

## Pattern of Ocular Diseases in Patients Attending to a Tertiary care Hospital in Kathmandu, Nepal

### Authors:

Dr. Arati Karakheti<sup>1</sup>, Dr. Sushil Khaniya<sup>2</sup>, Ashwin Karakheti<sup>3</sup>

<sup>1</sup>National Academy of Medical Sciences, Kathmandu, Nepal

<sup>2</sup>Kathmandu University School of Medical Sciences, Nepal

<sup>3</sup>B.P. Koirala Institute Health Sciences, Nepal

### Corresponding Author:

Dr. Arati Karakheti

Consultant Ophthalmologist (Fellowship in Glaucoma), National Academy of Medical Sciences, Nepal

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### **ABSTRACT:**

**Introduction:** Ocular disease is collective term which represents ocular morbidity that hinders the health and proper function of eye. This study aim to assess the pattern of Ocular diseases which ultimately help to policy level managers to plan accordingly to formulate relevant plans and policies to address the Ocular Disease in Nepal so as to reduce blindness.

**Methodology:** This study was a retrospective hospital-based study which analyzed one fiscal year data of oldest tertiary hospital of Nepal. Secondary data from OPD register of Ophthalmology Department, Bir Hospital was reviewed. The data was entered in Ms-Excel and further analyzed in SPSS Version 25 to assess information as per the objective of the study.

**Results:** Ocular diseases were more prevalent in females than in males. The maximum number of patients were in age group of 61 to 70 years group 20.16%. Mean age of the patient was found to be  $45 \pm 3.27$  years. Most common Ocular Disease was Refractive error 37.99 % followed by age related cataract 17.99%, dry eye 16.99%. Similarly, 12.99% of were inpatient while 87.01% of them were outpatient. Endocrinology department refer most of the patients among departmental cross consultation 45.30 % followed by Nephrology department 19.68%. **Conclusion:** Refractive error, age related cataract, ocular allergy were most common ocular diseases. Government and concerned stakeholders need to formulate and implement relevant policy to address those ocular diseases to prevent and minimize ocular diseases and preventable blindness in Nepal.

**Keywords:** Ocular Disease, Ophthalmology, Refractive Error, Retrospective Study

### **INTRODUCTION:**

Ocular disease is a common term which covers group of ocular morbidities that hinders the health and proper functions of eye. Collectively ocular disease or ocular morbidity represents refractive errors, cataract, glaucoma, trachoma, low vision, vitamin A deficiency and other that might lead to blindness.<sup>1</sup>

Globally it is found that major five conditions: refractive errors, cataract, trachoma, vitamin A deficiency and onchocerciasis are responsible for cause of childhood blindness and those are found to cause 75% of all blindness worldwide.<sup>2</sup> World Health Organization (WHO) reported that almost 39 million individuals are blind globally and another 246 million individuals are living with visually impaired health condition.<sup>3</sup> Similarly, Diabetes is one of the major health problem

worldwide including South East Asia Region which is responsible for Diabetes related ocular morbidity.<sup>4</sup>

Nepal being developing country adequate, acceptable, accessible and affordable health care services for all citizen is still huge challenge for government and citizen themselves.<sup>5</sup> In Nepal senile cataract is still a major ocular problem that is cause of avoidable blindness. In the country 85.0% of ocular morbidity visual impairment are avoidable. In 1981 First National Blindness survey was conducted in Nepal which reported prevalence of bilateral blindness was to be 0.84% and unilateral blindness to be 1.7%. It also depicted that cataract was the leading cause of blindness accounting for almost 71.0% .<sup>6</sup> In context of Nepal many of the preventable Ocular Disease is still a big issue in Nepal. This study will find the pattern of Ocular disease which ultimately helps to policy level manager to plan accordingly to

formulate relevant plans and policies to address the Ocular Disease in Nepal.

This study strictly maintained the principle and ethics of health research.

**METHODOLOGY:**

This study was a retrospective hospital-based study which was conducted from 17<sup>th</sup> July 2023 up to 15<sup>th</sup> July 2024 (1<sup>st</sup> Shrawan 2081 BS to 31<sup>st</sup> Ashar 2082 BS) in Bir Hospital, Kathmandu, Nepal. This study compile the data of pattern of ocular diseases of last fiscal year of Nepal from 17<sup>th</sup> July 2023 up to 15<sup>th</sup> July 2024 (1<sup>st</sup> Shrawan 2081 BS to 31<sup>st</sup> Ashar 2082 BS) who had attended the OPD of Ophthalmology Department at Bir Hospital, Kathmandu Nepal. Which is the oldest and largest tertiary care hospital of Nepal.

