

# Ocular Problems Among Public Service Retirees in a Southern Nigerian Metropolitan City

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## ABSTRACT

**Background:** Advancing age is a recognized risk factor for blindness and visual impairment worldwide. More than 82% of all blind people are 50 years or older. This therefore places a huge public health and socioeconomic burden on the populace, often leading to social dependence. **Aim:** To determine the pattern, profile, and risk factors of eye diseases among retired public servants in Port Harcourt City, Nigeria. **Materials and Methods:** Participants were retired public servants who consented to ocular examinations at their pension pay points in Port Harcourt during the 2012 World Sight Day. Visual acuity, ocular examinations including fundoscopy and intraocular pressure measurements were recorded and subsequently analyzed using Statistical Package for Social Sciences version 20. **Results:** Five hundred and ninety-two persons were studied; 455 males and 137 females (F: M = 1:3.3). The Mean age was  $68.7 \pm 7.6$  years (range: 56–97 years). Using World Health Organization/International Agency for Prevention of Blindness criteria for visual assessment 239 (40.4%) had good vision, 203 (34.3%) had moderate visual impairment, 48 (8.1%) had severe visual impairment, while 102 subjects (17.2%) were blind. Cataract was the leading cause of blindness 56 (54.9%), followed by glaucoma 18 (17.7%), uncorrected refractive error 19 (18.6%), and diabetic retinopathy 9 (8.8%). **Conclusion:** Visual impairment and blindness are common causes of ocular morbidity among retirees of public service in Port Harcourt. It is therefore advocated that special eye health care intervention by governments and nongovernmental agencies be extended to these groups of people.

**Keywords:** Metropolitan city, ocular problems, retirees

## INTRODUCTION

According to a 2014 estimate, the current number of people with visual impairment (which includes both low vision and blindness) is put at 285 million worldwide; 39 million people are blind while 246 million people live with low vision.<sup>[1]</sup> Ninety percent of the world's blind population lives in developing countries out of which about 1.2 million people live in Nigeria.<sup>[2,3]</sup>

Increasing age is a risk factor for blindness and visual impairment worldwide. The Nigerian National

Blindness and Visual Impairment Survey (NNBVIS) (2007) had noted that the prevalence of blindness increases significantly with increasing age, from 0.8% at 40–49 years to 23.3% among those aged  $\geq 80$  years.<sup>[3]</sup>

In the developing countries of Asia, Africa, and the Middle East, the prevalence of blindness ranges from 0.1% in Sri Lanka,<sup>[4]</sup> to 0.78% in Nigeria,<sup>[3]</sup> and 2.0% in Pakistan.<sup>[4,5]</sup> This could be attributed to poor technology, minimal eye care services, malnutrition, and poverty. Cotter *et al.*<sup>[6]</sup> asserted that in developed countries, blindness is mainly due to disorders of the posterior segment of the eye while in Africa, Asia, and parts of South America, blindness is predominately due to disorders of the anterior segment of the eye (cataract and corneal scarring).

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Several studies have shown a rise in the prevalence of certain eye diseases in the elderly.<sup>[7,8]</sup> These include refractive error, eyelid disorders, dry eye syndrome, conjunctival diseases, cataract, age-related macular degeneration (ARMD), and glaucoma.<sup>[9]</sup>

In the USA, the prevalence of blindness and visual impairment in persons older than 40 years was found to be 0.78%.<sup>[10]</sup> It is estimated that one in six Americans (17%), 45 years of age or older, representing 16.5 million adults have one form of visual impairment or the other.<sup>[10]</sup> Singh *et al.* in Central India reported the prevalence of low vision and blindness to be 32% and 12.2%, respectively, among adults aged 50 years and older.<sup>[11]</sup> In Ghana, Ocansey *et al.*<sup>[12]</sup> found that 58.7% of adults aged 60 years and above were visually impaired and 5.9% were blind. According to the NNBMVIS,<sup>[3]</sup> 4.25 million adults aged 40 years and above have moderate to severe visual impairment or blindness. The prevalence of blindness and severe visual impairment in 13,599 adults aged 40 years and older was 4.2% and 1.5%, respectively.

This study aims to assess the prevalence of ocular problems among pensioners in Port Harcourt City. This will provide a baseline data for planning and implementing eye care services for the elderly in the state.

## MATERIALS AND METHODS

The study was carried out among pensioners who came for their retirement benefits at various pension pay points in the Rivers State secretariat complex in Port Harcourt. In consultation with the Rivers State Ministry of Social Welfare and the Rivers State office of Establishments and Pensions, 21 pay points were visited within 3 days (9 to 11 October 2012) to mark the 2012 World Sight Day. Ethical approval was obtained from the Research Ethics Committee of University of Port Harcourt Teaching Hospital, Port Harcourt. Five hundred and ninety-two pensioners who verbally consented to ocular examinations were recruited into the study. All participants' demographic data, medical and ocular histories were recorded, while eye examination included measurement of visual acuity (VA), intraocular pressure, external eye examination, and fundoscopy.

