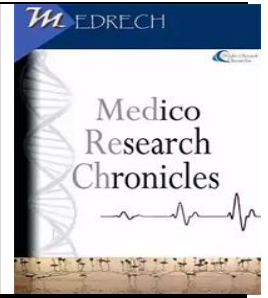




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Frequency and Patterns of Eye Diseases in Outpatient Department in a Sub-Urban Clinic

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ABSTRACT

Background: Eye diseases are a major cause of visual impairment and blindness worldwide. In Bangladesh, conditions such as refractive errors, cataracts, and dry eye syndrome contribute significantly to vision-related morbidity. Understanding the frequency and patterns of eye diseases in outpatient settings is crucial for early diagnosis, effective treatment, and the prevention of avoidable blindness.

Objective: This study aimed to assess the prevalence and patterns of eye diseases among patients attending the outpatient department of Bashundhara Ad-din Medical College Hospital, Dhaka from January 2024 to December 2024.

Methods: A cross-sectional study was conducted among 98 patients aged 2 years and older who presented with eye-related complaints. Data were collected using structured questionnaires, clinical examinations, and medical records. Statistical analysis was performed using SPSS-26, and results were presented in text, tables, and charts.

Results: Refractive errors (61.2%) were the most prevalent eye condition among patients, followed by dry eye syndrome (24.5%) and cataracts (16.3%). The most commonly reported symptoms included blurred vision (71.4%), eye pain (49%), and watering/tearing (44.9%). In terms of management, medications (71.4%) were the primary treatment approach, followed by spectacle prescriptions (59.2%) and surgical interventions (20.4%). Notably, no cases of diabetic retinopathy, uveitis, corneal ulcer infections, or trauma-related injuries

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were observed in the study population.

Conclusion: The study highlights the high prevalence of refractive errors, dry eye syndrome, and cataracts among OPD patients. These findings emphasize the need for regular vision screening programs, early detection strategies, and improved access to corrective eyewear and treatment options. Strengthening public health initiatives and referral systems can help reduce the burden of preventable blindness and improve eye care services in sub-urban healthcare facilities.

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INTRODUCTION

Eye diseases are a major cause of visual impairment worldwide, affecting individuals across all age groups. In Bangladesh, cataracts, nutritional deficiencies, corneal scarring, and glaucoma are the most common causes of avoidable blindness [1]. Public health interventions, such as affordable cataract surgery and vitamin A supplementation, have helped reduce the prevalence of these conditions [2,3]. However, retinal and other ocular diseases have received comparatively less attention, often leading to delayed diagnosis and preventable vision loss [4]. Diabetic retinopathy, retinal detachment, and age-related macular degeneration (ARMD) are emerging as major causes of irreversible blindness [5]. Despite advancements in ophthalmic care, access to specialized treatment and low-vision rehabilitation remains limited, particularly in resource-constrained settings [6].

The burden of vitreo-retinal disorders and other ocular diseases is increasing, particularly among aging populations and individuals with diabetes. Cataracts remain the leading cause of blindness worldwide, especially in low-resource settings, despite being surgically treatable [7]. Glaucoma, often asymptomatic in its early stages, continues to be a major cause of irreversible blindness due to optic nerve damage [8]. Diabetic retinopathy is a rising public health concern, with increasing diabetes prevalence contributing to higher rates of vision impairment and blindness [9]. Additionally, age-related macular

degeneration (ARMD) is a primary cause of vision loss in the elderly, often progressing to severe visual impairment if left untreated [10]. Corneal ulcer infections, commonly caused by trauma or microbial pathogens, pose significant risks of corneal opacity and blindness [11]. Uveitis, an inflammatory condition of the uveal tract, can lead to complications such as cataracts, glaucoma, and retinal damage if not properly managed [12].

Refractive errors, including myopia, hyperopia, and astigmatism, are among the most common vision disorders globally, with uncorrected refractive errors being a significant cause of visual impairment, particularly in school-aged children and working adults [13]. Dry eye syndrome, increasingly prevalent due to environmental factors and prolonged screen exposure, affects quality of life and productivity [14]. Trauma-related injuries, often due to occupational hazards or road accidents, also contribute significantly to vision loss in younger populations [15].

