

Pattern of Eye Health Care Services in a Tertiary Specialized Eye Hospital in Bangladesh

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Abstract

A retrospective study was conducted in Sheikh Fazilatunnesa Mujib Eye Hospital and Training Institute, Gopalganj, Bangladesh, to analyze the trends of eye diseases in Bangladesh and surgical treatments provided by a tertiary eye hospital to manage them. A total of eighty-eight thousand nine hundred fifty-eight subjects attended the hospital for their ophthalmic checkup from the southern part of Bangladesh. Patience was evaluated according to their complaints; patient demographic data and medical history were retrospectively collected. Complete ophthalmic examination was performed. The study included 44,187 males and 44,771 females. Most of the patients were above 50 years while the toddlers were the least. The highest performed minor procedure was sac patency test and incision and curettage for chalazion was the minimum. regarding the major surgeries, cataract surgeries take the lead followed by DCR, DCT and intravitreal retinal injections. Cataract surgery and retinal injections were performed more in males whereas larger number of female patients underwent DCR and DCT. Most of the patients took their service from outpatient department. In a developing country like Bangladesh, mostly occurring ocular conditions like cataract and lacrimal apparatus diseases should be of utmost importance and National resources should be aimed at the management of such diseases. At the same time, care has to be taken to identify pediatric eye conditions at earlier age by raising awareness among parents.

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Introduction

Pattern of ocular diseases differ from developed countries to developing countries.¹ Cataract is always found to be the chief cause of blindness in aging, while other studies portray the prevalence of diseases like conjunctivitis, refractive error and glaucoma in the outpatient department (OPD) of eye hospitals.²

Retinal diseases demand high level of sub-specialty surgical attention.³ Delving into the specifics of age distribution, we aim to discern trends and susceptibilities, focusing on how different age groups experience eye health issues. Target of this study is to understand the pattern of eye diseases in Bangladesh and implement real sight saving endeavors. This study also inspects the level of surgical expertise

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which is practiced every day in a tertiary level eye hospital of Bangladesh and bring about effective changes in the country's health policy.

Sheikh Fazilatunnesa Mujib Eye Hospital and Training Institute situated at Gopalganj district is a tertiary level government eye hospital in the southern part of Bangladesh. Everyday hundreds to thousands of patients rush to this hospital with eye complaints to seek quality ocular health services.

This study, thus, serves as a bridge between unprocessed data and actionable insights, aiming to contribute substantively to the understanding of gender, age, sex and disease dynamics in the context of ocular health, ultimately fostering more effective and targeted healthcare strategies for the population. Here, we attempt to observe the trend of eye diseases among the attended patients, and performed surgical procedures for managing the patients in a tertiary specialized eye hospital of Bangladesh.

Methods

This retrospective study included all the attending consecutive patients who visited the outpatient department (OPD) of Sheikh Fazilatunnesa Mujib Eye Hospital and Training Institute, Gopalganj, Bangladesh, between January and July of 2023. The study assessed demographic data such as the age and sex of the patients. Hospital's OPD registers were used for evaluating the patient data and analyzed accordingly. The study's sample size comprised 88958 patients attending the OPD. All patients underwent a visual acuity examination before entering the general Outpatient Department. Each patient received individual attention from an ophthalmologist who

used a slit lamp to examine the anterior segment, measured the intraocular pressure (IOP), and checked the posterior segment using a direct or indirect ophthalmoscope. After a diagnosis, patients may be offered treatment or referred to subspecialty clinics. This analysis covers cases in different settings, including indoor, outdoor, and emergency departments. It thoroughly explores the patient landscape, from the consultation room to the surgical theatre.

This study was approved by the Ethical review Committee of Sheikh Fazilatunnesa Mujib Eye Hospital and Training Institute, Gopalganj, Bangladesh.

Results

In the year 2023 (between January and July), among the treated 88958 patients, 44187 were male (49.67%) and 44771 were female (50.32%). Table-I shows the total number of patients receiving services from the outpatient department, inpatient department and emergency room of the hospital.

