Original Research Article

Pattern of Ocular Morbidity in Patients Attending Urban Specialist Eye Clinic in South East Nigeria.

Abstract

Background: The pattern of eye diseases varies across the world. Racial, ethnic, socio-cultural and socio-demographic characteristics are known to exert some influence on the pattern of these eye diseases.Knowledge of these patterns is important in planning for adequate eye care services.

Aim: To determine the pattern of ocular morbidity in an urban specialist eye clinic in Awka, South-East Nigeria.

Setting and Design: A two-year descriptive retrospective study of patients seen in an urban specialist eye clinic in South-East Nigeria

Materials and Methods:The needed information, which included socio-demographics and diagnosis, was extracted from patients' case files and entered into a proforma. The data were analyzed using SPSS version 20. Ninety five percent Confidence Interval was givenfor percentages and $p \leq .05$ was accepted as statistically significant.

Results: Five hundred and twenty seven patients comprising 277 (52.6%) females and 250 (47.4%) males with a mean age of 43.2 ± 21.7 years seen within the two year period were reviewed. Refractive error, glaucoma, allergic eye diseases, and cataract~~in that order~~ were the commonest ocular morbidities in these patients. Spherical errors were commoner than cylindrical errors. Hypermetropia was the commonest refractive error while hypermetropic astigmatism was the commonest astigmatic error. All the refractive

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errors were commoner in females than inthe males. Although 185 (35.1%) patients were presbyopic on clinical examination, only 41(7.7%) patients had presbyopia as their main diagnosis.

Conclusion: Most of the common reasons for ophthalmic consultationswererefractive error, glaucoma, allergic eye diseases, and cataract~~found were known causes of visual impairment and blindness.~~ Adequate provision for the management of these conditions will help in reducing the burden of visual impairment and blindness.

Key Words: Ocular, Morbidity, Urban, Clinic, Nigeria, Cataract, Refractive error, Glaucoma.

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Introduction

There are different patterns of eye diseases in terms of---------across the world. Racial, geographic, social, and cultural factors all have some influence on the pattern of these ocular diseases.[1], [2] Ukponmwan in Benin- city, Nigeria reported the common causes of ocular morbidity in a tertiary hospital to include refractive errors, cataract, allergic conjunctivitis and glaucoma~~in that order~~.[3]Oladigbolu et al[4], in northern Nigeria, on the contrary reported that infective conjunctivitis,followed by allergic conjunctivitis, was the commonest reason for eye clinic consultation, though this was in auniversity sick bay. Ademe et al[5] in Ethiopia, found that the commonest reason for eye clinic consultation was allergic conjunctivitis, followed by refractive error, cataract and glaucoma. Lipa et al[6], also reported allergic conjunctivitis as the commonest reason for out- patient eye clinic consultations in a tertiary hospital in India. A study in a community centre in Nepal, similar to the finding in Benin-City, Nigeria, reported that refractive error, cataract and conjunctivitis were the most prevalent eye diseases seen in the centre.[2]Refractive error and conjunctivitis were commoner in the younger age group while cataract and other posterior segment lesions were commoner in the older age group.[2]A study among the elderly in Southern Germany recorded that cataract, dry eyes, glaucoma and age related macular degeneration were the commonest eye diseases found on examination.[7] On the other hand, Lusambo et al[8]in Kinshasa, Democratic Republic

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of Congo reported allergic conjunctivitis and refractive error as the commonest eye diseases in a population-based study in children aged 16 years and below.

Knowledge of the different patterns of eye diseases/reasons for eye clinic consultations are important in planning for eye care and allocation of scarce resources to the necessary and most needed eye care facilities/equipment especially in resource constrained regions of the world. This studyis aimed to determine the pattern of eye diseases at an urban specialist general clinic in Awka, South-East, Nigeria, with a view to generating information that may help in planning for adequate eye care ~~provisions~~ in the region and other regions that share similardemographic characteristics.

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Materials and Methods

This was a two-year descriptive retrospective study, carried out on patients who presented at a specialist eye clinic in Awka, Nigeria,between January 2020 and December 2021.

Case files of all patients who presented to the clinic within the two year period were retrieved from the medical records and the needed information extracted from the case files and recorded in a proforma designed for the study. Information obtained included socio-demographic data (age, sex, occupation), and ocular diagnosis on the first consultations. Where there were more than one diagnosis, the one that has the worst effect on vision and/or ~~causes greatest~~discomfort to the patient was taken as the major diagnosis. Primary open angle glaucoma diagnosis was made when the following criteria were met on slit lamp binocular indirect ophthalmoscopy with 90D lens, and automated visual field testing : open anterior chamber angle (Shaffer's grade 2, 3 or 4); glaucomatous optic neuropathy [vertical cup/disc ratio (VCDR) ≥ 0.7 and/or VCDR asymmetry > 0. 2],associated with glaucomatous visual field defect. Glaucomatous visual field defect presence was based on the Anderson's criteria.[9]Ocular hypertension was diagnosed based on intraocular pressure > 21mmHg in the absence of glaucomatous optic neuropathy and glaucomatous visual field defect[10]. Shaffer's grade 0 and 1 were diagnosed as angle closure glaucoma. Cataract was defined as any visually significant lens opacity. The data were analyzed using statistical package for social science version 20 (SPSS-20). Ninety five percent Confidence Interval

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was given for percentages. Associations were tested with t-test and $p \leq .05$ was described as statistically significant. The tenets of Helsinki declaration was adhered to throughout the study.

