Profile of Patients Visiting a Surgical Eye Camp in Pokhara, Nepal - A Descriptive Cross Sectional Study

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Abstract

Introduction: Nepal is a lower-middle-income country with low health literacy and challenging healthcare access. Various health camps are conducted throughout the country to address these needs. This study was conducted to understand the demographic and clinical profile of patients visiting a surgical eye camp in Pokhara, Nepal.

Methods: A cross-sectional study was conducted among 945 patients visiting the eye camp at Military Hospital, Pokhara, Nepal. Descriptive statistics were used to present the demographic details and clinical profile of the patients.

Results: The demographic profile of the participants showcased a diverse sample regarding age group, gender, and ethnic group. Among the total 945 patients, 306 (32.38%) had prior ophthalmological conditions, with presbyopia (25.49%) and refractive errors (15.03%) being the most common. During the camp, prevalent diagnoses included presbyopia (27.39%), refractive errors (22.23%), and cataract (16.10%). Only 45.75% of previously diagnosed patients were on regular follow-ups.

Conclusion: Different types of eye disorders are prevalent among general population. Presbyopia and refractive errors are the commonest eye disorders in the study population.

INTRODUCTION

Nepal is one of the lower-middle-income countries with low health literacy and difficult access to health care.[1,2] A study showed that the health literacy of common ocular diseases in Nepal was poor, and patients from rural areas were more unaware.[3] The pattern and burden of visual impairment and other ocular diseases vary with the demographic profile of the population.[4]

Nepal has recognized health services as a fundamental human right since the interim constitution of 2007, and Government, Governmental bodies, and non-governmental bodies have provided their share of contribution in uplifting the health services of the country.[5,6] But still, issues of inadequate human resources in the health sector, difficult access to health services, and budget priorities remain even today.[7,8] In such a state, the best solution for reducing ocular morbidity is to take eye care services to their doorsteps.[3]

The Nepali Army, a Governmental body, has stood up as an independent body in the health sector and has been providing health services to the military and other populations. The pattern and burden of ophthalmological disease differ with the demographic profile. The clinical profile along with the management of various ophthalmological diseases have been studied in terms of demographic parameters, and it has been established that health status varies among age, sex, race, and ethnicity.[9] For a holistic way of addressing the health issues and challenges of population, its demographic and clinical profile needs to be studied. For this purpose, the present study has been conducted and aims to study the demographic and clinical profile of the patients who visited the surgical eye health camp at Pokhara, Nepal.

METHODS

The study was conducted among the patients who visited the surgical eye camp at Military Hospital, Pokhara, Nepal. The camp was conducted over a period of five days from 8 Oct 2023 to 12 Oct 2023. The study was commenced after taking the ethical clearance. Ethical clearance was obtained from the Institutional Review Committee of the Nepalese Army Institute of Health Sciences (IRC - NAIHS). Total 945 study population was included in the study. Cochran's formula was used to calculate the sample size as per follows.

$$n = Z^2 \times p \times q / e^2$$
$$= (1.96)^2 \times (0.5 \times 0.5) / 0.04^2$$
$$= 0.9604/0.0016$$
$$= 600$$

Where, n = required sample size, Z = 1.96 at 95% Confidence Interval (CI), p = prevalence 50% (for maximum sample size calculation), q = 1-p, e = margin of error, 4%. Although the calculated sample size was 600, 945 people who visited the camp and were diagnosed with ophthalmological disorders were included in the study after taking informed consent. Patients who had diseases other than ophthalmological diseases were excluded from the study. Patients of different ethnicities, terrains, and age-groups visited the eye camp. For data collection, a study tool with structured questions was prepared and used. The data was entered into the excel sheet and Microsoft Excel 2020 and SPSS software version 16 was used for analyzing the data. Descriptive statistics were used to present the demographic and descriptive details of the patients.

