

CLINICAL PROFILE OF PATIENTS PRESENTING TO LOW VISION CLINIC OF A TERTIARY CENTER IN WESTERN REGION OF NEPAL

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ABSTRACT

INTRODUCTION: Low vision is an important public health problem; however, very few low vision clinics are available to address the needs of low vision patients in most developing countries. The purpose of this study was to describe the characteristics of patients attending the low vision clinic of a tertiary care eye hospital of Western Region of Nepal.

METHODS: This was a prospective cross sectional study of all new Nepali patients seen at the low vision clinic over 2 years period. The patients were administered with clinical low vision form (a structured questionnaire) and were examined and tested with low vision devices by the attending low vision specialist. Information on the demographic and clinical characteristics of the patients was recorded.

RESULTS: A total of 214 new patients seen during the period were studied. The mean age was 19.80 years, and their ages ranged between 4 and 86 years with a male to female ratio of 2.69:1. Majority (53.30%) were children (≤ 15 years), while 3.70% were elderly patients (≥ 65 years).

The commonest cause of low vision was lens related like pseudophakia, aphakia (20.60%); 18.20% had refractive error/amblyopia; 17.80% had retinitis pigmentosa; macular disorder (20%) and retinitis pigmentosa (20%) were the commonest cause in the adult and elderly patients, while lens related (24.6%) and refractive error/amblyopia (21.1%) were the commonest causes in children.

CONCLUSION: The demographic and clinical characteristics of low vision patients seen in this clinic are similar to that of patients in other developing countries, but different from those in developed countries. Elderly patients and females may be under-utilizing low vision services.

KEYWORDS: Low vision, Refractive error

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INTRODUCTION

A person with low vision is one who has impaired visual function despite treatment of eye disease and/or correction of refractive error, and has reduced visual acuity in the better eye which is less than 6/18 but better than Light Perception (LP) or a visual field constriction to less than 10°, but who uses or is potentially able to use vision for the planning and/or execution of a task.¹ This definition of low vision excludes individuals whose visual acuity could be improved by surgical and/or medical treatment and refers to functional vision. It differs from other definitions of low vision in the literature which include all individuals presenting with impaired vision regardless of the cause, potential for treatment and the ability to use residual vision. The term “functional low vision” has been used to represent this definition in a bid to avoid the confusion with other definitions.^{2,4} People with functional low vision require assessment for low vision interventions,² and such patients are the focus of this article.

Functionally, low vision is characterized by irreversible visual loss and a reduced ability to perform many daily activities, such as recognizing people in the street, reading blackboards, writing at the same speed as peers, and playing with friends.⁵ It is an important public health problem;⁶ and provision of low vision services is one of the priorities in the global initiative, VISION 2020 The Right to Sight.^{2,7}

Based on figures from Mid Term Review of Vision 2020: The Right to Sight, Nepal 2011, it is estimated that approximately 2,30,000 people of all ages have functional low vision in Nepal. The service coverage for low vision at present is less than 1% (1,500 out of 230,000). One half of the users of low vision services are children under 16 years of age; adolescents and adult between 16 to 39 years of age constitute 35.35% of service users. Persons over 40 years constitute just over 12% of low vision service users, in sharp contrast to the situation in developed countries where low vision services are used predominantly by older population.³ The challenge of providing low vision services for such a large population is enormous and requires proper planning and efficient use of available resources. It is, therefore, important to collect and analyze clinical data from patients with functional low vision in order to deliver appropriate low vision care.

Serious gender inequity is evident in use of low vision services, women constitute only one third of all users of low vision devices although they carry two thirds of burden of blindness. Refractive error/amblyopia is found to be major cause of low vision accounting for 26.83% of cases followed by retinal problem including retinitis pigmentosa, macular degeneration etc. Lens related conditions accounted for

16.75% of low vision use which may signal that early detection of cataract, appropriate surgery and adequate early rehabilitation may reduce the need for low vision devices.³

This study was carried out to describe the demographic and clinical characteristics of patients presenting to the low vision clinic in western part of Nepal. We believe that the information about patients who actually attend low vision clinics would be useful for planning and delivery of effective low vision services.

MATERIALS AND METHODS

This was a prospective cross sectional study of all new Nepali patients seen at the low vision clinics of Lumbini Eye Institute (LEI) from January 2011 to December 2012. The low vision clinic was established in the hospital with the support of National Low Vision program in 2006, and services commenced in the same year. It is located in the eye clinic of the hospital with a dedicated room equipped for evaluation and testing of patients with low vision.

STUDY POPULATION

All patients presenting to the low vision clinic are seen by an optometrist who has received subspecialty training in low vision services. Low vision devices are available for purchase by clients as soon as they are prescribed. All the patients seen during the study period were administered with a structured questionnaire, and were examined and tested with different low vision devices by the attending low vision specialist. Information on the demographic and clinical characteristics of the patients was recorded. Visual Acuity (VA) was assessed with the use of log MAR charts (high contrast lea, E symbol and letter) and recorded in Snellen equivalent for distance vision and metric units (M) for near vision.