Ethical Approval was obtained from Institutional Review Board of National Academy of Medical Sciences (NAMS) - 143/2081/82. Thus, collected data was entered in MS-Excel and further analyzed in SPSS Version 25 to assess as per the objective of the study.

**RESULTS:**

A total number of 9,136 patients were recorded in OPD register of Ophthalmology Department from 17<sup>th</sup> July 2023 up to 15<sup>th</sup> July 2024 (1<sup>st</sup> Shrawan 2081 BS to 31<sup>st</sup> Ashar 2082 BS). Among those total patients 4385 (47.99%) were male while 4751 (52.01%) were female. The maximum number of patients were in age group of 61 to 70 years group 1840 (20.16%) followed by 21 to 30 years group 1011 (17.25%), 71 to 80 years group 1327 (14.53%) and other. The mean age of patient was 45 ± 3.27 years. Most of the patients were from Bagmati Province 3735 (40.88%) followed by Gandaki province 2022 (22.13%), Madhesh Province 1486 (16.26%), Koshi Province 862 (9.43%), Lumbini Province 630 (6.89%), Karnali Province 276 (3.20%) and Sudur Paschim Province 125 (1.37%) as shown in table 1:

**Table 1: Socio-Demographic Characteristics of Patients Attending in the OPD (N=9136)**

SN	Variables	Frequency	Percentage (%)
1	Gender		
	Male	4385	47.99
	Female	4751	52.01
2	Age in years		
	< 10	215	2.36
	11-20	1011	11.07
	21-30	1576	17.25
	31-40	1244	13.62
	41-50	843	9.23
	51-60	715	7.83
	61-70	1840	20.16
	71-80	1327	14.53
	81-90	299	3.26
	>90	65	0.71
3	Mean age in years	45 ± 3.27 years	
4.	Province		
	Koshi Province	862	9.43
	Madesh Province	1486	16.26
	Bagmati Province	3735	40.87
	Gandaki Province	2022	22.13

	Lumbini Province	630	6.89
	Karnali Province	276	3.02
	Sudurpaschim Province	125	1.37

In this study among the patient visiting OPD of Ophthalmology Department of Bir Hospital, Kathmandu, Nepal, the oldest tertiary care hospital of Nepal we found that most common ocular morbidity was refractive error 3471 (37.99%) followed by age related cataract 1644 (17.99%), Dry eye 1553 (16.99%), Ocular Allergy 1187 ( 12.99%), Diabetic Retinopathy 1004 (10.98%), Conjunctivitis 91 (0.99), Glaucoma 63 (0.68%), Amblyopia 36 (0.39%), Age Related Macular Degeneration 27 (0.29%) and other 64 (0.71%) as shown in Table 2:

**Table 2: Distribution of Patients on basis of Clinical Diagnosis (N=9136)**

Clinical Diagnosis	Frequency	Percentage (%)
Refractive error	3471	37.99
Age related Cataract	1644	17.99
Dry eye	1553	16.99
Ocular Allergy	1187	12.99
Diabetic Retinopathy	1004	10.98
Glaucoma	63	0.68
Age Related Macular Degeneration	27	0.29
Conjunctivitis	91	0.99
Amblyopia	36	0.39
Others	64	0.71
Total	9136	100

This retrospective study depicts that among the total patients visiting for ophthalmology service in Ophthalmology OPD admitted patient were 1187 (12.99%) and the outpatients were 7949 (87.01%) as shown in Table 3:

**Table 3: Distribution of patient on basis of Hospital service (N=9136)**

SN	Variables	Frequency	Percentage (%)
1	Inpatient	1187	12.99
2	Outpatient	7949	87.01

Among the OPD outpatient n=7949 direct walk in patients were 5256 (57.53%) and for cross consultation referred from another department were 2693 (29.47%) as shown in table 4:

**Table 4: Distribution of patient on basis of OPD outpatient (n=7949)**

SN	Patients	Number of patients	Percentage
1	Direct walk-in patient	5256	57.53
2	Departmental cross consultation	2693	29.47

In this study among the departmental cross consultation n = 2693 the most of the patients were referred from endocrinology department 1220 (45.30%) followed by Nephrology department 530 (19.68%), Neuro-Medicine 438 (16.26%), Dermatology 80 (2.97%) and other department 425 (15.78%) from other departments as shown in table 5:

**Table 5: Distribution of patient according to departmental cross consultation (n=2693)**

SN	Departments	Number of patients	Percentage
1	Endocrinology	1220	45.30
2	Nephrology	530	19.68
3	Neuro-Medicine	438	16.26
4	Dermatology	80	2.97
5	Other	425	15.78