RESULTS

The demographic profile of the study participants reveals a diverse sample with varied age groups, representing a broad spectrum of the population. The majority of participants were from the age group of 18 to 59 years, constituting 56.61% of the total participants. The gender distribution indicated a fairly balanced representation, with 53.80% male participants. Ethnicity showcased a rich mix, with the most prominent group being Chhetri (27.12%). The study had patients from different geographical locations, with a significant proportion of participants from Kaski district (44.97%) and followed by Syangja district (17.01%). The details of the demographic profile of the sample are listed in Table 1.

Table 1: Demographic profile of the included sample

Demographics	Frequency (N = 945)	Percentage
Age (Years)		
0 - 17	145	15.34%
18 - 59	535	56.61%
> 60	265	28.05%
Sex		
Male	509	53.80%
Female	436	46.20%
Ethnicity		
Newar	51	5.39%
Gurung	49	5.19%
Chhetri	256	27.12%
Brahmin	249	26.35%
Tamang	46	4.87%
Tharu	43	4.55%
Others	251	26.53%
Location (Districts)		
Kaski	425	44.97%
Syangja	161	17.01%
Tanahun	126	13.33%
Parbat	80	8.47%
Lamjung	46	4.87%
Gorkha	23	2.43%

During the eye camp, among the sample of 945 patients, 306 individuals had been previously diagnosed with ophthalmological conditions before the camp, while the remaining participants were diagnosed with eye conditions during the camp. The diagnosis of the patients, which was done before the camp, is listed in Table 2. The most common diagnoses included presbyopia (25.49%). It was also found that only 140 individuals, constituting 45.75% of the total diagnosed cases, were on regular follow-ups.

Table 2: Diagnosis of the participants having been

diagnosed with ophthalmological condition before the camp (N = 306)

Diagnosis	Frequency	Percentage
Trauma	1	0.33%
Presbyopia	78	25.49%
Refractive error	46	15.03%
Allergy	36	11.76%
Dry eyes	12	3.92%
Retinoblastoma	1	0.33%
Cataract	30	9.80%
Hypertension	35	11.44%
Glaucoma	10	3.27%
Branch retinal vein occlusion	1	0.33%
Pterygium	10	3.27%
Pseudophakia	27	8.82%
Color vision	2	0.65%
Bell's palsy	1	0.33%
Diabetes Mellitus	16	5.23%
Total	306	100%

Among the patients diagnosed in the camp, the most prevalent diagnoses included presbyopia (27.39%), followed by refractive errors (22.23%) and cataract (16.10%). Other identified conditions encompassed pinguecula (7.82%), allergy (7.19%), pterygium (6.41%), and dry eyes (3.13%), among others. The details are listed in Table 3.

Table 3: Diagnosis of the sample population during the camp

Diagnosis	Frequency (N = 639)	Percentage
Pinguecula	50	7.82%
Presbyopia	175	27.39%
Refractive errors	142	22.23%
Allergy	46	7.19%
Keratitis	5	0.78%
Dry eyes	20	3.13%
Optic atrophy	2	0.31%
Cataract	103	16.10%
Diabetic retinopathy	2	0.31%
Suspected glaucoma	13	2.03%
Pterygium	41	6.41%
Conjunctivitis	5	0.78%
Entropion	1	0.16%
Chalazion	5	0.78%
Blepharitis	8	1.25%
Disc oedema	1	0.16%
Concretion	1	0.16%
Floaters	4	0.63%
Exophthalmos	1	0.16%
Caruncle cyst	1	0.16%
Sebaceous cyst	1	0.16%
Headache	1	0.16%
Exotropia	1	0.16%
Amblyopia	3	0.47%
Stye	1	0.16%
Macular hole	3	0.47%
Retinitis pigmentosa	1	0.16%
Episcleritis	2	0.31%
Total	639	100%

Table 4: Surgical procedures executed in the camp

Outcomes	Frequency (N = 945)	Percentage
Procedures		
Fundoscopy	36	3.81
Refraction	264	27.93
Biometry	4	0.42
Syringing	10	1.05
Intraocular pressure	27	7.61
Surgery		
Cataract	6	0.63
Pterygium	6	0.63
Chalazion	3	0.31
Others	5	0.52

It was also seen that among the 91 students from the Army School of Pokhara who visited the eye camp, 41 were already using spectacles. During the camp, among the school students, additional 21 students were diagnosed with refractive errors. The patients who visited the camp underwent various procedures and surgeries at the military hospital during the eye camp. The details are presented in Table 4.

