

## Prevalence of Different Eye Diseases Excluding Refractive Errors Presented at the Outpatient Clinic in Beheira Eye Hospital

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### ABSTRACT

**Purpose of this study** was to determine the frequency and spectrum of eye disorders presenting to the eye clinic of Damnhour, Behira Eye Hospital.

**Introduction:** Epidemiological studies provide information on the prevention, treatment, and minimization of the impact of diseases on the society.

**Subjects and Methods:** During November 2016 to December 2016, all patients who presented to Damnhour, Behira Eye Hospital suffering from ocular diseases other than refractive errors were included in this study. 6252 patients were examined and evaluated for different eye diseases.

**Results:** Conjunctival diseases were the most common disorders seen (33.7 %), followed by eye lid and lacrimal system diseases (27.4 %) and cataract (25.2 %).

**Conclusion:** The most common causes of ocular morbidity in patients seen at Damnhour, Behira Eye Hospital were conjunctivitis, blepharitis, chalazia. These morbidities were preventable through community proper eye health education and proper hygiene. Cataract was the leading cause of visual impairment in elders. Proper intervention was needed to avoid visual impairment and blindness.

**Keywords:** Eyediseases, Excluding refractive errors, Damnhour, Beheira Eye Hospital.

### INTRODUCTION

Epidemiological studies provide information on the prevention, treatment, and minimization of the impact of diseases on the society<sup>(1)</sup>.

The data published by the WHO showed that the total number of persons with visual impairment worldwide in 2010 was estimated to be 285 million, including 39 million blind people, of whom around 80 per cent were above the age of 50, with most of the causes being preventable<sup>(2)</sup>. Cataract is the leading cause of blindness worldwide. Cataract often develops slowly and can affect one or both eyes. Cataracts are the cause of half of blindness and 33% of visual impairment worldwide<sup>(3)</sup>. In the eastern Mediterranean region, cataracts are responsible for over 51% of blindness. Childhood-related cataracts are responsible for 5–20% of world childhood blindness<sup>(4)</sup>.

Glaucoma is the second leading cause of blindness worldwide. It is a group of eye diseases which result in damage to the optic nerve and vision loss. The most common type is open-angle glaucoma with less common types including closed-angle glaucoma and normal-tension glaucoma<sup>(5)</sup>. About 60 to 67 million people have glaucoma globally<sup>(6)</sup>.

Diabetic retinopathy is a medical condition in which damage occurs to the retina due to diabetes. It affects up to 80 % of people who have had diabetes for 20 years or more. Each year in the United States,

diabetic retinopathy accounts for 12% of all new cases of blindness<sup>(7)</sup>.

Conjunctivitis affects many people and imposes economic and social burdens<sup>(8)</sup>. The prevalence of conjunctivitis varies according to the underlying cause, which may be influenced by the patient's age, as well as the season of the year. Viral conjunctivitis is the most common cause of infectious conjunctivitis. Allergic conjunctivitis is the most frequent cause, affecting 15% to 40% of the population, and is observed more frequently in spring and summer<sup>(9)</sup>.

Dry eye is a common disorder of the eye's surface, characterized by the degradation of the fluid layer covering the eye (tear film) and increased eye inflammation<sup>(10)</sup>. Dry eyes occur in 5% to 35% of the general population and are significantly more common in women<sup>(11)</sup>.

### AIM OF WORK

The aim of this study was to determine the frequency and spectrum of eye disorders presenting to the eye clinic of Damnhour, Behira Eye Hospital.

### SUBJECTS AND METHODS

During November 2016 to December 2016, all patients who presented to Damnhour, Behira Eye Hospital suffering from ocular diseases other than refractive

errors were included in this study. 6252 patients were examined and evaluated for different eye diseases.

Ethical approval and permission to conduct the study was obtained from Damnhour, Behira Eye Hospital. Patients were asked to share in our study after explanation of the steps.

