^[10] and Bunce et al.^[11]

Limitations

The study's findings may not be generalizable to the entire population as the sample was limited to individuals seeking disability certification at a single tertiary care hospital. There might be a potential for recall bias as data were collected through interviews and medical record reviews, which rely on participants' ability to recall and report their medical history accurately.

CONCLUSION

The results of this cross-sectional study will provide valuable information on the pattern of visual impairment among individuals seeking a disability certificate at a tertiary care hospital in Pimpri Chinchwad, Pune. The findings can contribute to the development of targeted interventions and support services for individuals with visual impairments in

the region, aiming to improve their overall quality of life and social inclusion. Further research and collaborative efforts are necessary to address the challenges faced by individuals with visual impairments and ensure equal opportunities for their participation in society.

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