ISSN: 2755-9904

Journal of Clinical Images & Reports

SCIENTIFIC Research and Community

Research Article

Open Access

Prevalence and Pattern of Ocular Diseases among Rural Dwellers in Affa, Enugu State

Okoloagu NN[1,2], Eze GC[1,2], Onah ES[1*], Unaka CC[1], Ozonnaike CU[1], Nwabuike CP[1], Akutebo HN[3], Chukwunonye CR[4] and Uma CJ[1]

[1]Ophthalmology Department, Enugu State University of Science and Technology Teaching Hospital Parklane, Enugu, Nigeria

[2]Ophthalmology Department, College of Medicine, Enugu State University of Science and Technology, Enugu, Nigeria

[3]Welker StraBe 114, Altensteig Baden-wurtenberg, Germany

[4]Salford Royal Hospital at The Northern Care Alliance, Greater Manchester, United Kingdom

ABSTRACT

Background: The prevalence and pattern of different ocular diseases among rural dwellers vary in different parts of the world. It is usually influenced by a numerous factor, including but not limited to utilization of eye care services, socio-economic status, and level of education.

Aim: To identify the most prevalent eye diseases and their pattern of occurrence, among rural dwellers in South East Nigeria, with a view to influence targeted health policies and subsequently, targeted interventions to improve eye health in the region.

Methods: The study was a cross sectional study involving patients willing to participate in the study during a one-day free eye outreach organized by the Ophthalmology department, ESUTH Parklane at Affa Community in Udi Local Government Area of Enugu state. A preliminary visit was made one week prior to the health outreach, by some members of the outreach team to mobilize the community, seek their consent and fix a date through their leaders. On the day for the outreach, the objective of the eye screening was explained to the participants in both English and their local language. Subsequently, informed consent was obtained and each subject registered and the bio-data documented.
Registered participant had their unaided and aided Visual Acuity (VA) of each eye determined. Then, the anterior and posterior segment was examined. Data collected were recorded using a proforma and later inputted into a computer, cleaned and analysed using SPSS version 21. Results were presented in tables and represented in frequencies percentages. Association between variables were done using t-test and p- value of <0.05 was considered significant.

Results: One hundred and sixty-eight participants were screened during the outreach programme/study with mean age of 40+0.5years. There were more females 116 (69.1%) than males 52 (30.9%), giving a female to male ratio of 2:1 and they are predominantly Christians and farmers. The common ocular problems among the participants include cataract 53 (22.6%), refractive error 37 (15.8%), Pterygium 35 (14.9%). Cataract was the most common eye disease among the outreach participants and responsible for 22.6% of all ocular problems. Normal visual acuity was found more in participants < 50 years of age, mild visual impairment occurred more in participants 51-70 years while moderate visual impairment to blindness were seen more in patients >70 years.

Conclusion: In this study, the commonest ocular problems among the participants include Cataract, Refractive error, and Pterygium which are reversible causes of visual impairment and blindness. Therefore, health policies and advocacies should be directed towards reducing the burden of these reversible causes of visual impairment and blindness among the rural dwellers which constitute greater proportion of our population.

***Corresponding author**
Onah ES, Ophthalmology Department, Enugu State University of Science and Technology Hospital, Parklane, Enugu Nigeria, +2348162699353.
E-mail: emmangoldcare@yahoo.com

Received: April 25, 2024; **Accepted:** May 02, 2024; **Published:** May 09, 2024

Keywords: Prevalence, Pattern, Ocular Diseases, Rural Dwellers, Affa, South Eastern Nigeria, Tertiary Hospital