### **DISCUSSION:**

In this study most common form of ocular morbidity/diseases was refractive error 37.99% followed by age related cataract 17.99%, Dry eye 16.99%, Ocular Allergy 12.99%, Diabetic Retinopathy 10.98%, Conjunctivitis 0.99%, Glaucoma 0.68%, Amblyopia 0.39%, Age Related Macular Degeneration 0.29% and other 0.71%. While in similar type of study conducted in Western hill of Nepal Age Related Cataract 14.4% followed by Dry Eye Syndrome 12.9%, Ocular Allergy 9.9%, Refractive error 9.4%, Conjunctivitis 8.1% and other.<sup>5</sup> Those two study resemble that top five common ocular morbidity ocular morbidity of western hill of Nepal and our study were of similar kind. Another conducted in India reported that most common ocular morbidity was Cataract 27.12% followed by refractive errors 26.14%, conjunctival disorders 11.82% and other which also resemble common ocular morbidity similar to our study.<sup>7</sup> Similarly, a study conducted in Saudi Arabia reported that conjunctivitis was found to be the most common eye disease in 31.7% cases followed by refractive error, cataract, diabetic retinopathy and strabismus 20.9%, 14.8%, 8.0% and 3.1% cases respectively.<sup>8</sup> A study conducted in rural part of Allahabad India depict that the main causes of ocular morbidity in the study population were cataract 41.89 %, uncorrected refractive errors 21.59 %, xerophthalmia 10.20 % and glaucoma 4.83 %.<sup>9</sup> Another study reported that Cataract 22.9% was the most common eye disease, followed by retinal diseases 11.5% and ocular trauma 19.8%. Majority of the patients 48.0% suffering from ocular trauma had foreign body cornea.<sup>10</sup> Those finding from different study from different part of globe identified that refractive error, age related cataract, dry eye and ocular allergy were most common ocular diseases in the patient attending the eye health care centre similar to the finding of our study.

In our study manifestation of ocular morbidity was found to be higher in female 52.01% and lower in male 47.99%. One of the studies conducted in Nepal found that among the total ocular morbidity patients 64.4% were female and 35.6% were male patient which is similar to finding of our study.<sup>5</sup> While study conducted in Saudi Arabia was in contrast to our finding where 50.1% Patients were male patient and 49.9% were female patient.<sup>8</sup>

The mean age of this study was found to be  $45 \pm 3.27$  years which is almost similar to a study conducted in Malaysia with mean age of patients was 45.2 years.<sup>10</sup>

This study reported that the maximum number of patients were in age group of 61 to 70 years group 20.16% followed by 21 to 30 years group 17.25%, 71 to 80 years group 4.53% which is similar to finding of done in a tertiary care hospital in Gujrat showed the prevalence of ocular morbidities was increasing with age more than 60 years age group was 30.76% followed by 51-60 age group was 22.0%.<sup>11</sup> While, a study conducted in western Nepal had reported that maximum number of patients belong to maximum number of patients were in the age group of 21-30 years followed by  $\geq 60$  years.<sup>5</sup>

This study have found that the Most of the patients were from Bagmati Province 40.88% followed by Gandaki province 2.13%, Madhesh Province 16.26%, Koshi Province 9.43%, Lumbini Province 6.89%, Karnali Province 3.20% and Sudur Paschim Province 1.37%.

This study depicted that among the total patients visiting for ophthalmology service in Ophthalmology OPD admitted patient were 12.99% and the outpatients were 87.01%. Among those Outpatient, direct walk in patients were 57.53% and for cross consultation referred from other departments were 29.47%. Again, from among those cross consultation referred from other departments this study depicted that most of the patients were referred from endocrinology department 45.30%

followed by Nephrology department 19.68%, Neuro-Medicine 16.26%, Dermatology 2.97% and other department 15.78%.

### **CONCLUSION:**

Ocular morbidities/diseases were more prevalent in females than in males. Among the of ocular morbidity was refractive error followed by age related cataract, Ocular Allergy, Diabetic Retinopathy, Conjunctivitis, Glaucoma, Amblyopia, Age Related Macular Degeneration were most common ocular morbidity. Government and concerned stakeholder need to formulate and implement policy to address those ocular morbidity and to develop more efficient Ophthalmology department to provide both outpatient and surgical services so as to prevent and minimize ocular morbidity and preventable blindness in Nepal.

### **Limitation:**

Since this is a retrospective study some data and information as per interest of author might not be available. However, author have tried to collect as much as information from the record available.

### **Conflict of Interest:**

Author do not have any conflict of interest some information

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