

## Pattern of Eye Diseases in Dhaka City District Level and Village Areas in Bangladesh

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### Abstract

**Background:** Ocular morbid conditions are responsible for partial or total blindness. Ocular morbidities by its sheer magnitude form an enormous problem, not only in human suffering, but also in terms of economical loss and social burden.

**Objective:** The aim of this study is to determine the pattern of eye Diseases.

**Methods:** This was a cross sectional study. This study was done in Dhaka city, different districts of Dhaka Division and different Upazilla of Dhaka district. From these three sites 3124 patients were randomly selected. All the members of a family were cross-examined and then diseased individuals were isolated for detail history taking and clinical assessment.

**Results:** The results revealed that 3124 study subjects were had ocular morbidity. Common ocular morbidity was 1153 had Refractive error (36.9%), 105 had Cataract, 15(0.5) had Glaucoma, 63(2.0) had Chronic Dacryocystitis, 14(0.4) had Pterygium, 6(0.2) had Diabetic Retinopathy, 56(0.2) had Retinitis pigmentosa and 1763 (56.4) others. Males were more affected as compared to females. It was observed that as the age increases the prevalence of ocular morbidity increases.

**Conclusion:** The leading cause of eye diseases in this study was Refractive error, Cataract, Glaucoma, Chronic Dacryocystitis, Pterygium, Diabetic Retinopathy, Retinitis pigmentosa and others etc.

**Keywords:** Cataract, Pattern of eye diseases, Refractive error

### Introduction

The pattern of eye diseases differs in developing and developed countries and often in communities. Ocular morbidity is considered as one of most under diagnosed and undertreated public health problems in many developing nations especially in Asia [1-3]. The people with visual impairment in the world estimated to 285 million, out of which 39 million blind and 246 million having low vision [4,5]. Various reports have highlighted the fact that 80% of global burden of visual impairment can be prevented, treated or cured. Globally, the leading causes of blindness are a cataract, uncorrected refractive errors, glaucoma and age-related macular degeneration. Other major causes include Corneal opacities, Diabetic retinopathy, Blinding trachoma.8 Even in India, preventable and treatable causes like cataract (62.6%), refractive error

(19.70%), still contribute to more than 80% preventable blindness [6]. Factors which strongly influence the occurrence and burden and pattern of ocular diseases in a particular community include age structure of the population, socioeconomic conditions, Educational status, occupational profile and environmental conditions etc., Healthcare system related factors like access, quality, financing etc., also strongly influence the impact of these morbidities [7]. The World health organization advocates eye outreach program as one of the main means of achieving the vision 2020 target. Lower socioeconomic status and the long distance to the nearest eye care facility are some of the reasons that mitigate rural dweller from utilizing available eye care services thereby leading to an increase in the number of preventable blindness in developing countries [8]. Worldwide eye disease prevalence varies from one geographic

location to another, and various factors are responsible including age, sex, occupation, lifestyle, socioeconomic status, hygiene, custom and traditions, etc. Topalov in 1984 reported a high prevalence of infectious eye diseases among the tropical population because of environmental factors such as low humidity, dust, sunlight, and rainfall compare to temperate region of the world [9]. Most patients with eye diseases first present to the general practitioner who may have limited knowledge of ophthalmic practice. Some disease conditions are treated correctly, while others are either misdiagnosed or wrongly treated with unwanted complications. Less than 50% of such patients get timely referral to an eye specialist. Eye diseases constitute one of the commonest problems presenting to the general practice clinic (10-21%) and could have significant socioeconomic consequence'. A study of the pattern of eye diseases in an environment where students are predominant is critical because while some eye conditions are just causes of ocular morbidity, others invariably lead to blindness. Again, while some conditions such as refractive errors and cataract are treatable others like measles and vitamin A deficiency are largely preventable [10]. Bangladesh is a densely populated country where more than 80% people are living in rural areas. Every day, a large number of patients are attending outpatient departments of different hospitals. In the past, the services were limited for a few common diseases only [11]. But now, speciality services are extending from Medical College Hospitals to Thana Health Complexes [12,13]. However, ophthalmic service is still in a rudimentary stage of development. Even no substantial data is available regarding the prevalence of blindness in the country. According to International Agency for the Prevention of Blindness (IAPB) report the prevalence of blindness in Bangladesh is 2020 [14]. Unfortunately, very little work has been done in this aspect. Available data are ambiguous as no comprehensive community survey has been accomplished till to-date, it is also observed that in thana health complexes as well as in district hospitals information about ophthalmic patients are not properly recorded for which compilation of patients data by Bangladesh Bureau of Statistics remained incomplete. So there is a need to have a comprehensive study in this regard. The aim of this study is to determine the pattern of eye diseases in and to compare the findings with previous studies in the same environment. It is hoped that this study will show the trend of ocular morbidities in our environment and help to provide basic data for planning and provision of adequate eye care services, appropriate treatment, and intervention for these diseases.