Population-based studies from various countries have reported the contribution of these ocular diseases to visual impairment, with rates ranging from 8.56% in Iran [7] to 12.7% in India [8]. In Pakistan, posterior segment diseases were responsible for 3.4% of total blindness and visual impairment [9]. The increasing burden of these conditions highlights the need for improved screening, early detection, and accessible treatment strategies to prevent avoidable blindness.

Understanding the frequency and patterns of eye diseases is essential for

improving early detection and management strategies. This study aims to assess the prevalence and types of eye diseases among patients aged 2-more than 70 years attending the Outpatient Department (OPD) of Bashundhara Ad-din Medical College Hospital, Dhaka, Bangladesh. The findings will provide valuable insights into the burden of eye diseases in a suburban setting and guide future interventions to reduce preventable blindness.

METHODOLOGY

Study Design

This was a cross-sectional study conducted to assess the frequency and patterns of eye diseases among patients attending the outpatient department.

Study Duration

The study was conducted from January 2024 to December 2024.

Place of Study

The study was carried out in the outpatient department of Bashundhara Ad-din Medical College Hospital, Dhaka, Bangladesh.

Sampling Method

Patients were enrolled based on predefined inclusion and exclusion criteria.

Eligible participants were selected after obtaining informed consent.

Study Population

A total of 98 patients aged 2- more than 70 years who visited the outpatient department with eye-related complaints were included in the study.

Data Collection

Data were gathered using a pre-designed structured questionnaire through patient interviews, clinical examinations.

Statistical Analysis

Collected data were analyzed using Microsoft Excel (Windows-based) and SPSS-26. Results were presented in text, tables, and charts according to the study objectives.

Ethical Clearance

Formal ethical approval was obtained from the Institutional Review Board (IRB) of the hospital. The study adhered to the Declaration of Helsinki guidelines, and written informed consent was obtained from all participants or their legal guardians before enrolment.

RESULTS

Table 1: Demographic characteristics of patients

Age	Frequency	Percentage (%)
<20	24	24.5
21 to_29	18	18.4
30 to 39	18	18.4
>40	38	38.8
Total	98	100.0
Mean age	36.5 ± 21.1	

The table 1 presents the age distribution of the study participants. The majority of the patients (38.8%) were aged above 40 years, followed by 24.5% who were under 20 years. The age groups 21–29 years and 30–39 years each

comprised 18.4% of the sample population. The mean age of the participants was 36.5 years with a standard deviation of 21.1, indicating a substantial variation in the age distribution within the study cohort. (Table 1)

Table 2: Symptoms experienced in Eye Disease

Symptoms	Frequency	Percent
Blurred vision	70	71.4
Headache	56	57.14
Eye pain	48	49
Redness	16	16.3
Watering/Tearing	44	44.9
Itching	20	20.4
Dryness	4	4.1
Light sensitivity	16	16.3
Discharge from the eye	12	12.2
Foreign body sensation	18	18.4
Double vision	2	2
Others	50	51

The table 2 summarizes the symptoms reported by patients with eye diseases. Blurred vision was the most common symptom, affecting 71.4% of patients, followed by eye pain (49%) and watering/tearing (44.9%). Other symptoms were reported by 51% of patients, while redness (16.3%), itching (20.4%), and light

sensitivity (16.3%) were less frequent. Double vision (2%) and dryness (4.1%) were the least common symptoms. These findings highlight that visual disturbances and discomfort were the primary concerns among the study population. (Table 2).

Table 3: Eye Disease pattern

Eye Disease	Frequency	Percent (%)
conjunctivitis	12	12.2
Cataract	16	16.3
Glaucoma	2	2
Refractive error (Myopia, Hyperopia, Astigmatism)	60	61.2
Diabetic retinopathy	0	0
Age related macular degeneration	2	2
Corneal ulcer infection	0	0
Uveitis	0	0
Dry eye syndrome	24	24.5
Trauma related injury	0	0
Others	54	55.1

The table 3 presents the distribution of eye diseases among the study participants. Refractive errors (myopia, hyperopia, astigmatism) were the most common, affecting 61.2% of patients, followed by dry eye syndrome (24.5%) and cataracts (16.3%). Conjunctivitis was present in 12.2% of cases,

while glaucoma and age-related macular degeneration each accounted for 2%. No cases of diabetic retinopathy, corneal ulcer infection, uveitis, or trauma-related injury were recorded. The “Others” category (55.1%) suggests a significant presence of additional eye

conditions not specifically categorized in the table.