Introduction

The prevalence and pattern of different ocular diseases vary in different parts of the world. Among rural dwellers, it is usually influenced by a myriad of factors, including utilization of eye care services, socio-economic status, level of education, environmental conditions, and availability of healthcare infrastructure [1]. A good number of rural dwellers in Nigeria have ocular diseases that require treatment but had never seen an eye care specialist for appropriate ophthalmic care [2]. In Nigeria and more specifically, Enugu state, a significant portion of the population resides in rural areas and this has created limited access to healthcare including eye care services. In a country like Nigeria with marked diverse population and geographical expanses, the prevalence and pattern of ocular diseases present a critical public health concern, especially among those residing in rural areas. While

urban centers may have more access to healthcare facilities, many rural communities do not have much access to standard and specialist healthcare services. This and many more often pose challenges that hinder timely diagnosis and treatment of ocular conditions. In as much as the urban dwellers have better access to improved eye care in general due to the concentration of specialist eye clinics in urban centers, many rural dwellers in the South East do not access specialist eye care clinics at the first instance of eye diseases. In South Eastern Nigeria, of which Affa community in Enugu state is a part of, a significant proportion of the population resides in rural areas, where access to healthcare facilities remains a persistent challenge. A larger proportion of people in the community are farmers by occupation and this also affects the pattern of ocular diseases in the community. Farmers are exposed to some occupational hazards which predispose them to ocular diseases including ocular injuries [3]. Because of the proximity of Affa as a community to Enugu urban, majority of the people also visit the cities either for commercial activities or for other social related engagements. Some of these activities could lead to modification of some aspects of their life style and subsequently, the prevalence and pattern of ocular conditions found in the community. As in majority of other rural communities in South Eastern Nigeria, the most predominant age group in Affa community is the late middle age to elderly population. This also may affect the pattern of eye diseases in the community. Ocular diseases, if left undetected and untreated, can significantly impact the quality of life, leading to visual impairment and, in severe cases, blindness. Various patterns of eye diseases have been described in different regions and localities within and outside Nigeria [4]. The role and impact of early detection of ocular diseases in the reduction of the burden of eye diseases and blindness among communities in Nigeria, including rural communities cannot be overemphasized. However, there is paucity of data regarding the prevalence and pattern of eye diseases in rural communities in Enugu state, Nigeria. Thus, this study focuses on unraveling the prevalence and pattern of ocular diseases specifically among the dwellers in a rural Affa community of Enugu state in South Eastern Nigeria across the different age bands, gender, occupation, and other socio-demographic indices. It aims at identifying the most prevalent eye diseases in the community and their patterns of occurrence, with a view to influence targeted health policies and subsequently, targeted interventions to improve eye health in the region. This can also be a stepping stone to advocate for increased access to quality eye care services and facilities.

Methodology

The study was a cross sectional study involving patients willing to participate in the study during a one-day free eye outreach organized by the Ophthalmology department, ESUTH Parklane at Affa Community in Udi Local Government Area of Enugu state. Affa is located in Northern part of Enugu state; densely populated and consist of four villages, Inoyi, Ikono, Umukoloma and Ogor.

A preliminary visit was made one week prior to the health outreach, by some members of the outreach team to mobilize the community through their leadership and to give an update about the purpose of the outreach and then seek the consent of the community through their leaders. The location and date for the outreach was also approved during the visit. The personnel for the eye screening comprised Ophthalmic nurses, Optometrists, Ophthalmology residents and Consultant Ophthalmologists.

Ophthalmic and medical equipment used include Snellen's chart (literate and illiterate E-charts), Retinoscope, Refraction lens boxes, Ophthalmoscopes, pen torches, Latex gloves.

After explaining the objectives of the eye screening to the participants in English and their local language, each subject was registered and bio-data obtained, [name, age, sex, and occupation]. Informed consent was also gotten.

Thereafter, each registered participant had their unaided Visual Acuity (VA) of each eye determined, using Snellen's chart (or E-chart). The chart was placed at a distance of 6-meters from the subject and the least line which the participant could read was recorded as the visual acuity. Those that could not read the biggest letters due to very poor vision were ask to Count Finger (CF) at less than 6meters. Those who could still not count fingers were tested for perception of light (PL) using pentorch at 33cm. Those with visual acuity<6/6 were further tested using Pinhole. Visual acuity was then classified in accordance with the WHO criteria. By this criteria, visual acuity 6/18 or better was considered normal vision, visual acuity <6/18 to 3/60 was considered low vision while, visual acuity less than 3/60 were categorized as blindness.

Infants and children whose cooperation with the examiners, could not be guaranteed were excluded from the study.