## Materials

This study was done in Dhaka city, different districts of Dhaka Division and different Upazilla of Dhaka district over the period of 2008 to 2014. From these three sites 3124 patients were randomly selected. The starting point was a household which had been randomly selected. Two doctors from each site volunteered to help in this painstaking work. Equipments used were an aneroid sphygmomanometer, a thermometer, a stethoscope, a measuring tape. A torchlight, a tonometer, an ophthalmoscope and vision charts. A printed data sheet was filled up for each household. Diseased individuals were isolated for detail history taking and clinical assessment. Clinical diagnosis was made and noted in the data sheet. Ophthalmic patients were classified into eight groups on the basis of diagnostic possibility at community level. Besides seven common known diseases, there was a category called 'others'. The

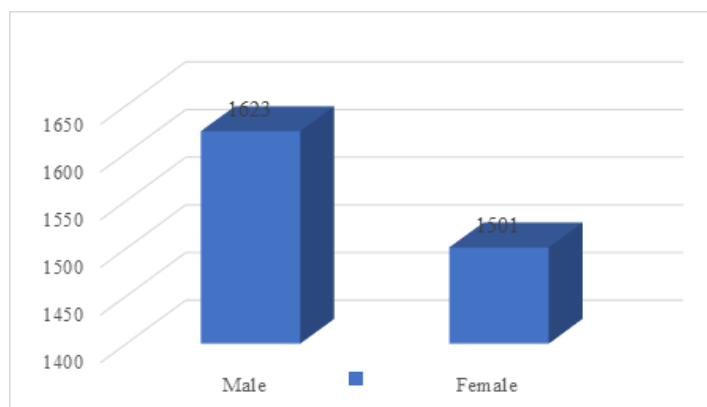
data thus obtained were processed manually and analysed. A mini electronic calculator was used for these purposes.

## Results

Total 3124 patients were suffering from different eye diseases. Highest number of patients was found in rural area of Dhaka division. Table 1 shows total number of male patients was 1623(52.0) and female 1501(48.0%). Cases of cataract and Refractive error were found in all the sample areas and the highest number were found in Dhaka city.

**Table 1: Distribution of the study patients by sex (n=3124)**

Sex	Number of patients	Percentage
Male	1623	52.0
Female	1501	48.0



**Figure 1: Distribution of the study patients by sex (n=3124)**

**Table 2: Distribution of the study patients by age (n=3124)**

Age (years)	Number of patients	Percentage
10	335	10.7
11 – 20	523	16.7
21 – 30	452	14.5
31 – 40	518	16.6
41 – 50	509	16.3
51 – 60	383	12.3
61 – 70	274	8.8
71 – 80	105	3.4
81 – 90	22	0.7
>90	3	0.1
Mean±SD	36.6±20.58	
Range (Min-Max)	0.1-96	

Table 2 shows the distribution of eye diseases on the basis of age and sex. It was observed that at highest number 523(16.75) of patients belonged to age group of 11 to 20 years. In the pediatric age group refractive error and others groups of eye diseases was the

major condition. In the age group of 41-50 years' the main diseases as Refractive error and above 60 it was the cataract.

