



Research Article

## CLINICAL PROFILE OF PATIENTS WITH LOW VISION AND BLINDNESS REPORTING TO A PRIVATE CLINIC IN NORTH INDIA

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### ARTICLE INFO

#### Article History:

Received 12<sup>th</sup> March, 2021  
Received in revised form 23<sup>rd</sup>  
April, 2021  
Accepted 7<sup>th</sup> May, 2021  
Published online 28<sup>th</sup> June, 2021

#### Key Words:

Blindness, cataract, low vision.

### ABSTRACT

**Aim:** To evaluate the causes of low vision and blindness among patients reporting to a private clinic in north india.

**Study Design:** Prospective observational study. 962 subjects aged 40 years and above were examined.

**Materials and Methods:** All subjects underwent a complete ophthalmic examination that included best-corrected visual acuity. Low vision and blindness were defined using World Health Organization (WHO) criteria.

**Results:** Of the 962 enumerated subjects, 427 males and 535 females were examined. Cataract was found to be the leading cause (58.1%) and glaucoma was the second cause (14.7%) for blindness. The primary causes for low vision were refractive errors (65%) and cataract (22%).

**Conclusions:** As per our study, cataract was the leading cause for blindness and refractive error was the main reason for low vision.

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### INTRODUCTION

Blindness is a major health and social issue in our country. Obtaining information on low vision and blindness will help improve understanding of the problem and assist in developing newer strategies to prevent it. The purpose of the present study was to report the causes of low vision and blindness in Jammu District, J&K, India.

The present study includes 962 subjects and was conducted between 1 July 2019 to 31 December 2020 for a period of 6 months. 40 years or older people of either sex were taken.

### MATERIAL AND METHODS

After obtaining the written informed consent, all subjects were made to undergo a comprehensive ophthalmic examination. The ophthalmic examination consisted of recording the best-corrected visual acuity using the Snellen's chart, applanation tonometry, gonioscopy, slit lamp grading of lens opacities using LOCS II for those with a minimum pupillary dilation of 6 mm, stereoscopic evaluation of the optic nerve head and macula using + 78 diopter lens at the slit lamp, a detailed retinal examination with a binocular indirect ophthalmoscope using a +20 diopter bi-convex lens.

The presenting and best-corrected visual acuity was measured using the Snellens Chart.

Landolt's C chart was used for those who could not read English. Monocular visual acuity was determined with current spectacle prescription, if any, and pinhole acuity was assessed in eyes with visual acuity less than 6/6. Streak retinoscopy and subjective refraction were performed on all subjects. The best-corrected visual acuity was ascertained and the value recorded. If the visual acuity could not be measured, we used the following tests sequentially: counting fingers, hand movements, and light perception. If more than one disease was present, the disease that was most likely to have a significant effect on vision was considered as the cause for blindness.

The definitions for low vision and blindness that we used were similar to the World Health Organization (WHO) definitions.

- Blindness was defined as best-corrected distance visual acuity of less than 3/60 and/or less than 10° visual field in the better eye.
- Low vision was defined as a best-corrected distance visual acuity of less than 6/18 but equal to or better than 3/60 in the better eye.

We did not include visual fields in this group.

We classified people with at least primary education as literates and people with no formal education as illiterates.

### RESULTS

Out of total of 962 subjects, 427 (44.3%) were males and 535 (55.6%) were females. The mean age of the study population

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was  $57.2 \pm 10.6$  years. Exactly 689 (71.6%) subjects were literates and 273 (28.4%) were illiterates.

The mean age was  $68.6 \pm 13.1$  years among blind individuals. The visual acuity data of the study population is given in [Table 1].

**Table 1 Age Distribution**

Age	Number	Percentage (%)
40-49	351	36.49
50-59	280	29.11
60-69	226	23.50
70-79	89	9.25
$\geq 80$	16	1.66
Total	962	100

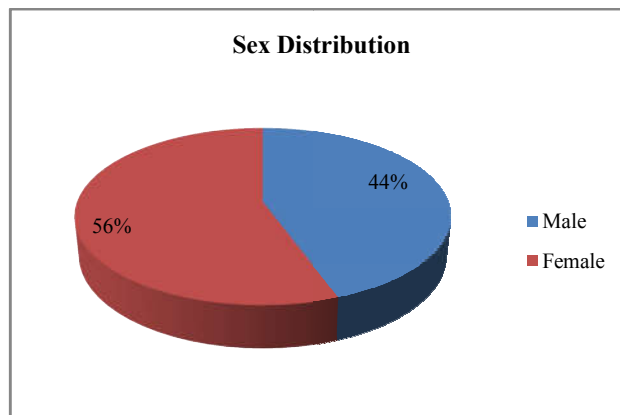
**Table 2 Causes of Blindness**

Diagnosis	Number	Percentage
Cataract	140	58.1
PACG, POAG	35	14.7
RP	15	6.5
OA	14	5.5
Corneal	2	1
Secondary Glaucoma	7	3
Amblyopia	10	4
Cortical blindness	8	3.2
Others	10	3
Total	241	100

**Table 3 Low Vision**

Diagnosis	Number	Percentage(%)
Refractive Error	468	65
Cataract	159	22
Corneal Pathology	14	2
Macula	14	2
Glaucoma	21	3
Others	45	6
Total	721	100

The causes of blindness are enumerated in [Table 2]; cataract was leading cause for blindness [140 (58.1%) eyes], followed by glaucoma [35 (14.7%) eyes]. In 129 subjects, the cause for blindness was the same in both eyes. The causes for low vision [Table 3]; the primary cause was refractive error (68%), followed by cataract (22%).