Subsequently, the anterior segment was examined with pen torch, the fundus and the posterior segment was examined with direct ophthalmoscope, and dilated fundus examination performed when necessary. Cases that require more detailed examination were referred to the eye clinic, ESUTH Parklane. Participants with minor eye conditions were treated while refraction of those with refractive error was performed by the optometrists and diagnosis were made based on the case history and clinical findings. Data collected were recorded using a proforma and later inputted into a computer, cleaned and analysed using SPSS version 21. Results were presented in tables and represented in frequencies percentages. Association between variables were done using t-test, and p- value of <0.05 was considered significant.

Results

Table 1: Socio-Demographics of Participants

Characteristics	Frequency	Percentage
Age Group		
0-10	8	4.8
11-20	0	0.0
21-30	3	1.8
31-40	7	4.2
41-50	32	19.0
51-60	34	20.2
61-70	33	19.6
>70	51	30.4
Sex		
Female	116	69.0
Male	52	31.0
Occupation		
Artisan	9	5.4
Business people	43	25.6
Civil/public servants	17	10.1
Farmers	83	49.3
Housewives	3	1.8

Retirees	3	1.8
Students	10	6.0
Religion		
Christianity	162	96.4
Traditional	6	3.6

Table 2: Clinical Characteristics of Participants

Variables	Frequency	Percentage
Have you had an eye problem before		
No	54	32.1
Yes	114	67.9
If yes, what was the first thing you did for treatment		
Eye Hospital	78	68.4
Patent Medicine store	8	7.0
Pharmacy shop	3	2.6
Used herbs at home	14	12.3
Others	11	9.7
Treatment Received		
Drugs alone	62	63.9
Glasses alone	15	15.5
Drug and glasses	14	14.4
Drug, glasses and surgery	2	2.1
Drug and surgery	3	3.1
Surgery alone	1	1.0
Total	97	100
Do you have a family history of glaucoma		
No	158	94.0
Yes	6	3.6
Don't Know	4	2.4

Table 3: Degree of Visual Impairment among Participants

Degree of Visual Impairment - Right Eye	Frequency	Percentage
None	48.0	28.6
Mild	49	29.2
Moderate	27	16.1
Severe	34	20.2
Blindness	10	6.0
Degree of Visual Impairment - Left Eye		
None	46	27.4
Mild	51	30.4
Moderate	32	19.0
Severe	31	18.5
Blindness	8	4.8
Degree of Visual Impairment - Better Eye		
None	54	32.1
Mild	60	35.7
Moderate	25	14.9
Severe	24	14.3
Blindness	5	3.0

Table 4: Ocular Diagnosis of Participants

Diagnosis	Frequency	Percentage
Normal	4	1.7
Cataract	53	22.6
Glaucoma	16	6.8
Glaucoma suspect	14	6.0
Presbyopia	31	13.2
Pterygium	35	14.9
Refractive error	37	15.8
Allergic conjunctivitis	29	12.3
OSD	16	6.8
	235	100

NB: This is a combination of diagnosis 1and 2. Some persons had more than one ocular ailment.

Table 5: Relationship Between Socio-Demographics and Degree of Visual Impairment in Better Eye

Characteristics	Degree of Visual Impairment in Better Eye					P-Value
	Normal	Mild	Moderate	Severe	Blindness	
Age Group						
0-10	3(37.5%)	2(25.0%)	3(37.5%)	0(0%)	0(0%)	
21-30	3(100%)	0(0%)	0(0%)	0(0%)	0(0%)	
31-40	4(57.1%)	3(42.9%)	0(0%)	0(0%)	0(0%)	
41-50	19(59.4%)	12(37.5%)	0(0%)	1(3.1%)	0(0%)	
51-60	11(32.4%)	15(44.1%)	4(11.8%)	4(11.8%)	0(0%)	
61-70	10(30.3%)	15(45.5%)	4(11.8%)	4(11.8%)	0(0%)	
>70	4(7.8%)	13(25.5%)	14(27.5%)	16(31.4%)	4(7.8%)	
Sex						
Female	36(31.0%)	42(36.2%)	22(19.0%)	14(12.1%)	2(1.7%)	0.106
Male	18(34.6%)	18(34.6%)	3(5.8%)	10(19.2%)	3(5.8%)	