The distribution of patients seeking outpatient treatment based on their age groups are as follows: 5.35% are aged 0-4, 7.54% are aged 5-14, 12.82% fall in the age bracket of 15-24, 33.8% are between 25-49 years of age and 40.5% are above 50 years of age (Fig.1). Among the minor operative services provided to the patients, 0.2% were for the treatment of chalazion, 0.3% for periocular abscess, 3.4% of cases were stitched, 7.4% of procedures were done for foreign body removal from the eye, 41% were for intraocular pressure measurement, and 48% of surgical procedures were done to determine the potency of lacrimal sac structures.

Most patients who underwent major operations had cataract surgery, among them phacoemulsification with posterior chamber intraocular lens implantation (PE with PCIOL) was dominant, others have gone through small incision cataract surgery with posterior chamber IOL implantation (SICS with PCIOL). Dacryocystorhinostomy (DCR) and Dacrycystectomy (DCT) was performed on patients with chronic dacryocystitis due to any cause. Intravitreal anti-VEGF injections were provided to patients with retinal diseases in operation theatre, oculoplastic surgeries and excision with conjunctival or amniotic membrane graft for pterygium were also performed in significant quantities. Finally, 4387 patients underwent other major surgeries, with 2235 males and 2152 females (Fig. 2). A total of 9,901 children received service from Pediatric Ophthalmology Department of the hospital in the aforementioned period, and out of them 1,203 patients needed optometry and refractive correction by spectacles, which corresponded 12.15% of the total children coming to the hospital (Fig. 3). In the Retina Department of the hospital, patients are referred from the OPD and after meticulous examination, they are diagnosed with retinal disease that needs medical or surgical interventions. Those who need Anti-VEGF injections, are provided with the medication through intravitreal route completely free of cost by the hospital. Among these patients, proliferative diabetic retinopathy (20%) and non-proliferative diabetic retinopathy (16%) takes the lead, followed by vascular diseases like central retinal vein occlusion (12%), branch retinal vein occlusion (11%) and hemi retinal vein occlusion (2%). Clinically significant macular oedema (16%) due to any cause, vitreous

hemorrhage (12%), choroidal neovascular membrane (3%), age related macular degeneration (3%), and pigment epithelium detachment (2%) are diseases next in order to receive this treatment. There is a persistent proportion of cases of ocular trauma found in the patients coming to emergency department of the hospital. From January to July of 2023, a total of 1,464 patients came to the emergency room of which 329 presented with ocular trauma due to accidents, physical assaults even self-inflicted injuries (22.47%) (Fig. 4).

Table-I: Total patients receiving services from Sheikh Fazilatunnesa Mujib Eye Hospital and Training Institute between January and July of 2023

Department	Male	Female	Total
Outpatient	40810	41925	82735
Inpatient	2233	2279	4512
Emergency	1144	567	1711
Total	44187	44771	88958

Fig. 1: Age distribution of the patients seeking OPD services between January and July of 2023