DISCUSSION

The prevalence of ocular disease is elevated in remote areas due to various barriers, including a lack of facilities, challenging geographical distribution, limited awareness of available treatments, and low economic status. Access

to healthcare services in rural areas is challenging, as evidenced by the participation of over 945 individuals from different districts in an organized eye camp.

In the present study, there was a higher percentage of males compared to females among the study population, which is similar to the findings of another study done in a similar setting[10] where four days screening of the eye disease was done among 250 patients (54.80% males and 45.20% females). However, there were more females than males in the findings from other studies.[11,12] Another prospective case series of 413 patients / eyes with LIG over a 12-month period in 1998 reported that 311 of these patients underwent cataract surgery.[11] In this study, visual acuity and intraocular pressure (IOP) in a population with a higher proportion of females, the participation of females in the camp was comparatively low. This gender disparity in eye care service utilization may be linked to persistent gender inequity, which has marginalized women, hindering their access to healthcare services over an extended period.[10] Moreover, the prevalence of blindness is higher in females than in males, and although the utilization of services is comparable between men and women, it indicates a disproportionately low utilization of services by women.[13]

The majority of the patients were from Kaski district since the location of the eye camp was in Kaski district and hence easily accessible to them compared to other locations. The majority of patients in our study were adults, since it may be due to the feasibility of the adult age group visiting the camps compared to children and the older population. The population of Brahmins and Chhetris is high in Pokhara, Nepal. This is reflected due to the fact that the study area had more prevalence of these ethnic groups in comparison to others. Thus, Brahmins and Chhetris formed the main bulk of the camp patients.

Presbyopia, refractive errors, and cataract were the common diagnoses of the people visiting the camp. Cataract is the leading cause of blindness in Nepal.[14] A study conducted by Gurung et al also found cataract to be the common diagnosis in the eye camp.[14] Most of our patients were in the adult age group, and as age increases, the chance of getting cataract and refractive errors also increases. Blindness continues to remain a major public health problem in our country, and cataract is responsible for 65% of blindness.[13]

Only 45.75% of previously diagnosed patients with some ophthalmological conditions were on follow-ups. This could be due to a lack of health education, negligence, unfeasibility, or inaccessibility to health services. The prevalence of refractive errors in school children was also high in our study, similar to other eye camps conducted. Presently, many children are using laptops, smartphones as well as television. Thus, today's students are commonly affected with refractive errors. The study conducted by Shrestha et al. reported the prevalence of refractive error among school children to be 11.9%.[15] It appears to be quite rational to conduct regular eye check ups for school children for refractive errors.

The present research shows that eye disorders are quite common among the general Nepalese population. There is a need for the periodic organization of well-managed eye camps in rural areas to effectively reach and provide services to the unreached target population. Free-eye camps remain a necessity in a significant portion of the country. However, the permanent solution remains that healthcare services should be accessible in every part of the country. The study suggests accessibility of specialized healthcare facilities from the Government sector to the areas where people can't afford the treatment cost. Implementation of the health insurance system, conduct of specialized health camps, health awareness campaigns, and teaching and training to the people regarding healthcare must be practiced from time to time. The provision of medicines and related items and interventions at free or subsidized rates affordable to the majority of the people must be assured to ensure a better healthcare system.

The present study does have some limitations. This is a single centre study and thus, generalization of the study may not be feasible in a national level. However, considering the substantial sample size, the findings in the present study can not be ignored. It is expected that the present study should pave further larger studies involving different regions of the country.

CONCLUSIONS

The different types of eye disorders found in the present research showed ophthalmological issues are quite prevalent among general Nepali population. Presbyopia and refractive errors are the common eye disorders in the study population. Significant proportion of school children are affected with refractive errors.

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