Occupation						
Artisan	0(0%)	6(66.7%)	2(22.2%)	1(11.1%)	0(0%)	0.001**
Business people	20(46.5%)	15(34.9%)	3(7.0%)	5(11.6%)	0(0%)	
Civil/public servants	8(47.1%)	8(47.1%)	1(5.9%)	0(0%)	0(0%)	
Farmers	19(22.9%)	28(33.7%)	16(19.3%)	16(19.3%)	4(4.8%)	
Housewives	0(0%)	0(0%)	2(66.7%)	0(0%)	1(33.3%)	
Retirees	0(0%)	2(66.7%)	0(0%)	1(33.3%)	0(0%)	
Students	7(70.0%)	1(10.0%)	1(10.0%)	1(10.0%)	0(0%)	
Religion						
Christianity	53(32.7%)	57(35.2%)	24(14.8%)	23(14.2%)	5(3.1%)	0.903
Traditional	1(16.7%)	3(50%)	1(16.7%)	1(16.7%)	0(0%)	

** p-value unreliable 71.4% of cells have expected counts less than 5

Table 6: Relationship between Socio-Demographics and First Thing Done for Treatment

Characteristics	N/A	What was the first thing you did for treatment					P-Value
		Eye Hospital	Patent Medicine Store	Pharmacy shop	Used Herbs at Home	Others	
Age Group							
0-10	3(37.5%)	2(25.0%)	0(0%)	0(0%)	2(25.0%)	1(12.5%)	0.795
21-30	1(33.3%)	1(33.3%)	0(0%)	0(0%)	0(0%)	1(33.4%)	
31-40	4(57.1%)	3(42.9%)	0(0%)	0(0%)	0(0%)	0(0%)	
41-50	12(37.5%)	16(50.0%)	1(3.1%)	0(0%)	1(3.1%)	2(6.3%)	
51-60	9(26.5%)	17(50.0%)	0(0%)	2(5.9%)	3(8.8%)	3(8.8%)	
61-70	9(27.3%)	16(48.5%)	3(9.1%)	1(3.0%)	3(9.1%)	1(3.0%)	
>70	14(27.5%)	23(45.1%)	4(7.8%)	0(0%)	5(9.8%)	5(9.8%)	
Sex							
Female	37(31.9%)	51(44.0%)	8(6.9%)	1(0.9%)	10(8.6%)	9(7.8%)	0.305
Male	15(28.8%)	27(51.9%)	0(0%)	2(3.8%)	4(7.7%)	4(7.7%)	
Occupation							
Artisan	1(11.1%)	6(66.7%)	0(0%)	1(11.1%)	0(0%)	1(11.1%)	0.316
Business people	14(32.6%)	23(53.5%)	0(0%)	0(0%)	0(0%)	6(14.0%)	
Civil/public servants	7(41.2%)	8(41.7%)	0(0%)	0(0%)	2(11.8%)	0(0%)	
Farmers	25(30.1%)	34(41.0%)	7(8.4%)	2(2.4%)	11(13.3%)	4(4.8%)	
Housewives	0(0%)	2(66.7%)	0(0%)	0(0%)	0(0%)	1(33.3%)	
Retirees	1(33.3%)	2(66.7%)	0(0%)	0(0%)	0(0%)	0(0%)	
Students	4(40.0%)	3(30.0%)	1(10.0%)	0(0%)	1(10%)	1(10.0%)	
Religion							
Christianity	52(32.1%)	75(46.3%)	8(4.9%)	3(1.9%)	12(7.4%)	12(7.4%)	0.176
Traditional	0(0%)	3(50%)	0(0%)	0(0%)	2(33.3%)	1(16.7%)	

NB: Analysis based on those who answered yes to having an eye problem

Discussion

In this study, the population distribution of the subjects of the community who turned up for the eye outreach (Table 1) is skewed in favour of the older age groups. This is similar to a study done by Wokoma et al. but contradicted by that reported by Venkataramana et al. [5-6]. The paucity of children and young adults in our study may be due to the fact that these age groups may not be able to express their eye problems and also dependent on their parents/caregivers to access eye care. Also, some in the age groups were excluded from the study due to uncooperativeness. Demographic characteristics showed that there were more females 116 (69.0%) who participated than males 52 (31.0%) (Table 1) in the outreach. This is different from the general belief that more males present to the clinics than females. The finding in our study agreed with other studies reported by Achigbuet al., Abraham et al. and Ekemiri et al. [7-9]. This may be attributed to the fact that this was a free outreach that was brought literally to the door steps of these women who ordinarily are kept busy with household chores and has no extra funds for their health care.