All patients underwent:

- **History taking:** A detailed history was taken for the collection of relevant sociodemographic and medical information. Collected data included age, gender, marital status, education, occupation, lifestyle factors (cigarette smoking history), optical symptoms, systemic medical and surgical history, and family history of eye diseases.
- **Examination:** A series of examinations were done for each age group.

**Group I:** Participants below 3 years old underwent simple eye examination, testing for strabismus and looking for any congenital diseases.

**Group II:** Participants ranging in age from 4 to 18 years, underwent autorefraction, visual acuity testing, testing for strabismus and slit lamp examination. Fundus examination and IOP measurement were done if indicated.

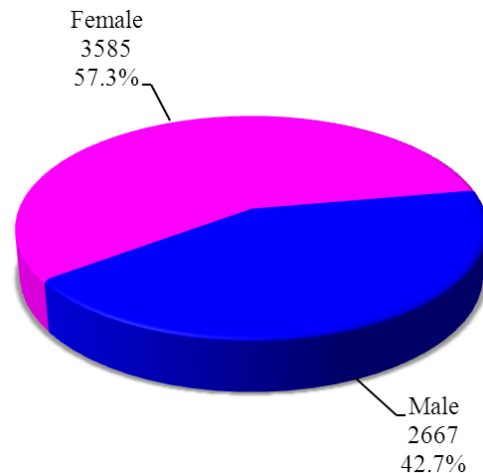
**Group III:** The participants over 19 years of age underwent full ocular examinations, including autorefraction, visual acuity testing, testing for strabismus, slit lamp examinations, measurement of intraocular pressure, and fundus examination. For participants meeting the glaucoma suspicion criteria, frequency doubling perimetry (FDT) was carried out. Gonioscopy was done to detect the type of glaucoma.

Data were fed to the computer and analyzed using IBM SPSS software package version 20.0. (Armonk, NY: IBM Corp) Qualitative data were

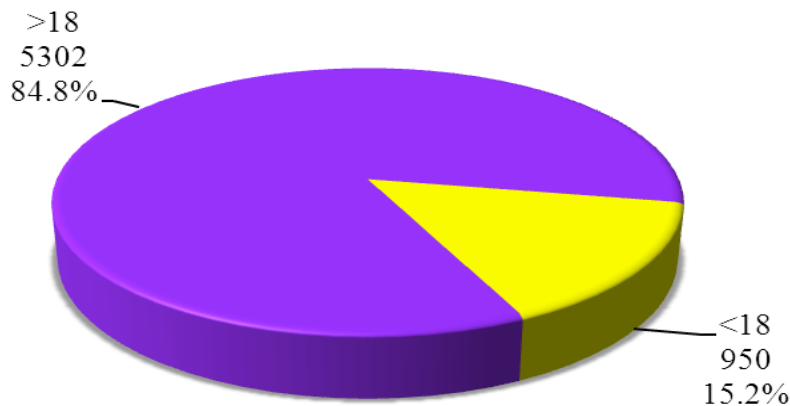
described using number and percent. Quantitative data were described using range (minimum and maximum), mean, standard deviation and median.

