Pattern of Eye Diseases in a Tertiary Hospital in Osogbo, Southwestern Nigeria

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Authors' contributions

This work was carried out in collaboration among all authors. Author COA main researcher and corresponding author that conceptualized the topic, collected data and analyzed the data. Author AA assisted in collection of data. Author EAAK executed most analysis and assisted in write-up. Author IOA did the literature review. Author BEE data entry and some analysis. All authors read and approved the final manuscript.

Article Information

Original Research Article

ABSTRACT

The aim of the study was to determine the pattern of eye diseases in patients that attended the eye clinic of a teaching hospital in Osogbo, South-Western Nigeria between March 2018 and February 2019.
Methodology: A retrospective cross-sectional study of 2420 consecutive new patients that attended the eye clinic between the period was included in the study. Patients' records as contained in the individual case notes were accessed for relevant information. Data obtained included the age, sex, religion, tribe and diagnoses at first attendance. Data were analyzed using SPSS version 21(SPSS Inc., Chicago, IL). Descriptive statistics were used in summarizing the data

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and Pearson's chi-square statistical method was used to determine statistical significance of association between categorical variables at 5% probability level.

Results: Cataract, refractive errors and glaucoma were the common types of eye diseases seen. Of the refractive errors, females predominate and myopia was the commonest type encountered. Furthermore, myopia was commonest in all age groups. However, in the 10-19 years age group, it occurred at 6 years to 9 years (P= 0.001) Vitreoretinal diseases 111(4.6%) were also encountered, some of which needed to be referred out to other centers.

Conclusion: Cataract, refractive errors and glaucoma were the common eye diseases seen in this study. Refractive errors have become more common than glaucoma in this environment. This calls for more intensified efforts in the provision of corrective treatments for refractive errors, cataract surgical outreaches and glaucoma awareness programs. The occurrence of vitreo-retinal diseases in substantial proportions also calls for the availabilty of vitreo-retinal equipment and specialists.

1. INTRODUCTION

Osogbo is the capital of Osun state which is in the South-western part of Nigeria. Osun state has a population of 3,423,535 [1]. Accounting for 2.445% of the population of Nigeria according to the 2006 population census. Osun state is landlocked and occupies 9,251 square kilometres.

It shares borders with Kwara State in the North, Oyo State in the West, Ogun State in the South and Ondo and Ekiti States in the East Osogbo, the capital of Osun state has a population of 156,694 and It lies on coordinates 7°46′ North 4°34′East with an area of 47kmsq. It shares boundary with Ikirun, Ilesa, Ede, Ilobu and Iragbiji and is easily accessible from any part of the state because of its central nature. Osogbo is a commercial and industrial centre. It has only one tertiary hospital which provides health services to all the people in its 3 local governments, other local government areas (LGA) in Osun state and Nigeria at large.

Ladoke Akintola University of Technology Teaching Hospital (LAUTECH), Osogbo has two full time consultant Ophthalmologists, a visiting consultant Ophthalmologist and many doctors in training caring for eye diseases. It metamorphosed from a state hospital offering secondary level care to a tertiary hospital which has been in existence for about 20 years. The two full Consultants are subspecialists in glaucoma and oculoplasty.

Ocular morbidity and blindness vary from one country to the other; even within countries, there are variations. These have been attributed to level of development, race, socioeconomic factors and culture [2]. Worldwide, common eye diseases include cataract, glaucoma, refractive errors, conjunctivitis, pterygium, corneal ulcers and uveitis [3].

Studies in African countries in children revealed refractive errors, allergic and infective conjunctivitis to be the most common causes of ocular morbidity [4,5].

Cataract, conjunctivitis, refractive errors and glaucoma were the most common causes of ocular morbidity in Sudan [3] In Pakistan, the commonest ocular diseases found were Conjunctivitis, cataract corneal problems in a study of eye diseases in primary health centers [6].