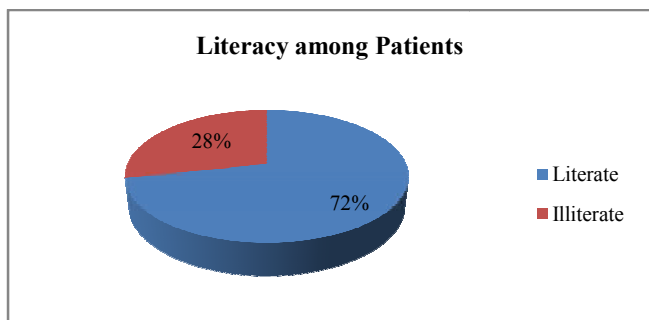


**Chart 3**

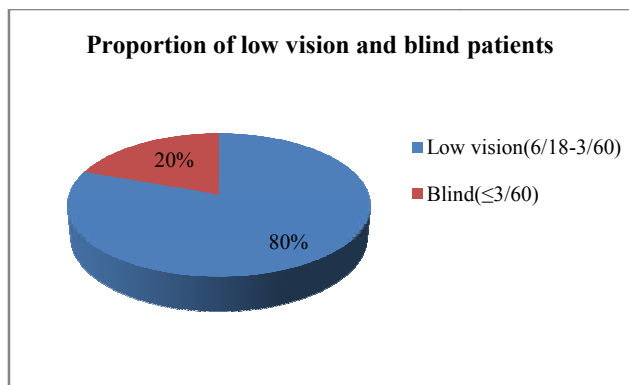
**DISCUSSION**

National data shows that more than 86% of the blindness is among persons aged 50 yrs and above and 80% of this blindness is avoidable according to census of India, 2007. If appropriate measures are not taken to control the reversible causes for blindness, blindness rates will continue to increase. Illiteracy is positively associated with blindness in our population and similar results obtained from our study (Chart 1); those in the low socioeconomic stratum are less likely to have access to education and health care, resulting in higher blindness rates. Gender differences in the prevalence of blindness in the Indian population were reported earlier (Murthy GV *et al.*, 2005) (Dandona L *et al.*, 2001). We did not (Chart 3). Unlike the nation-wide survey which suggested that unemployed people were likely to have higher rates of blindness, we did not notice any difference in the blindness rates among different occupational groups (Murthy GV *et al.*, 2005).

High proportion of low vision due to uncorrected refractive errors is similar to other reports from different parts of the world including India (Raju P *et al.*, 2004) (Raju P *et al.*, 2008). The causes of blindness vary across the world. There are a number of studies suggesting that the leading cause of blindness in the White population is age-related macular degeneration (Attebo K *et al.*, 1996) (Klaver CC *et al.*, 1998) (VanNewkirk M *et al.*, 2001). Cataract seems to be the leading cause of blindness in Africa and in developing countries (Dandona L *et al.*, 2002) (Thulsiraj RD *et al.*, 2003) (Abdull MM *et al.*, 2009). In India, cataract has been documented to be the cause of bilateral blindness in 50-80% of blind people (Vijaya L *et al.*, 2006) (Murthy GV *et al.*, 2005). In our study result was similar with cataract being the main cause for blindness in 58.1%. However, 4.5% of the causes of blindness (in 3 out of 66 eyes - corneal scar in one eye and bullous keratopathy in 2 eyes) were possibly related to cataract surgery. The second leading cause for blindness in this present study was glaucoma. This finding is similar to other population studies in India that have shown glaucoma as the second leading cause of blindness in the adults (George R *et al.*, 2010). Unlike cataract, glaucoma results in irreversible blindness which can potentially be prevented if diagnosed



**Chart 1**



**Chart 2**

Blindness was found to be significantly associated with increasing age. Illiteracy was positively associated with blindness. There was no association with gender or occupation.

early. The high rates of blindness due to glaucoma in India can be explained partially by the large proportion of undiagnosed disease in the population. In population-based studies across the country, more than 90% of glaucoma patients were diagnosed during the study examination. Unless we improve our ability to diagnose glaucoma in the country, glaucoma detection rates cannot be improved. With an increase in life expectancy, in India, the number of people at risk of developing glaucoma will increase, thereby resulting in more blindness due to glaucoma. There is a need to sensitize eye care professionals to adopt a comprehensive eye examination that includes slit-lamp biomicroscopy, applanation tonometry, gonioscopy, indirect ophthalmoscopy, and stereoscopic evaluation of the optic disc. This definitely will improve detection rates of any eye disease, which in turn will minimize visual impairment, resulting in blindness. The public too should be educated about the importance of undergoing eye examination by an ophthalmologist rather than relying on chemists for eye problems.

## CONCLUSION

The primary cause for low vision in our population was refractive errors. The second cause for low vision was cataract. Cataract remains the main cause of blindness. Glaucoma is the second leading cause of irreversible blindness. An increase in ophthalmic care and public education on the need for comprehensive examination is needed to minimize the irreversible blindness rates in this part of the world. Uncorrected refractive errors and cataract were the main causes for low vision.

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### How to cite this article:

Pavani Kiranmayi Munagala *et al* (2021) 'Clinical Profile of Patients With Low Vision And Blindness Reporting To A Private Clinic In North India', *International Journal of Current Advanced Research*, 10(06), pp. 24535-24537.  
DOI: <http://dx.doi.org/10.24327/ijcar.2021.4883.24537>

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