The participants (Table 1) were mainly farmers 49.3%, business people 25.6%. This agreed with the study reported by Venkataramana et al. [6]. This may be because the study was carried out in the rural area where most people engage in farm work and trading. The study is not in agreement with the findings by Monsudi et al. who noted home makers and civil servants as common occupation among the participants in their study.

The common ocular problems among the participants include cataract 53 (22.6%), refractive error 37 (15.8%), Pterygium 35 (14.9%). Cataract (Table 4) was the most common eye disease among the outreach participants and responsible for 22.6% of all ocular problems. This clearly showed that cataract is still a major cause of ocular morbidity and visual impairment among rural dwellers. Nigerian national blindness and visual impairment survey reported that cataract was the commonest cause of blindness and severe visual impairment. This study is similar to that reported by Akudinobi et al., Abraham et al., Monsudi et al. and Kimani et al. [9-13]. This may be because most of the participants were elderly which is usually associated with cataract formation. Also, the cost of surgery may prevent indigent populace from seeking surgical intervention as 68.4% (Table 2) of the participants seek hospital intervention but only 1% of the participant had ocular surgery while most of the participants had treatment with drugs and glasses which are cheaper and more affordable than surgeries for cataract.

Contrary to our finding and other findings in similar settings in Africa and Asia, as in the studies by Ukponmwan in Benin, Achigbu et al. and Venkataramana et al. errors of refraction were the commonest presenting complaints, this is probably because most of their participants were in the younger age group.

Refractive error was the second most common ocular morbidity in the study. This when combined with presbyopia accounted to about 29% of the ocular morbidity in the participants where only about half of the participants had glasses. The findings suggest that there is a significant unmet need for glasses in this population, as only about half of those who needed glasses had them. As refractive error is an important ocular morbidity worldwide, regular screening and prompt correction of refractive error may improve the ocular health of this community.

The finding of the outreach showed that glaucoma was the fifth most common cause (6.8%) of eye disease in the study population which is similar to that noted by Ekemiri et al. as the least common causes of ocular morbidity in his study but contrary to findings in studies by Monsudi et al. and Achigbu et al. which reported glaucoma as the second most common cause. Our findings may be due to low incidence of glaucoma in the community as low family history of glaucoma (3.6%) was also noted.

In this study normal visual acuity was found more in participants < 50 years of age, mild visual impairment occurred more in participants 51-70 years while moderate visual impairment to blindness were seen more in patients >70 years. This is similar to that noted in Nigerian national blindness and visual impairment survey. Female participants had an overall higher prevalence of visual impairment (69 %) than male participants (65.4 %). However, the difference is not statistically significant. This does agree with that reported by Akudinobi et al. and Wokoma et al. [5-12]. However, severe visual impairment and blindness in our study were found to be less in females than in males and this correlates with that found in Nigerian national blindness and visual impairment survey and that reported by Wokoma et al. [6-14]. Farmers are noted to have the highest amount of prevalence of visual impairment in this study and it may be attributed to occupational related ocular trauma.

Conclusion

In this study, the commonest ocular problems among the participants include Cataract, Refractive error, and Pterygium which are reversible causes of visual impairment and blindness. Therefore, health policies and advocacies should be directed towards reducing the burden of these reversible causes of visual impairment among the rural dwellers which constitute greater proportion of our population.

Limitation

Being a one-day cross-sectional study, a preliminary community demographic study was not possible. House-hold population sampling for evaluation could not be done. Analysis was thus based on those that responded to the community mobilization and presented themselves for the eye screening.

Conflicts of Interest: None.

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