In Nigeria, Edema et al. reported refractive errors, conjunctivitis, cataract, and glaucoma to be common eye diseases [7]. In a cross-sectional study of students in South-Western Nigeria, conjunctival disease and refractive error were the most common eye diseases [8]. In a study in the University health clinic in Northern, Nigeria, the most common ocular diseases were infective conjunctivitis, allergic conjunctivitis and refractive error [9].

There is no information on the pattern of eye diseases in Osogbo, Nigeria. It is therefore difficult to plan and accurately justify the needs for appropriate clinical eye health resource (human, equipment and material) in LAUTECH.

This study will therefore examine the pattern of eye diseases that presented in the eye clinic as compared with the pattern elsewhere. The findings of the study will provide information for planning and justifying current service needs and future projections.

2. METHODOLOGY

This is a retrospective cross-sectional study of all consecutive new patients seen in the eye clinic between March 2018 and February 2019. In our hospital, new patients were seen by consultants after the ophthalmic Nurses had documented the visual acuities and blood pressure. All new patients had comprehensive examination of the anterior and posterior segments. Visual acuity was assessed by illuminated Snellen's chart by testing each eye at a time with or without PH. A visual acuity of 6/6 – 6/18 was considered normal while poorer than 3/60 in the better eye was classified as blindness. Intraocular pressure (IOP) was measured with Goldmann applanation tonometer and Perkin's tonometer. Anterior segment examination was done using pen torch and Haag streit 900 Slit lamp biomicroscopy. Gonioscopy was done using 3-mirror and 4 mirror lenses while fundoscopy was done using Hamblin or Heintz direct and indirect ophthalmoscopes. Visual field was done with Epson 900 series automated perimeter using contour 3 suprathreshold quick full fields, one eye at a time with reading glasses at a distance of 0.33 meters when necessary. Retinoscopy was done using Keeler retinoscope and Potecautokeratorefractometer when available. Cataract implies opacity in the lens while glaucoma is diagnosed when there is optic neuropathy with or without increased intraocular pressure and glaucomatous visual field loss. Refractive error is diagnosed when refraction improves vision. Presbyopia is an error in accommodation that occurs usually from 40 years though some people may have it earlier and is diagnosed when near vision improves with converging lenses after refraction. Other diagnoses are picked up from history, examination and other tests of the eye.

A pretested standardized questionnaire was used in data collection. Data obtained included demography such as age, sex, occupation, level of education, state of origin and religion. Clinical data included visual acuity with or without pin hole or glasses, presenting complaint, diagnosis on presentation, mode of treatment and complications if any.

Data was analyzed using SPSS version 21(SPSS Inc., Chicago, IL). Descriptive statistics was used in analyzing data, cross-tabulations with Pearson's chi square were used to compare categorical variables and statistical significance was set at $p<0.05$.

3. RESULTS

A total of 2420 patients were included in the study. The mean age of the study population was 48.27 (SD ± 22.14). The mean age for males (49.27 years, SD ± 22.58) was significantly higher than that of females (47.15 years, SD ± 21.59) p= 0.019. Table 1 shows the age-sex distribution of the patients. There were 1275(52.7%) males and 1145 (47.3%) females giving a male to female ratio of 1.11:1.00. The majority (2069 (85.5%) were adults 20 years and above as shown in Fig. 1. The majority, 2394 (98.9%), of subjects were of the Yoruba tribe and 1296 (53.6%) were Christians.

Fig. 2 shows the commonest symptom was poor vision (57.7%). Cataract 659 (27.2%), refractive errors 641 (26.5%) and glaucoma 442 (18.3%) were the most common forms of ocular diseases encountered in this study (Fig. 3). Table 2 shows that Glaucoma, presbyopia and corneal opacity were significantly more common in males (p = 0.008, 0,029 and 0.049 respectively) while refractive errors (myopia in particular) were significantly more frequent in females (p=0.001).

Table 3 also shows that cataract and glaucoma significantly increased with increasing age groups (p=0.001) while refractive errors, conjunctivitis, trauma and squint significantly decreased with increasing age groups (<0.05).

