



## Pattern of Eye Diseases in A Rural Community of Enugu, Nigeria

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### Abstract

**Objective:** This study aimed to determine the Pattern of Eye Diseases in the rural community of Enugu-Ezike in Igbo-Eze North Local Government Area, Enugu State, Nigeria.

**Methods:** In a population-based cross-sectional study carried out in 4-day Community Eye Health Screening at Enugu-Ezike, participants were sampled using convenient sampling method. Participants' case histories were taken to contain details of demographic characteristics, personal history, presenting complaints, aided and unaided visual acuity. Ocular examinations were done using Pentorch, Snellen's Visual Acuity Chart, Direct Ophthalmoscope, Contact Tonometer, Trial Lens Case, Retinoscope, and findings recorded. The Statistical Package for the Social Sciences (SPSS 16.0.) was used to analyse the data;  $p < 0.05$  was taken to be significant.

**Results:** There were 650 participants screened, out of whom 466 (71.7%) persons presented with Eye Diseases. Of the 466 persons, males comprised of 174 (37.3%) and 292 (62.7%) females with a male to female ratio of 1:2. Their age ranged from 6 - 90 years with the mean  $\pm$  standard deviation age (SD) of  $56.79 \pm 16.134$  years. The older age group 66 years and above presented more with Eye Diseases 180 (38.6%) compared with the least age group 6-20 years 25 (5.4%). The result showed that the commonest Eye Disease found was glaucoma, noted among 112 participants and revealing a prevalence rate of 24.0%, followed by Cataract 103 (22.1%) and Pterygium 71 (15.2%). And these varied significantly with gender and age ( $p=0.00$ , 95 CI). However, Styne was infrequent and was the least, 6 (1.3%) eye disease in the community.

**Conclusion:** The effort at improving the ocular health of this community can be focused on reducing the burden of glaucoma, cataract, Pterygium and related eye diseases.

**Keywords:** Pattern; Eye Disease; Rural Community; Enugu-Ezike; Nigeria

### Introduction

Eye disease is a visual disorder of the eye or a condition of abnormal functioning of the eye; it can be external or internal but may interfere with vision. It may also lead to blindness. The Pattern of Eye Diseases and causes of blindness in developing and developed countries vary and majorities are either potentially

preventable or curable [1]. Globally, the patterns of eye diseases differ from one region to another and within communities, these variations are influenced by their demographic data, life style, socio-economic status, etc. Report from the Vision Health Initiatives [2] showed that the leading cause of blindness and low vision in the United States are age-related eye diseases such

as age-related macular degeneration (ARMD), cataract, diabetic retinopathy, and glaucoma. Worldwide, more than one billion people suffer from one Eye Disease or the other. Some Eye Diseases are minor and resolve by themselves quickly, but others could be serious and lead to serious visual impairment while some can lead to total loss of vision, which can be sudden or gradual [3]. Eye Disease is one of the major causes of visual impairment, visual handicap and depression in life; visual impairment due to Eye Disease is a significant public health problem in many parts of the world including Nigeria. These diseases can range from infections of the eye or the eyelid (bacteria, viral and fungal), from chronic conditions (hypertension, diabetes, etc.), aging, injuries, poor diet, poor hygiene, environmental hazards and genetically inherited eye problems [4]. Eye Diseases in rural communities have become a matter of concern as they are often characterized by poor vision, low vision and visual impairment and if not well managed, can lead to permanent loss of vision (blindness). The purpose of this study was to determine the Pattern of Eye Diseases in a rural Community of Enugu-Ezike, Enugu, Nigeria, and the variations of this Pattern in relation to age and gender, with a view to making workable recommendations to prevent the impact of such diseases in the rural community. It holds the significance of adding to the existing body of knowledge on the Pattern of Eye Diseases in a rural community of Enugu, Nigeria, shows the trends of ocular morbidity and also helps to provide basic data for planning and designing adequate intervention strategies to mitigate the problem.