Verbal informed consent was obtained from study participants. Ethical approval was obtained from the ethical committee of Lumbini Eye Institute. The data was analyzed with the use of Statistical Package for Social Sciences version 17 software (SPSS)

RESULTS

A total of 214 new Nepali patients presented and were seen at the low vision clinic during the study period. The mean age was 19.80 years. Their ages ranged between 4 and 86 years with standard deviation ±15. Majority (72.90%) of the patients were males with a male to female ratio of 2.69:1. The 6-15 years age group had the largest proportion with 49.10% of patients; followed by the 16-39 years age group (36.00%).

Figure 1: Sex distribution of low vision patients

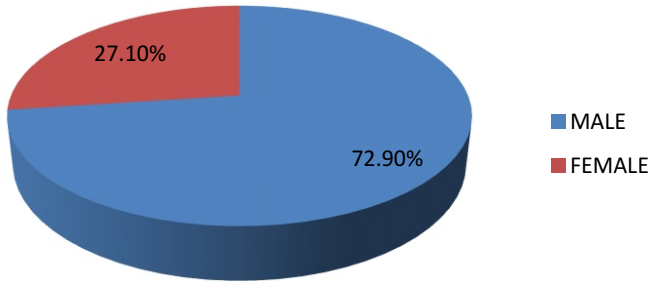


Table 1: Age and sex distribution of low vision patients

Age-range	MALE	FEMALE	No. (%)
0-5 yrs	7	2	9 (4.20)
6-15 yrs	74	31	105 (49.10)
16-39 yrs	55	22	77 (36.00)
40-64 yrs	14	1	15 (7.00)
65 & above	6	2	8 (3.70)
Total	156	58	214 (100)

114(53.30%) patients were children (aged 15 years or less), 94 (43.9%) were aged between 16 and 64 years, while 8 (3.70%) of them were elderly patients (65 years and older).

Figure 2: Occupation of low vision patients

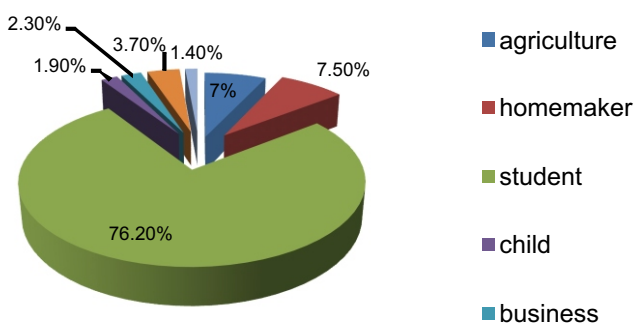


Figure 3: Referred from

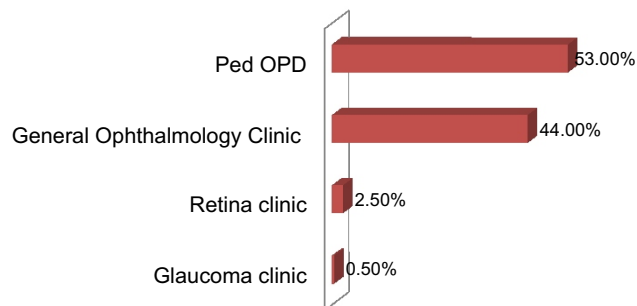


Table 2: Main presenting complaints of low vision patients

Main complaint	Frequency(N)	Percent (%)
Distance vision	45	21.5
Near vision	47	22.0
Both distance and near vision	116	54.0
Night blindness	1	0.5
Restricted visual field	5	2.0
Total	214	100

With regards to the main presenting complaint, 116 (54.0%) patients complained of both poor distance and near vision indicating that both distance and near vision were of equal importance to them. 47 (22.0%) patients said their major problem was with near vision, while 45 (21.5%) reported that their main complaint was poor distance vision. One patient (0.5%) had night blindness as the main symptom while 5 (2.0%) patient was mainly concerned about restriction of his visual field.

Table 3: Causes of low vision

	Frequency(N)	Percent (%)
Whole globe (egmicrophthalmos)	23	10.70
Nystagmus	12	5.60
Corneal disorder	9	4.20
Lens related(aphakia, pseudophakia)	44	20.60
Refractive error/amblyopia	39	18.20
Albinism	8	3.70
Retinitis pigmentosa	38	17.8
Macular disorder	33	15.50
Optic atrophy	8	3.70
Total	214	100

The commonest cause of low vision was Lens related (aphakia, pseudophakia) in 44 (20.60%) patients. 40.7% of the patients, the cause of low vision involved posterior segment disease.

The commonest causes of low vision among children were lens related and refractive error/amblyopia, each accounting for 20.60% and 18.20% respectively. Among the adults aged and elderly patients, the commonest cause was macular disorder and retinitis pigmentosa, each occurring in 20.0% of patients.