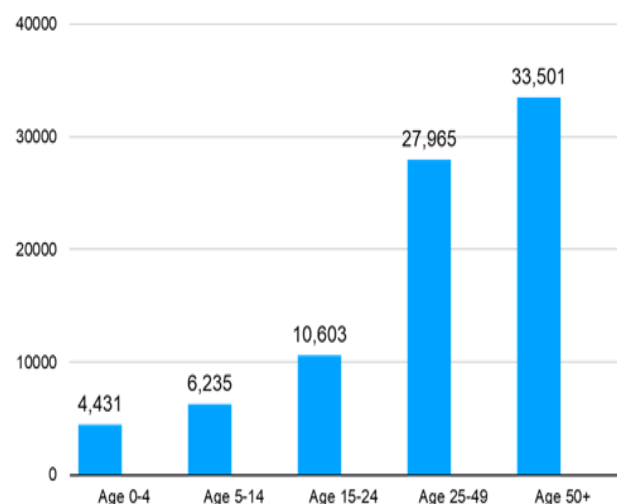


Fig. 2: Major surgeries performed between January and July of 2023

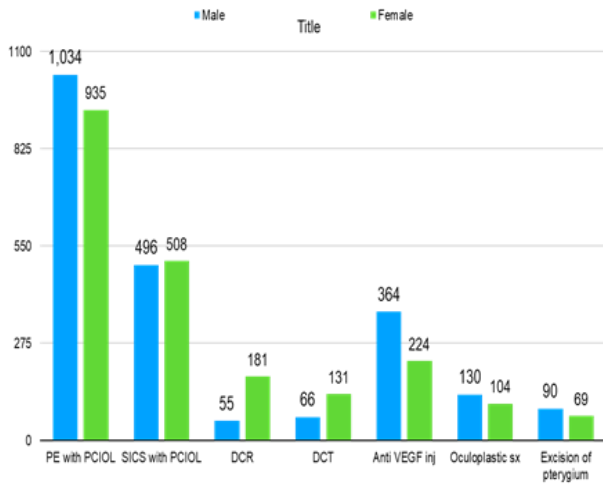


Fig. 3: Optometry and refractive errors correction by spectacles for children done between January and July of 2023

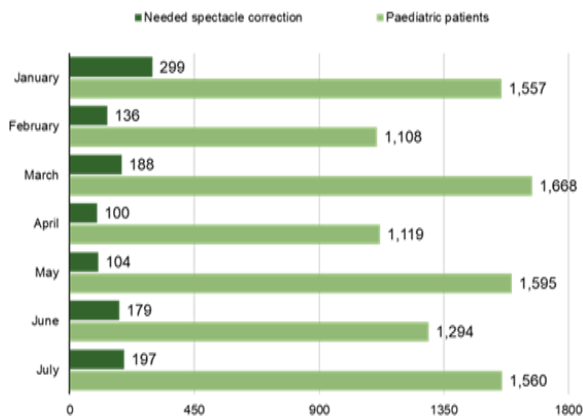
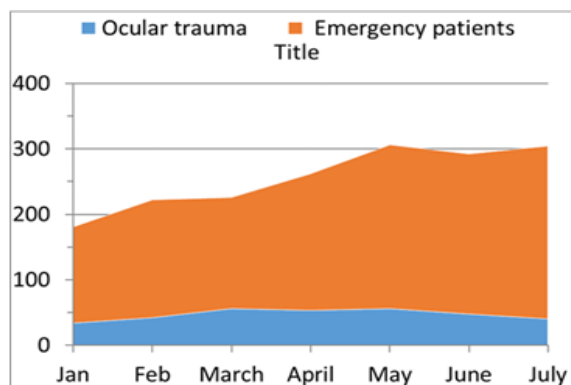


Fig. 4: Distribution of ocular trauma patients



Discussion

The patients would be more likely to seek treatment if transportation costs were affordable.⁴ This study reveals that women are more inclined to seek outpatient department (OPD) consultation due to cataracts.⁵⁻⁷ This contrasts with the common finding in developing countries that fewer women visit hospitals than men.^{8,9} A noticeable change suggests increased women's empowerment and a greater emphasis on health awareness within the community.^{7,10,11} The majority of the patients in the outpatient department are over 50 years old, while children form the smallest group. Age-related cataracts may be the main reason for the elderly population to visit the hospital.¹²⁻¹⁴ Co-morbidities may contribute to the progression of cataracts in this age group.¹³ On the other hand, reluctance to undergo surgery and the belief that the child is too young to receive surgery for a congenital cataract can result in fewer hospital visits among children.^{15,16} Parents may need to be fully aware of vision screening programs for their children, and the cost of eye care equipment, such as spectacles,¹⁷ may also be a barrier to seeking help. Additionally, since children may not be able to express their problems properly, they may only seek help once their condition is severe enough to cause ocular morbidity. These factors may contribute to a decrease in hospital visits by children. Sac patency tests are commonly used to diagnose chronic dacryocystitis and other lacrimal apparatus diseases after examining minor operative procedures. Considering the hospital's rural location and patients from lower-middle socioeconomic backgrounds, it is possible that poor ocular hygiene practices, a lack of