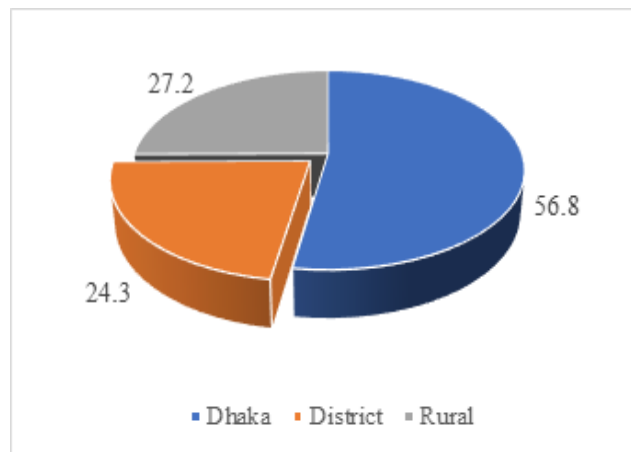
**Table 3: Distribution of the study patients by diseases (n=3124)**

Diseases	Number of patients	Percentage
Refractive error	1153	36.9
Cataract	105	3.4
Glaucoma	15	0.5
Chronic Dacryocystitis	63	2.0
Pterygium	14	0.4
Diabetic Retinopathy	6	0.2
Retinitis pigmentosa	5	0.2
Others	1763	56.4

Table 3 shows the distribution of eye diseases, among the total eye patients, 1153 had Refractive error (36.9%), 105(3.4) had Cataract, 15(0.5) had Glaucoma, 63(2.0) had Chronic Dacryocystitis, 14(0.4) had Pterygium, 6(0.2) had Diabetic Retinopathy, 5(0.2) had Retinitis pigmentosa and 1763 (56.4) others.

**Table 4: Distribution of the study patients by Area (n=3124)**

Diseases	Dhaka		District		Rural	
	n	%	n	%	n	%
Refractive error	634	56.8	226	24.3	293	27.2
Cataract	28	2.5	25	2.7	52	4.8
Glaucoma	3	0.3	5	0.5	7	0.6
Chronic Dacryocystitis	5	0.4	16	1.7	42	3.9
Pterygium	0	0	5	0.5	9	0.8
Diabetic Retinopathy	1	0.1	1	0.1	4	0.4
Retinitis pigmentosa	1	0.1	1	0.1	3	0.3
Others	444	39.8	652	70	667	61.9
Total	1116	100	931	100	1077	100



**Figure 2: Distribution of the study patients by Area (n=3124)**

Table 4 shows Cases of cataract and Refractive error were found in all the sample areas and the highest number were found in rural area and Dhaka city respectively.

**Table 5: Distribution of eye diseases according to age and sex (n=3124)**

Diseases																
	Refractive error		Cataract		Glaucoma		Chronic Dacryocystitis		Pterygium		Diabetic Retinopathy		Retinitis pigmentosa		Others	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
	a	e	a	e	a	e	a	e	a	e	a	e	a	e	a	e
	l	m	l	m	l	m	l	m	l	m	l	m	l	m	l	m
	e	a	e	a	e	a	e	a	e	a	e	a	e	a	e	a
	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e
	n	n	n	n	n	n	n	n	n	N	n	n	n	n	n	n
Age																
10	30	29	0	2	1	0	2	0	0	0	0	0	0	0	152	119
11 – 20	87	124	2	3	1	1	0	2	2	0	1	0	0	0	168	132
21 – 30	61	82	2	2	0	1	4	13	1	2	0	0	0	1	158	125
31 – 40	96	166	5	3	1	2	3	9	1	0	0	0	1	0	135	96
41 – 50	141	132	10	9	1	1	2	8	0	0	0	0	1	1	125	78
51 – 60	76	66	15	10	3	1	1	7	1	3	0	2	0	0	102	96
61 – 70	29	19	11	19	1	1	1	6	2	0	3	0	0	1	104	77
71 – 80	4	8	6	2	0	0	2	2	2	0	0	0	0	0	47	32
81 – 90	2	0	1	3	0	0	1	0	0	0	0	0	0	0	12	3
>90	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
Total	527	626	52	53	8	7	16	47	9	5	4	2	2	3	1005	758