**RESULTS**

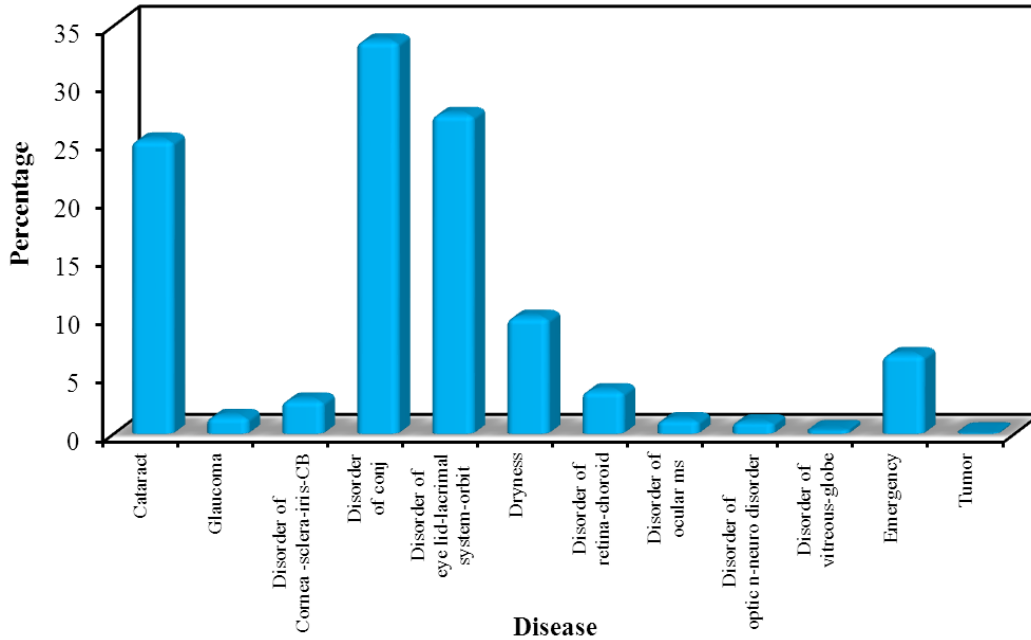
We evaluated 6252 patients who were seen in Damnhour, Behira eye hospital during the study period from November 2016 to the end of December 2016. Figures 1 and 2 show the distribution of age and sex among studied groups. The age of the participants ranged from 1 to 88 years with a mean age of  $39.9 \pm 19.4$  years. There were 950 participants below 18 years old, representing 15.2% of all patients. Of the 6252 patients, 3585 were females (57.3%) and 2667 were males (42.7%) with a female to male ratio of 13:10



**Figure (1):** Distribution of the studied cases according to Sex (n = 6252)



**Figure (2):** Distribution of the studied cases according to Age (years) (n = 6252)



**Figure (3): Distribution of the studied cases according to disease**

Figure 3 shows the distribution of different eye diseases among studied groups. The most prevalent category was conjunctival diseases. It represented 33.7% of cases. Within this category, bacterial conjunctivitis was the more prominent disorder with a mean presenting age of  $24.23 \pm 20.53$  followed by viral conjunctivitis with a mean presenting age of  $32.63 \pm 15.22$  and pterygium with a mean presenting age of  $45.66 \pm 12.12$ .

Lid diseases and lacrimal system diseases were the second most common presentation in our study representing 27.4% of cases. Chalazion was the most prevalent condition with a mean presenting age of  $29.09 \pm 16.21$  followed by blepharitis with a mean presenting age of  $38.18 \pm 15.41$  and trichiasis with a mean presenting age of  $55.13 \pm 10.04$ .

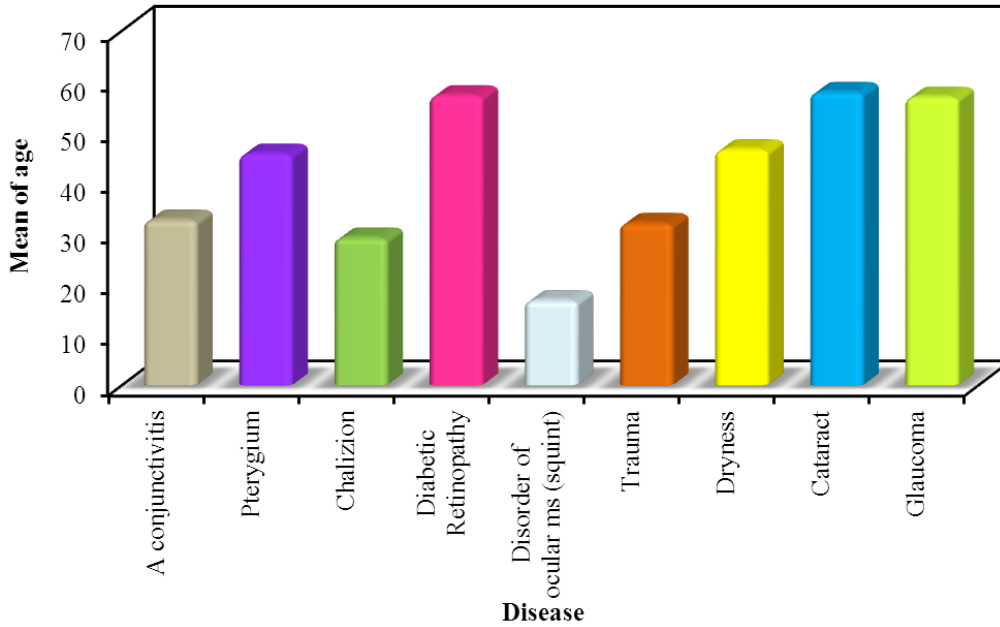
Cataract was the third most common disorder with 1573 patients. It represented 25.2% of cases with a mean presenting age of  $57.83 \pm 9.73$ .