**Materials and Methods**

A population-based cross-sectional study carried out in 4-day Community Eye Health Screening in a rural community of Enugu-Ezike. Ethical approval was sought and obtained from relevant authorities. Verbal consent was obtained from the Head of Enugu-Ezike Community, and from the study participants. Participants comprised of 650 indigenes of Enugu-Ezike, within the ages of 6-90 years who attended the Community Eye Health Screening from 27<sup>th</sup> to 30<sup>th</sup> of December, 2017 and were sampled using Convenient Sampling method.

Materials used involved Snellen’s visual acuity chart, Trial lens case accessories, Pen-torch, Ophthalmoscope, Retinoscope, and Tonometer. Participants’ case histories were taken to contain details of demographic characteristics, personal history, presenting

complaints, aided and unaided visual acuity. Various ocular examinations were performed like, visual acuity examination at far and near, pen torch for external eye examination and shadow test, ophthalmoscopy for posterior segment examination, confrontational visual field examination, tonometry, retinoscopy and subjective refraction. The results were sorted out and diagnosis made were recorded appropriately. The Statistical Package for the Social Sciences (SPSS 16.0.) was used to analyse the data; p < 0.05 was taken to be significant Frequency and descriptive tables were generated and the Pearson chi-square was used to explore relationships and associations for variables respectively.

**Results**

**Pattern (%) of eye diseases in enugu-ezike**

The pattern is shown in table 1 below.

Eye Diseases	Frequency (N)	Percentage (%)
Armd	8	1.7
Conjunctivitis	33	7.1
Cataract	103	22.1
Diabetic Retinopathy	26	5.6
Eye Injury	23	4.9
Glaucoma	112	24.0
Hypertensive Retinopathy	42	9.0
Presbyopia	28	6.0
Pterygium	71	15.2
Refractive Error	14	3.0
Stye	6	1.3
Total	466	100.0

**Table 1:** Shows the pattern of Eye Diseases in Enugu-Ezike Community.

**The Pattern (%) of eye diseases in relation to gender**

The sequence of occurrence is shown in table 2, below.

**Pattern (%) of eye diseases in relation to age**

The Pattern of Eye Diseases varied in relation to Age, and this was statistically significant, P = 0.00, 95%CI. The sequence of occurrence is shown in table 3, below.

Eye Diseases	Gender		Total
	Male (N=174)	Females (N=292)	
Armd	3 (1.7)	5 (1.7)	8 (1.7)
Conjunctivitis	12 (6.9)	21 (7.2)	33 (7.7)
Cataract	41 (23.6)	62 (21.2)	103 (22.1)
Diabetic Retinopathy	7 (4.0)	19 (6.5)	26 (5.6)
Eye Injury	4 (2.3)	19 (6.5)	23 (4.9)
Glaucoma	33 (19.0)	79 (27.1)	112 (24.0)
Hypertensive Retinopathy	6 (3.4%)	36 (12.3)	42 (9.0)
Presbyopia	12 (6.9)	16 (5.5)	28 (6.0)
Pterygium	46 (26.4)	25 (8.6)	71 (15.2)
Refractive Error	8 (4.6)	6 (2.1)	14 (3.0)
Stye	2 (1.1)	4 (1.4)	6 (1.3)
Total	174 (100)	292 (100)	466 (100)