Results

Five hundred and twenty seven (527) patients comprising 277 (52.6%) females and 250 (47.4%) males (female:male = 1:1.1)presented within the period under review. The age range of the patients was 1- 93 years (mean=43.2 ± 21.7). Majority (60%) of the patients were aged between 20 and 60 years (table 1).

Table 1: Age Category of Patients

Age Category (Years)	Frequency	Percentage (%)
1-10	40	7.6
11-20	41	7.8
21-30	90	17.1
31-40	64	12.1
41-50	94	17.8
51-60	77	14.6
61-70	64	12.2
71-80	36	6.8
81-90	18	3.4
Above 90	3	0.6
Total	**527**	**100**

The commonest ocular morbidity in the study was refractive error which accounted for 27.3% [(144/527); 95% CI= 23.4-31.2]of all new consultations (table 2).

Different types of glaucoma, of which primary open angle glaucoma was the commonest, constituted the second commonest ocular morbidity. Glaucoma constituted 17.4% [(92/527); 95% CI= 14.1-20.7] of the ophthalmic diagnosis. Allergic eye disease, cataract, and presbyopia respectively were the third, fourth

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and fifth commonest diagnosis (table 2). Although only 41 (7.7%) patients had presbyopia as their main diagnosis (table 2), 185 (35.1%) patients were found to have presbyopia on clinical assessment.

Table 2: Main Diagnosis on First Eye Clinic Consultations

Diagnosis	**Frequency**	**Percentage (%)**
Refractive Error	144	27.3
Primary Open Angle Glaucoma	71	13.4
Angle Closure Glaucoma	10	1.9
Secondary Glaucoma	7	1.3
Neovascular Glaucoma	4	0.8
Allergic Eye Disease	65	12.3
Cataract	45	8.5
Presbyopia	41	7.8
Infective Conjunctivitis	14	2.6
Dry Eye Syndrome	13	2.5
Age Related Macular Degeneration	12	2.3
Uveitis	10	1.9
Pterygium	10	1.9
Diabetic Retinopathy	8	1.5
Posterior Vitreous Detachment	7	1.3
Corneal Ulcers	6	1.0
Non glaucomatous Optic Atrophy	6	1.0
Ocular Hypertension	5	0.9

Chorioretinal Scar	4	0.8
Corneoscleral Laceration	4	0.8
Preseptal/Orbital Cellulitis	4	0.8
Phthisis Bulbi	4	0.8
Migraine	4	0.8
Thyroid Eye Disease	4	0.8
Corneal dystrophy	3	0.6
Chalazion	3	0.6
Herpes Zoster Ophthalmicus	3	0.6
Conjunctival Cysts	2	0.4
Conjunctival Naevus	2	0.4
Conjunctival Squamous Cell Carcinoma	2	0.4
Corneal Foreign Body	2	0.4
Corneal Scar/Opacity	2	0.4
Lid Laceration	2	0.4
Accommodative Esotropia	2	0.4
Traumatic Hyphaema	2	0.4
Total	**527**	**100**

Spherical error was commoner than astigmatic error among these patients *(p<.000)*, with hypermetropia being the commoner spherical error as well as the commonest refractive error (Table 3).Hypermetropic astigmatism was the commonest astigmatic error while mixed astigmatism was the least form of astigmatic error as well as the least common ofall error (Table 3).

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Table 3: Pattern of Refractive Error

Refractive Error	Frequency	Percentage (%)
Hypermetropia	43	29.9
Myopia	40	27.8
Hypermetropic astigmatism	29	20.0
Myopic astigmatism	24	16.7
Mixed astigmatism	8	5.6
Total	**144**	**100**

All the refractive errors were commoner in females($p < .000$), being present in 32.5% (90/277) of females and constituting 62.5% (90/144) of all errors (table 4); female: male for refractive errors = 1.7:1.