knowledge about the disease condition, and exposure to fumes and smoke while cooking with wood and cow dung cakes could contribute to the prevalence of eye diseases among the local population, particularly homemakers.¹⁸ The prevalence of glaucoma and ocular hypertension is higher in patients who undergo intraocular pressure measurement, which is the second most common minor operative procedure. This procedure is also used for post-operative assessments following cataract surgery.^{19,20} As age increases, so does the prevalence of cataracts, making cataract surgery a common major surgery.²¹⁻²³ Possibly due to increased exposure to environmental factors such as UV rays, particularly among those who work outdoors.^{24,25} As with other studies, most people attribute the development of cataracts to the ageing process.²⁶ The increase of refractive error among children has brought on the upward trend of spectacles use among the school-going group. In preschool children, improper visual acuity can cause amblyopia or anisometropia.²⁷ The increasing rate can be primarily driven by the previously uncorrected refractive error and the impact of school-based programs, and better adherence to treatment can be achieved by combination of providing free spectacles along with educational interventions.^{28,29} Use of anti-VEGF injections like bevacizumab in retinal diseases namely diabetic macular oedema, retinal vein occlusion and age-related macular degeneration has been explored and found to be immensely helpful.³⁰⁻³² Among the emergency service consumers, a portion of trauma patients are found persistently throughout the period. In order to reduce the fatality and improve the visual outcome, use of eyewear while using dangerous machinery, contact sport et cetera and reaching

the emergency at earliest time has to be encouraged.³³⁻³⁵

It should be noted that the patient sample examined in this study mainly consisted of eye patients residing in the southern region of Bangladesh. While the aim was to conduct a thorough study, some limitations should be acknowledged. Since our data was manually retrieved from clinical registers, there is a possibility of occurrence of human error. Additionally, since the hospital is located in a rural area, it may need to reflect the disease prevalence among urban populations more accurately. Furthermore, the findings of this study were specific to the hospital context and may need to be more representative of the overall demographic status in other settings.

The study has several strengths, one of which is that the results portray ocular health and disease trends at a national level. This is because the study sample includes major population of eye patients residing in the Southern Bangladesh. The findings confirm that cataracts are the most prevalent eye disease, so cataract surgery should be the focus of ocular services. Hence, necessary amendments to the existing health care plan of government, non-government organizations and voluntary associations should be made. This analysis also includes data on minor surgical procedures frequently overlooked by other studies.

Conclusion

In context of Bangladesh, where a significant portion of population lives below the poverty line and faces various eye-related challenges, understanding the demographics of patients becomes imperative. This study offers a holistic

examination of ocular health services at the Sheikh Fazilatunnesa Mujib Eye Hospital and Training Institute in Gopalganj, Bangladesh. By analyzing patient demographics, including age and gender distributions, and exploring the spectrum of eye conditions and surgical interventions, we've gained valuable insights into the landscape of eye care in this region.

The cataract surgery is the most performed among major surgeries in this hospital – phacoemulsification is the newest and popular technology for the cataract surgery, while sac patency test is the commonest among minor procedures practiced here. The commonest retinal disease which needs the anti-VEGF therapy is the diabetic retinopathy. Immense care must take to find out the reason behind increasing trend of refractive error among children and persistence of trauma in emergency. Our findings underscore the importance of understanding the deep dynamics of gender, age and disease prevalence in shaping healthcare system and treatment outcomes. Moving forward, leveraging these insights will be crucial in enhancing the quality and accessibility of eye care services and ultimately improving the well-being of individuals in Bangladesh and beyond.

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