Dry eye was the fourth most common presentation in our study representing 10% of cases with a mean presenting age of  $46.51 \pm 13.62$ . Ocular emergency was fifth in this study and represented 6.8% of cases.

Retina and vitreous disorders represented 4.2% of cases. Diabetic retinopathy represented 3.3% of cases. It was the most common retinal diseases with a mean presenting age of  $57.18 \pm 10.28$ .

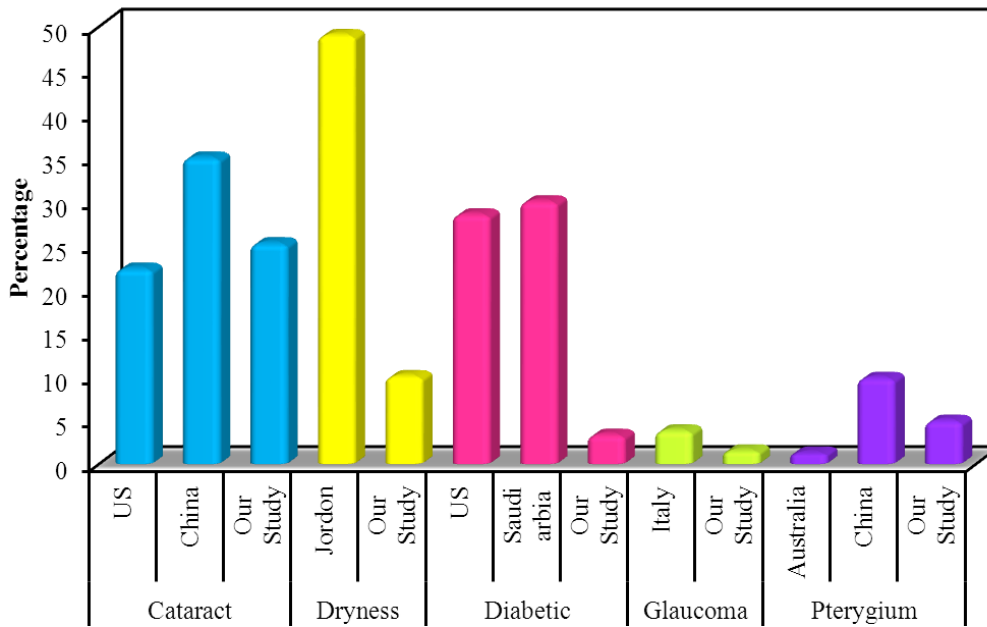
Corneal and scleral diseases represented 2.8% of cases with a mean presenting age of  $40.72 \pm 19.55$ . Glaucoma represented 1.5% of cases with a mean presenting age of  $56.89 \pm 14.20$ . Strabismus represented 1.2% of cases with a mean presenting age of  $16.74 \pm 15.43$ . Optic nerve diseases and neuro-ophthalmic diseases represented 1.1% of cases with a mean presenting age of  $50.94 \pm 12.44$ . Tumors represented 0.1% of cases with a mean presenting age of  $52.20 \pm 12.76$ . Figure (4) shows the mean presenting age for each disease.