Fig. 4 shows that the commonest type of refractive error was myopia 452 (70.5%), and it was commonly found in all age groups as shown in Fig. 5. However, in the 0-9 age groups, myopia was present only from 6 to 9 years of age.

Some patients had more than one pathology.

4. DISCUSSION

The pattern of ocular diseases varies from place to place and time to time. Several programs such as cataract surgical outreaches and glaucoma awareness programs may influence changes in disease trend. It is therefore, necessary to review the pattern of eye diseases from time to time in order to monitor trends, make adequate provision for eye care and offer appropriate treatment.
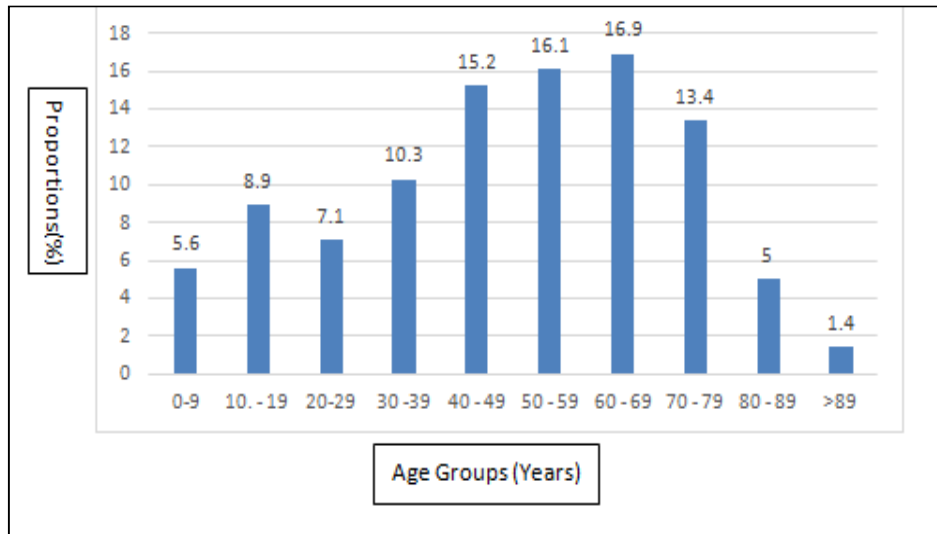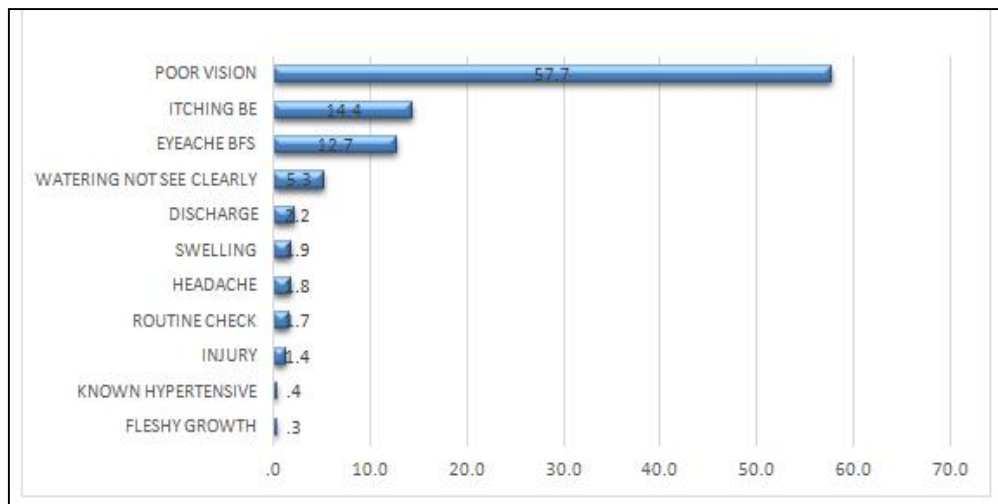
Fig. 1. Distribution of participants by age group