Table 4: Low vision category

Vision in best eye	Presenting	Improved with distance glasses
<6/18 - 6/60	77 (36%)	82 (38.20%)
<6/60 - 3/60	52 (24.30%)	51(24%)
<3/60 -1/60	48 (22.40%)	48 (22.40)
<1/60-PL	37 (17.30%)	33 (15.40%)
Total	214	214

Among the patients, 38.20% could achieve a distance visual acuity of 6/60 or better after receiving the correct spectacles (Table 4). 86.90% patients had improved with distance glasses. 78.50% students already had spectacles when they presented (Figure 4), but in 50% the visual acuity could be improved with a change in prescription and in total 58.40% needed a new pair.

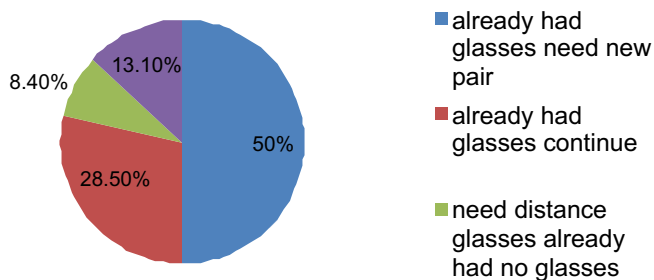
Figure 4 : Need of distance spectacles

Table 5 shows that at presentation, there were 18.70% patients having near vision 1M or better. After low vision assessment, 41.6% were near visual acuity 1M or better. 70% patients were able to read 2.5 M or better at 10 cm.

Table 5: Near visual acuity category

Size	Presenting	Improved
1M or better @10 cm or more	40 (18.70%)	89 (41.60%)
1.25M-2.5M @10cm or more	92 (43%)	60 (28%)
3M-4M @10cm or more	21 (9.8%)	18 (8.40%)
>4M	61 (28.50%)	47 (22%)
Total	214	214

DISCUSSION

This study has presented data from a population of low vision clinic patients. A major advantage of low vision clinic studies when compared with population surveys, blind school studies or blind register studies is that they provide more reliable and usually detailed ophthalmic information about people with low vision.^{11,12} The information obtained from such studies

can be very useful for planning low vision services, active care and rehabilitation.⁶

The age distribution of our patients is different from previous reports from developed countries but is similar to those from other developing countries. Although the incidence of low vision has been reported to increase with age,¹² in our study, a significant proportion (84%) of patients was below 30 years and majority (93%) were below 50 years of age, while only 4% were aged 60 years and above. This depiction of a younger population is similar to findings from Malaysia,¹⁴ Korea⁶ and India¹⁶ in which the proportion of patients aged below 50 years were 74%, 69% and 68% respectively. In these developing countries, the proportion of low vision patients aged 60 years and above ranged between 16% and 26%.

On the other hand, in studies from developed countries, Leat and Rumney¹⁷ (United Kingdom) found 77% of their patients to be aged 60 years and above; Elliot et al.¹¹ (Canada) reported that 66% of patients were 70 years or older; while in Australia, Wolffsohn and Cochrane¹² observed that 87% of patients were aged 60 years and above. This difference in the pattern of the age distribution may be a reflection of the older general populations in developed countries^{11,14} and low life expectancy in developing countries.¹⁶

The relatively high male to female ratio in our study is similar to that of other studies conducted in developing countries as follows: Korea- 1.8:1⁶, Malaysia- 2.2:1¹⁴ and India- 2.6:1.¹⁶ It is, however, different from the pattern in developed countries where more females were found to present for low vision services.¹¹⁻¹³ This probably demonstrates the reduced access and utilization of eye care services by females in developing countries.^{9,10}

Majority of our patients considered their problems with near and distance vision to be of equal importance. However, elderly patients were more likely to deem near vision as being their major problem; while children had a tendency to judge distance vision as more important. This observation perhaps portrays the additional effect of presbyopia on low vision in the elderly, although it may also signify that the elderly have a greater likelihood of central visual loss from macular disease. Posterior segment disease accounted for the majority of causes of low vision in this study. This correlates with findings of most low vision clinic studies.^{6,11,12,14-17}

We found lens related like pseudophakia and aphakia to be the commonest cause of low vision in this study. Similarly, in Mid Term Review of Vision 2020, 2011, it was the third most common cause of low vision, accounting for 16.75% of subjects with low vision.

Similarly to the report by Richard⁸ in which cataract was the most common cause of low vision, cataract was common in the study because most cases of pediatric cataract were managed in the pediatric department and referred to the low vision clinic if needed. The pediatric cataract Initiative program was conducted in the hospital during that period focusing on active follow up of the post operative children after cataract surgery. That helped us to get more children with lens related low vision.

Retinitis pigmentosa has been found to be the third major cause of low vision in our study. Khan found it to be the commonest cause in a population of 410 low vision patients in India.¹⁶ While Mohidin and Yusoff observed it to be the second commonest cause in a Malaysian low vision clinic.¹⁴

CONCLUSIONS

It shows that the clinical characteristics of low vision patients in our setting are similar to that of patients in other developing countries, but different from those in developed countries. In addition, elderly patients and females may be under-utilising low vision services. We recommend that eye care practitioners including ophthalmologists, optometrists, ophthalmic assistants and general medical practitioners in Nepal should be encouraged to be more aware about identifying patients with low vision, especially females and the elderly and promptly referring such patients for low vision assessment.

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