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**Figure (4): Distribution of the studied cases according to disease and age**

The prevalence of eye diseases in our study differ from those in other countries. This return to ethnic groups, the difference in environment and atmosphere, and the difference in culture of people. Figure (5) shows the difference of prevalence of our study diseases related to other countries.



**Figure (5): Ourdisease distribution vs international disease distribution.**

## DISCUSSION

Several epidemiologic studies have reported on the prevalence of common eye diseases in many countries, as it has been estimated that at least half of all cases of legal blindness could be prevented by early detection and timely treatment of associated conditions<sup>(12)</sup>.

Conjunctival diseases were the most common eye disorder seen for all age groups in this study (33.7%). Conjunctivitis representing 71% of this category. Previous reports of conjunctivitis as the most common disorder are supported by this study<sup>(13)</sup>. Studies reported the prevalence of pterygium ranged from 1.2% in a white population in urban Australia to 9.84% in a Chinese population<sup>(14-15)</sup>. In our study, the prevalence of pterygium was 4.9%. Differences in prevalence of pterygium were observed among different studies due to climate and ethnic factors. However, dominance in male gender and older age groups were similar to those observed in other studies.

Lid diseases were the second most common presentation in our study representing 27.4% of cases. Chalazia and blepharitis were more common among this category.

The prevalence of cataract has been reported as 22.3% in the United States and 35.0% in China<sup>(16-17)</sup>. In our study, the prevalence of cataract was 25.2%. The prevalence of cataract was similar to that reported in the United States but lower than that reported in China. This may be due to the large number of the Chinese population. Differences between populations in cataract prevalence and especially in the cataract subtypes may reflect environmental or genetic factors. We found a higher prevalence of cataract in females compared to males. Dryness was the fourth most common presentation in our study representing 10% of cases. The prevalence of dryness in Jordan was reported as 49%<sup>(18)</sup>. The prevalence of dryness was much lower than the prevalence reported in Jordan. This low prevalence of dryness may be due to our patients neglecting their eyes symptoms and the difference in climate conditions.

Ocular trauma was the fifth most common presentation in this study and represented 6.8% of cases with the majority of trauma cases (80%) being minor injuries (impacted corneal and conjunctival foreign bodies, and unintentional blows to the eye). Our results are different from other reports. Previous studies reported trauma as the third most common

presentation<sup>(19)</sup>. Occupational hazards accounted for 65% of ocular trauma. Severe trauma including ruptured globes and intra ocular bleeding accounted for 8% of ocular trauma.

The prevalence of diabetic retinopathy in the United States was reported as 28.5% to 40.3%<sup>(7)</sup>. The prevalence of DR was 30% in Al Ahsa Region of Saudi Arabia<sup>(20)</sup>. In the present study, the prevalence of DR was 3.3%, much lower than the prevalence reported in the United States, and Saudi Arabia. This relatively low prevalence of DR was due to the low number of diabetic patients in our study sample.

Glaucoma is believed to be the leading global cause of surgically irremediable blindness<sup>(5)</sup>. Several studies have been conducted on the epidemiology of glaucoma in Asian people<sup>(21)</sup>. The prevalence ranges of POAG and PACG have been reported as 1.6% to 3.9% and 0.4% to 1.0%, respectively. The prevalence of POAG was (1.72%-3.66%), and PACG was (0.53%-1.77%) in Ponza, Italy<sup>(22)</sup>. In this study, the prevalence of POAG and PACG was 1.4% and 0.1% respectively. There were minor differences between results most likely due to the different criteria adopted in the assessment of glaucomatous visual field damage, ethnic, and genetic factors.

The prevalence of strabismus in subjects under the age of 11 was 1.8% in South Korea<sup>(23)</sup>, and 3.1% in subjects 4 to 7 years of age in the United States<sup>(24)</sup>. In our study the prevalence of strabismus was 1.2% in all age groups. In subjects under the age of 12 the prevalence was 0.9%, in adults it was 0.3%.

## CONCLUSION:

Accurate epidemiological information may contribute to the proper delivery of health care, preventive screenings, and rehabilitative services to individuals with eye diseases.

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