Fig. 2. Percent proportion of participants' ocular complaints

Table 1. Age-sex distribution of participants

Age group (years)	Male (%)	Female (%)	Total (%)
0-9	78 (57.8)	57 (42.25)	135 (100)
10-19	90 (41.7)	126 (58.3)	216 (100)
20-29	112 (65.1)	60 (34.9)	172 (100)
30-39	122 (48.8)	128 (51.2)	250 (100)
40-49	164 (44.6)	204 (55.4)	368 (100)
50-59	217 (55.6)	173 (44.4)	390 (100)
60-69	209 (51.1)	200 (48.9)	409 (100)
70-79	189 (58.2)	136 (41.8)	325 (100)
80 – 89	67 (54.9)	55 (45.1)	122 (100)
>89	27(81.8)	6(18.2)	33(100)
Total (%)	1275 (52.7)	1145 (47.3)	2420(100)

Table 2. Sex distribution of ocular diseases in the study population

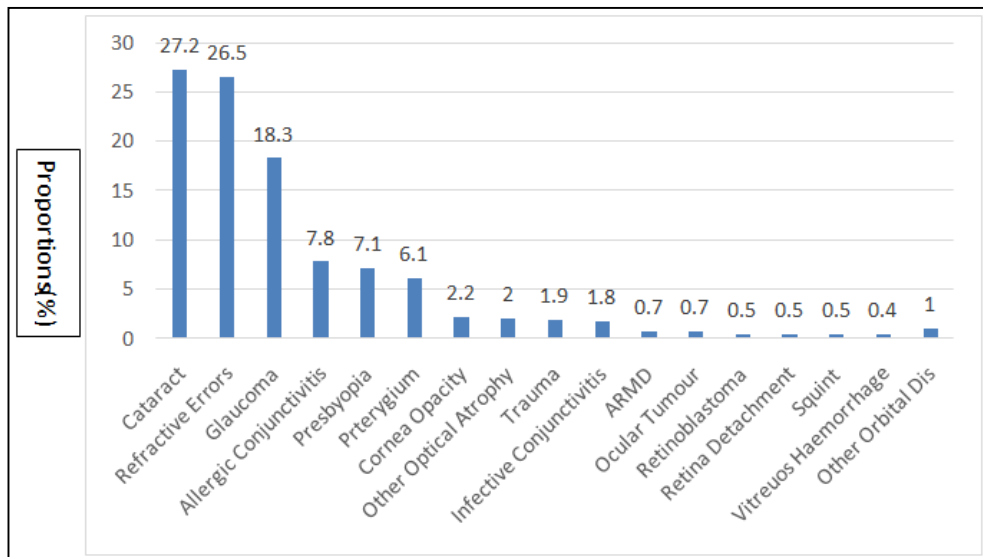| Diagnosis	Male	Female	Comment[+]	
	n(%)	n(%)	X^2	p
Cataract	344(27.0)	315(27.5)	0.086	0.784
Glaucoma	258(20.2)	184(16.1)	7.011	0.008
Presbyopia	105(8.2)	68(5.9)	4.793	**0.029**
Refractive error	286(22.4)	355(31.0)	22.770	0.001
Myopia	200(15.7)	252(22.0)	15.876	0.001
Others	282(22.1)	223(19.5)	2.549	.11
Total	1275(52.7)	1145(47.3)		