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Table 4: Sex of Patients * Refractive Errors Cross-tabulation

	REFRACTIVE ERROR					TOTAL
	Myopia	Hypermetropia	Myopic Astigmatism	Hypermetropic Astigmatism	Mixed Astigmatism	

Male SEX	**16**	**14**	**10**	**11**	**3**	**54**
FEMALE	**24**	**29**	**14**	**18**	**5**	**90**
Total	**40**	**43**	**24**	**29**	**8**	**144**

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Discussion

Refractive error, glaucoma, allergic eye disease and cataract ~~in that order~~ were the commonest ocular morbidities in this study. These commonest ocular morbidities, excluding allergic eye diseases, are among the commonest causes of visual impairment and blindness worldwide as well as in Nigeria.[11],[12]This is similar to the findings of Ukponmwan[3] in Benin-City, Nigeria where she reported refractive error as the most prevalent ocular morbidity in a tertiary eye centre. However, contrary to Ukponmwan's reportof cataract being the second commonest eye disease, the present study found glaucoma to be the second commonest eye disease. Allergic eye disease was the third commonest inboth Ukponmwan's study and the present study. The larger sample size of Ukponmwan's study (7220) compared to that of present study (527) may have accounted for some of the observed differences.Eze et al[13] similarly found that refractive error was the commonest cause of ocular morbidity among public secondary school students in Enugu, Nigeria . They reported that more than half (57%) of ocular morbidities among these children were due to refractive error. The mean age of Eze et al's subjects were however much lower (14.2 years ± 1.9) than that of the present study (43.2± 21.7), and all were children and young adults aged 10 – 21 years while the present study included children as young as one year and adults as old as 93 years. Similarly, Razyal et al[2]in Nepaland Mukwanseke et al[14] in Kinshasa, Democratic Republic of Congo, reported refractive error as the

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commonest ocular morbidity. The Kinshasa study[14] had similar sample size (500) and mean age (41.9 years) to those of the present study. Majority of the subjects in the Nepal study[2] were also aged between 20- 60 years similar to the present study. These similarities in the sample population could account for the similarities in the findings despite the racial differences. Oladigbolu et al[4], contrary to the present finding, reported infective conjunctivitis as the commonest ocular morbidity in a university sick bay in Nigeria. Oladigbolu subjects, however, were younger (mean age=24.3) and majority were students. A study by Chinawa et al[15] in Rivers state, Nigeria, contrary to the present finding, recorded glaucoma and then refractive error as the leading causes of ocular morbidity. Their study was however a community based study while the present study was a hospital based study. Also in contrast to the present study, Ademe et al[5] in Ethiopia and Lipa et al[6] in India both reported allergic conjunctivitis as the commonest diagnosis in eye clinic consultations. Both the Ethiopian and Indian studies however have lower mean ages compared to that of the present study, and this together with geographical differences could account for the observed differences. What of differences in the population, period, study design and diagnostic methods and criteria?

Among patients with refractive error, hypermetropia was found to be the commonest error, followed by myopia, with mixed astigmatism being the least common error. This is similar to the finding of Bekibele et al[16] among drivers in Ibadan, Nigeria. They found thathypermetropia ~~to be~~was the commonest refractive error despite the study being community based and their subjects being all males. Ezepue[17] in Enugu and Bagaiya et al[18] in Kaduna similarly reported hypermetropia as the commonest refractive error. Ezepue and Bagiya et al's studies, similar to the present study, were hospital based studies and included both adults and children. A study among secondary school teachers in Onitsha, Nigeria[19] similarly recorded hypermetropia as the commonest refractive error although it was a community based study involving only adults. The present finding on the other hand is different from the findings of Ezelum et al[20] in Nigeria and Anajekwu et al[21] in Nsukka, Nigeria. Both Ezelum et al and Anajekwu et al's studies were community based and involved only adults unlike the present study. These differences could account for the observed variations in the pattern of refractive error.

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There was a statistically significant difference between the sexes with all the refractive errors being commoner in females than the male. This is similar to what Lawan et al[22] found in Kano, Nigeria. Lawan's subjects, though eye clinic patients like the present study, were all adults aged 35 years and above. Besufikad et al[23] in Ethiopia,similarly found that refractive error is more prevalent in women in a retrospective hospital based study. On the contrary, Malu et al[24]in Jos, Nigeria and Abah et al[25]in Zaria, Nigeria, did not find any statistically significant difference in the prevalence of refractive errors between male and female.This is surprising as both are hospital based studies and included adults and children just like the present study. Abah's subjects were however younger with a mean age of 24.6 ± 4.9 years. Anajekwu et al[21] also did not find any statistical difference in the refractive errors between male and female. Anajekwu et al's subjects, however, were only adults and the study was a community based study unlike the present study. These could account for the observed differences.

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Conclusion

Refractive error was the commonest reason for ophthalmic consultation in this study. Glaucoma, allergic eye disease and cataract were the second, third and fourth commonest reasons for ophthalmic consultations respectively. These common eye morbidities, with the exclusion of allergic eye disease, are known and common causes of visual impairment and blindness globally. There was also a high incidence of presbyopia that needed correction among these subjects. Adequate provisions in terms of facility, drugs and manpower, should be made available by relevant eye health planning bodies and hospitals to ensure proper management of these common eye morbidities. This will go a long way to help in reducing the burden of visual impairment and blindness, as well as the discomforts associated with these eye conditions.

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