**Discussion**

This study reveals that in a rural community’ more population was affected with different diseases indicating an alarming situation in the context of public health problem. The number of ophthalmic patients was also significantly high’ Comparative country data are very scanty’ It may however be useful to compare the burden of eye diseases with those of other regional countries. In the present study, the prevalence of ocular morbidity, sociodemographic factors and other individual factors association with ocular morbidity were more or less similar to the other studies. Refractive error was the leading cause (36.9%) of visual impairment in the present study population. This is similar to the study of Shrote, et al. the contribution of refractive error 26.15% as a major cause of the visual impairment [15]. Marmamula, et al. reports that, refractive errors were the leading cause and the major cause of the blindness was cataract [16]. Sehgal, et al. in the pediatric age group refractive error and others groups of eye diseases was the major condition [17]. In the age group of 41-50 years the main diseases as refractive error and above 60 it was the cataract. According to the same author, Cataract was also most prevalent in the age group of 51-70 years (19.3%) and second major contribution in ocular morbidities occupied by this Cataract [18,19]. In the present study the second major cause of the visual impairment was cataract and then follows, Glaucoma, 63(2.0), Chronic Dacryocystitis, 14(0.4) Pterygium, 6(0.2) Diabetic Retinopathy, 56(0.2) Retinitis pigmentosa and 1763 (56.4) others, etc. Sehgal, et al. reported that there were 36.10% people belonged to elderly with refractive error and 22.48% with Cataract [17]. More or less similar results were ob-

served by Singh, et al. (25.8%) who found 40.8% participants with refractive error present in rural central India. Although the odds of ocular morbidity presence were high in males, it was not statistically significant (p>0.05) [20]. In another study by Thiagalingam, et al. reported that the association between age and refractive error was significant with an increase in age by 10 years 51% increase observed [21]. Our study findings were similar to previous studies as the odds of having ocular morbidity in above 60 years age group was 24 times comparing to below 45 years. In the case of gender also males were the more risk facing compare with females and the association shown was statistically significant. Cases of cataract and Refractive error were found in all the sample areas and the highest number were found in rural area and Dhaka city respectively.

**Limitation of the Study**

The study was conducted with small sample size and done in a selected area from Dhaka city and Dhaka District, which may not be adequate to represents the total population. No ophthalmoscopy, tonometry, slit lamp examination or refraction were carried out therefore diseases of vitreous, retina, optic nerve could not be detected. Mild glaucoma, mild diseases of cornea, anterior chamber, iris may also have been missed. The sample was taken purposively, so there may be a chance of bias which can influence the result.

**Conclusion**

The leading cause eye disease in this study was refractive error, Cataract, Glaucoma, Chronic Dacryocystitis, Pterygium, Diabetic

Retinopathy, Retinitis pigmentosa and others etc. The pattern of disease vary with age and sex and similar with other study.

### Recommendations

Screening and early referral of population in need of specialized ophthalmic care should be emphasized. Campaigns for public awareness regarding surgical correction for cataract, correction for refractive errors should be strengthened. Early and prompt treatment of ocular morbid conditions should be emphasized. Health education should be imparted to community regarding healthy eye care practices, causes, preventive measures, and appropriate treatment of ocular morbid conditions, hygiene regarding eye, diet rich in vitamin A and vitamin A prophylaxis program (specially to the mothers of under-fives).

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