[+]df = 1

Fig. 3. Prevalence of ocular diseases in the study population (N=2420)
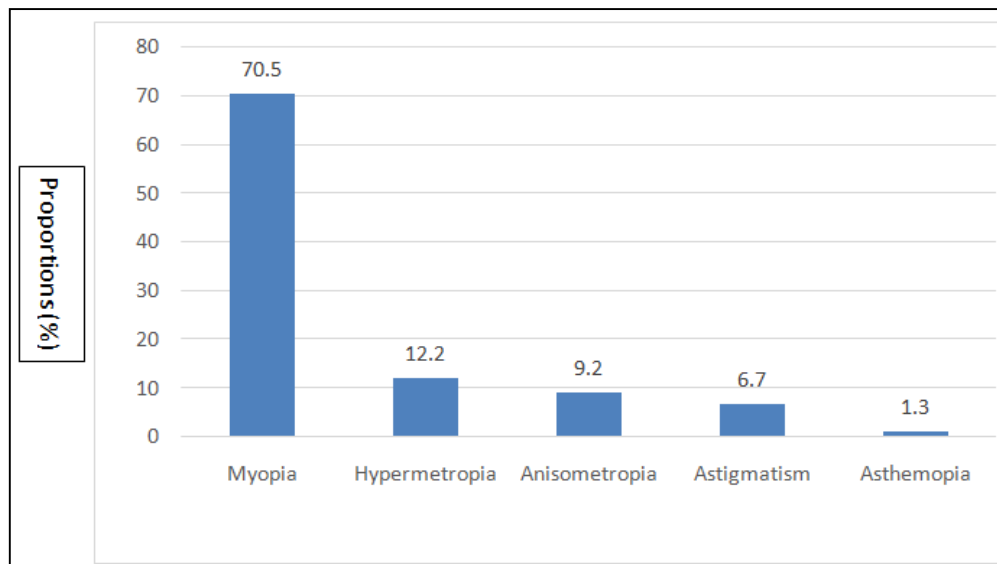

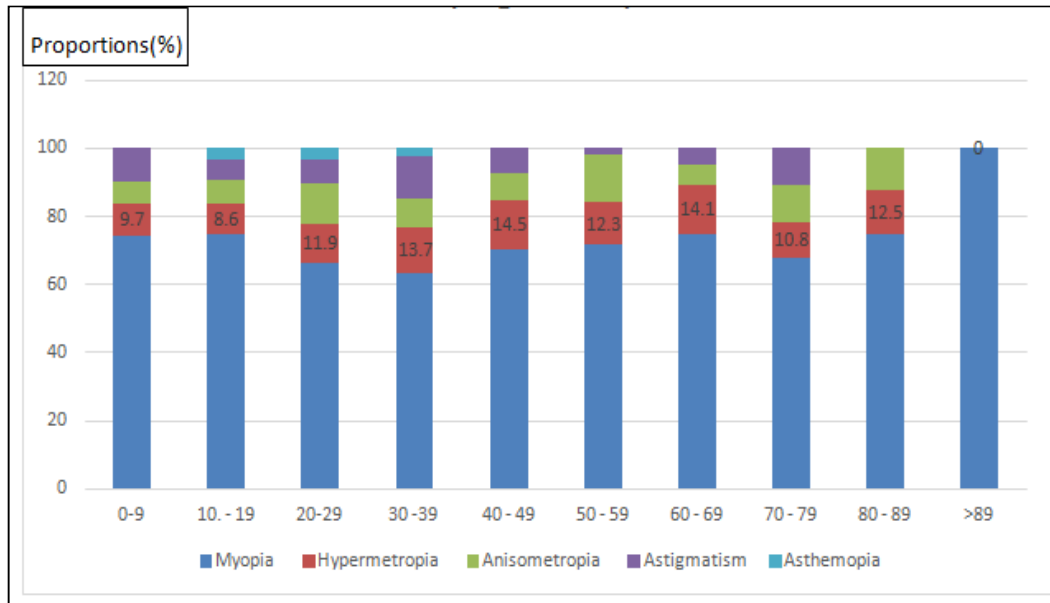**Fig. 4. Relative proportion of types of refractive error (n=641)**

Fig. 5. Distribution of types of refractive errors by age group
Myopia predominates in all age groups. However, in the 0-9 age groups, myopia was present only from 6 to 9 years only years