Ocular examination started with an assessment of both uncorrected and corrected VA at 6 meters using Snellen's chart. Each eye was tested separately and with pin-hole when VA was <6/18. Intraocular pressure was measured with Perkin's applanation tonometer (MK-2) following the instillation of topical tetracaine and fluorescein dye. The external eye was

examined with a pen torch and fundoscopy with the direct ophthalmoscope (Welch Allyn USA REF 11720). Small pupils were dilated with Mydriacyl 0.5% to allow for good fundoscopy.

The VAs were measured by the assistants (ophthalmic nurse and resident doctor), while all the intraocular pressure measurements and fundoscopy were carried out by the second and first authors, respectively. A diagnosis of cataract was made based on white pupillary reflex with poor fundal (red) reflex after ruling out other causes of media opacity. Glaucoma was defined as intraocular pressure >21 mmHg and vertical cup/disc ratio >0.5 or vertical cup-disc ratio = 0.8. Blindness was defined as VA on presentation <3/60 in the better eye while visual impairment was defined as VA on presentation of 6/18 - ≥3/60 in the better eye.

The World Health Organization/Prevention of Blindness eye examination record was used to record the data of subjects. All data were analyzed using Statistical Package for Social Sciences version 20 (IBM SPSS Modeler). Results were presented in tables and charts. Chi-square tests were performed between categorical variables to determine their level of statistical significance. A  $P = 0.05$  was accepted as significant.

## RESULTS

A total of 592 retired civil servants participated in the study. There were more males 455 (76.9%) than females 137 (23.1%). Their ages ranged from 56 to 97 years with a mean age of  $68.7 \pm 7.6$  years [Table 1]. Most retirees ( $n = 236$ ; 39.9%) were in the 61–64 year age group. The most common ocular morbidities were bilateral cataract (21.1%), glaucoma/glaucoma suspects (16.4%), and uncorrected refractive error/presbyopia (18.6%). Others were pseudophakia (7.8%), ARMD (5.4%), diabetic retinopathy (5.4%), aphakia (2.5%), allergic conjunctivitis (2.9%), and dry eye syndrome (2.0%). Other ocular findings are shown in Table 2. The distribution of severe visual impairment and blindness is shown in Figure 1. Cataract, glaucoma, and uncorrected refractive error were the leading causes of blindness.

A total of 239 (40.4%) of the study population had good visual acuity (VA). Moderate visual impairment was found in 203 subjects constituting 34.2% of the participants. A total of 102 of the 592 subjects were found to be blind-constituting a blindness prevalence of 17.2%. Cataract was the leading cause of blindness (54.9%), followed by glaucoma 18 (17.7%), uncorrected refractive error 19 (18.6%), diabetic retinopathy 9 (8.8%), corneal opacity 6 (5.9%), and ARMD 4 (3.9%). A total of 89 males (15.1%) and 13 females (2.2%) were blind [Figure 1].

**Table 1: Age and sex distribution of study participants**

Age group (years)	Sex n (%)		Total (%)
	Male	Female	
56-60	20 (3.4)	13 (2.2)	33 (5.6)
61-64	180 (30.4)	56 (9.5)	236 (39.9)
65-70	134 (22.6)	19 (3.2)	153 (25.8)
71-74	36 (6.1)	25 (4.2)	61 (10.3)
75-80	50 (8.4)	16 (2.8)	66 (11.2)
81-84	12 (2.0)	3 (0.5)	15 (2.5)
85-90	16 (2.8)	3 (0.4)	19 (3.2)
91 and above	7 (1.2)	2 (0.3)	9 (1.5)
Total	455 (76.9)	137 (23.1)	592 (100)

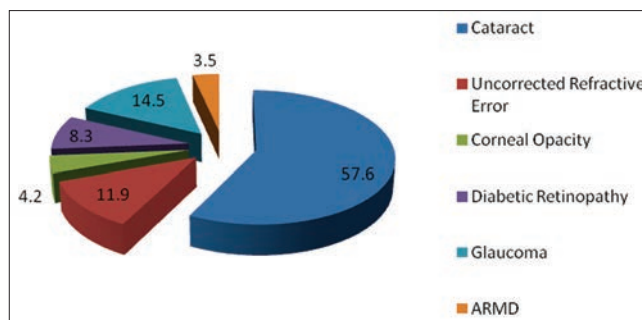
Pearson's chi squared test=162.237. P value=0.000