**Table 2:** Showing Pattern (%) of Eye Diseases in Relation to Gender.

Age Groups					Total
6-20 (n=25)	21-35 (n=29)	36-50 (n=85)	51-65 (n=147)	66 and Above (n=180)	
0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	8 (4.4)	8 (1.7)
16 (64.0)	7 (24.1)	7 (8.2)	3 (2.0)	0 (0.00)	33 (7.1)
0 (0.00)	0 (0.00)	7 (8.2)	36 (24.5)	60 (33.3)	103 (22.1)
0 (0.00)	0 (0.00)	3 (3.5)	12 (8.2)	11 (6.1)	26 (5.6)
3 (12.0)	9 (31.0)	8 (9.4)	2 (1.4)	1 (0.6)	23 (4.9)
0 (0.00)	0 (0.00)	17 (20.0)	49 (33.3)	46 (25.6)	112 (24.0)
0 (0.00)	0 (0.00)	7 (8.2)	18 (12.2)	17 (9.4)	42 (9.0)
0 (0.00)	0 (0.00)	20 (23.5)	8 (5.4)	0 (0.00)	28 (6.0)
0 (0.00)	0 (0.00)	15 (17.6)	19 (12.9)	37 (20.6)	71 (15.2)
5 (20.0)	9 (31.0)	0 (0.00)	0 (0.00)	0 (0.00)	14 (3.0)
1 (4.0)	4 (13.8)	1 (1.2)	0 (0.00)	0 (0.00)	6 (1.3)
25 (100)	29 (100)	85 (100)	147 (100)	180 (100)	466 (100)

**Table 3:** Showing Pattern (%) of Eye Diseases in relation to Age.

**Discussion**

Rural communities in West Africa are usually laden with high burden of eye diseases and studies attribute this to several factors including poor awareness and inability to access health care facilities. From our study, which was aimed to determine the Pattern of Eye Diseases in a rural community of Enugu-Ezike, glaucoma (24.0%) was noted to be the leading Eye Disease, followed by

cataract (22.1%), and pterygium. Our findings were similar to that obtained in other studies in Ilorin West Local Government Area of Kwara State, Southwestern Nigeria, where there was a high burden of glaucoma in the community [5]. Cataract (22.1%) was the second most common Eye Disease found among the participants, and consistent with the findings in Nigeria [6,7] and Sudan [8] where cataract and glaucoma were the commonest eye diseases in the communities.

However, the findings were also at variance with other studies in Southwestern Nigeria [9] and in Ebonyi State [10] where cataract was the least eye diseases seen. This could be due to poor awareness of glaucoma in south east Nigeria and Africa as a whole and the delayed presentation of the signs and symptoms, which almost blinds the individual before they present to the hospital. This poor or lack of ocular health awareness in the population and inability to access Eye care services as at when necessary may be a profound implicating factor.

In relation to Gender, females (62.7%) had higher percentage of Eye Diseases than males (37.3%), (Table 2). Most of the diseases found showed a greater trend towards the female folks compared to their male counterparts, with the mean gender  $\pm$  standard deviation (SD) of  $1.63 \pm 0.484$ . This finding is similar to other studies in South East Nigeria [7], but at variance to some in India [11], where there is no significant gender difference and others in Northern Nigeria were males dominated [12]. These variations of gender in different studies could be due to differences in response to attendance at screenings, culture attitude and environmental factors.

In relation to Age, our study revealed a relationship of Eye Diseases with the age of the participants, (Table 3). The frequency increased linearly with increase in age with the highest frequency of Eye Diseases found among the age group 66 years and above (180; 38.6%), while the least frequency was noted in the age group of 6 - 20 (25; 5.4%). A likely explanation of this is that children may not be able to express their problems and, hence, may not present to the screening centres until the features are prominent enough to become ocular morbidity. Also many Eye Diseases occur most at old age. This is consistence with the studies that were reported by Mohammed., *et al.* in Nigeria [13] and that reported by Guo., *et al.* in China [14] were older age groups were associated with eye diseases.

## Conclusion

Our study showed that there are various pattern of Eye Diseases in the rural community of Enugu-Ezike in Enugu, Nigeria. Some of these Eye Diseases included glaucoma, cataract, refractive errors, hypertensive retinopathy, pterygium, etc. Eye Diseases occurred in both gender, although it was more evident among females, and among individuals within the age group 66 years and above. Furthermore, Most of these diseases need attention as they are pre-

ventable and some can be treatable. Health education, regular eye check and screening can aid in changing this pattern to a healthier Community.

## Conflict of Interest

None.

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