Table 3. Distribution of ocular diseases by age group

Diagnosis	Age groups (Years)				
	0 – 19	20 - 39	>39	Comments[+]	
	N (%)	N (%)	N (%)	X2	p
Cataract	36(10.26)	60(14.22)	563(34.18)	127.274	0.001
Glaucoma	14(3.99)	35(8.29)	393(23.86)	110.582	0.001
Refractive errors	147(41.88)	154(36.49)	340(20.64)	93.294	0.001
Allergic conjunctivitis	86(24.50)	47(11.14)	56(3.40)	186.794	0.001
Infective conjunctivitis	23(6.55)	10(2.37)	11(0.67)	57.002	0.001
Trauma	12(3.42)	17(4.03)	17(1.03)	21.246	0.001
Squint	5(1.43)	4(0.95)	4(0.24)	7.994	0.018
Others	28(7.98)	95(22.51)	263(15.97)	32.949	.0001
Total	351(100)	422(100)	1647(100)		

[+] *df = 2*

Fig. 1 shows the majority of the participants were adults 20 years and above. This is similar to other studies in South Western Nigeria [8]. This may be due to the fact that pre-school eye examination is still not mandatory in most schools and children may not present until the teachers or parents notice an abnormality such as moving close to television or class board in school. This is however contrary to what was found in a study in the University health clinic in Northern Nigeria where majority (63.5%) of the participants were students [9].

A slight preponderance in males was noticed which is in keeping with the findings of some authors [10] but differs from others who reported a preponderance of females [3, 11].

The most common ocular morbidity in this study was cataract 659 (27.2%). This was closely followed by refractive errors 641 (26.5%) which was commoner than glaucoma 442 (18.3%)). Cataract has long been reported as the most common cause of visual impairment worldwide [3,11,12,13]. It is however contrary to findings in the study conducted by Chukwuka et al. where refractive error was second to glaucoma as the commonest ocular diseases found [14].

The prevalence of refractive errors is on the rise. This will affect education, quality of life and socio-economic status of people affected [14]. In this study, 641(26.5%) participants had refractive errors and coming next after cataract. It is contrary to previous reports where it came third after glaucoma [15,16].

Glaucoma came third contrary to previous reports where it has been reported as the second most common cause of visual impairment and blindness after cataract [17]. However, it is similar to the report in tropical Africa where it came third after cataract and aphakia [18]. The later study however, was a community study of blindness. In other studies, especially in students and children, conjunctivitis and refractive error predominate [8,19].

Vitreo-retinal diseases including retinal detachment 11(0.5%), non-glaucomatous optic atrophy 49(2.0%), vitreous haemorrhage 10(0.4%), retinitis pigmentosa 2(0.1%), retinoblastoma 11(0.5%), macular hole 2(0.1%) and age-related macular degeneration 26(1.1%) accounted for 111 (4.6%) of cases. This is comparable to what was found by other authors in South Eastern Nigeria (3.9%) [20] but lower than what was found in Ethiopia [21].

In our hospital, we do not have a vitreo-retinal surgeon or equipment. Subjects with these conditions required referral to centers with necessary facility and expertise. We hope the report of this study will strengthen proposals for expansion of eye health services to make provision for an equipped and staffed vitreo-retinal unit, and improve on services for cataract and glaucoma management [22].

5. CONCLUSION

This study has highlighted the various ocular diseases presenting in this hospital and the need to make provisions for needed equipment and personnel. It has shown that cataract, refractive errors and glaucoma were the common eye diseases seen in this hospital. Refractive errors have become more common than glaucoma in this environment. The occurrence of vitreo-retinal diseases in substantial proportions also calls for the availabilty of vitreo-retinal equipment and recruitment of vitreo-retinal specialists.

It is necessary to evaluate the prevailing ocular disease from time to time in order to improve services and training. It will also assist in assessing the effect of efforts put in place to increase awareness of glaucoma and reduce cataract blindness. This study has shown that we need to intensify cataract outreach and glaucoma awareness programs.

CONSENT

It is not applicable.

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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