**Table 2: pattern of distribution of ocular diseases in the study population**

Ocular disease	Frequency	Percent
Allergic conjunctivitis	12	2.0
Aphakia	15	2.5
Bilateral cataract	125	21.1
Blepharospasm	4	0.7
Chorioretinitis	5	0.8
Corneal opacity	11	1.9
Diabetic retinopathy	32	5.4
Dry eye syndrome	17	2.9
Glaucoma/glaucoma suspects	97	16.4
Hypertensive retinopathy	11	1.9
Age related macular degeneration	32	5.4
Optic atrophy	8	1.4
Uncorrected presbyopia	69	11.7
Pseudophakia	46	7.8
Pterygium	15	2.5
Pthysis bulbi	3	0.5
Uncorrected refractive error	41	6.9
Retinal detachment	2	0.3
Retinitis pigmentosa	6	1.0
Unilateral cataract	34	5.7
Uveitis	7	1.2
Total	592	100

## DISCUSSION

This study presents the pattern of eye diseases among retired civil servants from the Rivers State public service. In Nigeria, compulsory retirement age in public service is 60 years but, judicial officers and academic staff of universities retire at 70 and 65 years, respectively.<sup>[13]</sup> There were more males than female in this study. This finding compares with a similar study among pensioners in South Africa.<sup>[14]</sup> Males tend to dominate the public service in developing countries including Nigeria because they are considered breadwinners in the family. Pensions are paid monthly at designated pension pay points in Port Harcourt, Rivers State. It is mandatory for pensioners to attend personally to collect their pension each



**Figure 1: Pie chart showing proportion of cases of blindness due to major cause**

month. The pension pay points therefore provide an ideal situation to assess the ocular status of retired elderly citizens. However, feeble and ill retirees who may not present physically may be missed from this study.

There were more retirees in the 61–70-year age group (67.5%) than the very aged (71–90 years old). This may be associated with the prevailing average life expectancy of 51 years in the country.<sup>[15]</sup> This may explain the larger number of participants in this age bracket.

Concerning the pattern of ocular morbidity, bilateral cataract (21.1%) was the most common. Cataract, an age-related condition, is more prevalent in older age groups and is also noted to be the most common cause of blindness in Nigeria.<sup>[2]</sup> It was found to be the leading cause of blindness in our study subjects. Fifty-six participants were bilaterally blind from cataract (54.9%). This is not unexpected as the most common cause of cataract is aging, and the treatment which is surgical may be beyond the reach of the average pensioner who may have many other family issues such as payment of children's school fees contending with the very little pension allowance. Hence, the participant's health issue now takes a back burner. For this reason, the government must make a conscious effort to address the situation by eliminating barriers to uptake of cataract surgery such as a reduction in the cost of surgery among others.

Globally, glaucoma is the currently the second leading cause of blindness in developing countries, causing irreversible blindness.<sup>[16]</sup> Glaucoma or glaucoma suspect was diagnosed in 16.4% of the study population. This is similar to the finding of 17.6% prevalence by Momoh *et al.* in Benin City.<sup>[17]</sup> The Momoh *et al.* study involved a population 40 years and older while most of our study participants were 56 years and older.

Compared to other studies of adult populations over 40 years in similar geographic locations in Nigeria, where they recorded 10–12%,<sup>[18,19]</sup> our finding of 16.4% is comparatively high. This difference may be due to different diagnostic criteria used in the different studies; ours was an epidemiological diagnosis made in the field. Moreover, there was a difference in the ages of the participants studied. Two hundred and thirty-nine (40.4%) of the study population had good VA. VA of an individual is usually presented as the VA of the better eye, while the problem may be with the other eye; hence, persons with ocular problems may have good overall VA. Another peculiarity of the Niger Delta Region is the relatively high prevalence of allergic conjunctivitis (2.9%). High atmospheric allergens resulting from petroleum-related activities in the area may be one of such responsible factors. However, this assertion needs further investigation.

Diabetic retinopathy accounted for 7.8% of blindness in this study. The rising prevalence of diabetic retinopathy has been reported in Nigeria and the world at large.<sup>[20]</sup> Nwosu, in his study in Nnewi, South-East Nigeria, reported a prevalence of 18% of blindness from diabetic retinopathy among patients attending a diabetic clinic.<sup>[20]</sup> The difference in the prevalence between our study and that of Nwosu may be due to the fact that his participants were all diabetic patients compared to ours. The prevalence of blindness due to ARMD in this study was 3.9%. Glaucoma, diabetic retinopathy, and ARMD are often associated with irreversible blindness and require ongoing, protracted management.<sup>[21]</sup> Therefore, prevention and timely intervention in managing these age-related ocular morbidities will go a long way in reducing the socioeconomic burden on both the family and society.

## CONCLUSION

There is significant ocular morbidity among retired public servants in Rivers State. There is, therefore, a need for a well-articulated and sustained eye care service to these groups of persons. Government and nongovernmental agencies should ensure the availability of functional basic eye care service in their respective communities in order to reduce the burden of blindness in our society.

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## Conflicts of interest

There are no conflicts of interest.

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