Table 4: Management of Eye Disease pattern

Management of Eye Disease pattern	Frequency	Percent (%)
Medications	70	71.4
Spectacle prescription	58	59.2
Surgery	20	20.4
Referral specialist	0	0
Follow up appointment	6	12.2

The table 4 outlines the management approaches for eye diseases among the patients. Medications were the most common treatment, prescribed to 71.4% of patients, followed by spectacle prescriptions (59.2%). Surgery was required for 20.4%, while follow-up appointments were scheduled for 12.2% of cases. Notably, no patients were referred to a specialist, indicating that all treatments were managed within the facility.

DISCUSSION

The findings of this study provide important insights into the frequency and patterns of eye diseases among patients attending the outpatient department at Bashundhara Ad-din Medical College Hospital, Dhaka, Bangladesh. The study identified refractive errors (61.2%) as the most common eye condition, followed by dry eye syndrome (24.5%) and cataracts (16.3%). These findings align with previous studies that have identified refractive errors as the leading cause of visual impairment globally [3,5]. The increasing burden of uncorrected refractive errors highlights the need for early screening and access to corrective eyewear.

Blurred vision (71.4%) was the most commonly reported symptom, followed by eye pain (49%) and watering/tearing (44.9%). This aligns with previous research indicating that these symptoms are the most frequently reported complaints in ophthalmic outpatient settings [5,4]. The relatively lower occurrence of light sensitivity (16.3%), itching (20.4%), and foreign body sensation (18.4%) suggests that inflammatory and infectious eye

conditions were less dominant in this population. Notably, no cases of diabetic retinopathy, corneal ulcer infection, uveitis, or trauma-related injury were recorded in this study. This contrasts with findings from hospital-based studies in Nigeria and Ethiopia, which have reported a higher prevalence of diabetic retinopathy and posterior segment diseases in specialized ophthalmic centers [1,2].

The absence of these conditions may indicate that patients with complex retinal diseases are primarily managed at tertiary hospitals with specialized retina clinics. The study also evaluated the management of eye diseases. Medications were the primary treatment modality (71.4%), followed by spectacle prescriptions (59.2%) and surgical interventions (20.4%). The high use of medications suggests that many conditions were treatable with pharmacological therapy, likely for infections, inflammation, or dry eye syndrome. The significant proportion of spectacle prescriptions aligns with the high prevalence of refractive errors, which are among the most correctable causes of visual impairment [6,7]. The absence of specialist referrals is notable, as referral networks are essential for managing advanced retinal diseases, glaucoma, and surgical complications [16]. This finding suggests that most eye conditions in this setting were manageable within the hospital, but further investigation is needed to determine if patients requiring specialized care had alternative referral pathways.

The global burden of visual impairment has been shifting, with increasing emphasis on refractive errors, dry eye syndrome, and age-related conditions as major causes of vision loss [17,18]. While this study did not report diabetic retinopathy cases, population-based surveys in India and Iran have found diabetic retinopathy to contribute 8–12% of visual impairment cases [19,16]. The lower prevalence in this study may be due to differences in patient demographics, as diabetic patients might seek care in specialized endocrinology or diabetic eye clinics rather than general outpatient settings. The results of this study emphasize the need for regular vision screening programs in suburban clinics, particularly to address the high prevalence of refractive errors and dry eye syndrome. Public health strategies should focus on early diagnosis, patient education, and ensuring affordable access to corrective eyewear. Additionally, future research should incorporate longitudinal studies with larger sample sizes to better assess trends in eye disease prevalence and the impact of environmental and lifestyle factors on ocular health.

Limitations: This study had certain limitations. The sample size was relatively small (98 patients), which may limit the generalizability of the findings to larger populations. Additionally, hospital-based data may not fully represent the true burden of eye diseases in the community, as individuals with milder symptoms may not seek medical attention. Future studies should incorporate community-based screening programs to capture a broader representation of eye disease prevalence.

CONCLUSION

This study provides critical insights into the frequency and patterns of eye diseases in a suburban outpatient setting. The high prevalence of refractive errors, dry eye syndrome, and cataracts highlights the urgent need for early screening, preventive measures,

and improved access to vision correction services. Strengthening public health initiatives, patient awareness, and referral pathways will be essential in reducing the burden of preventable visual impairment in Bangladesh.

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