

## Research Article

# Visual Impairment and Eye Care Services Utilisation by Elderly Pensioners

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**Abstract: Objectives:** To assess the burden of visual impairment and the pattern of eye care services utilization among pensioners and its implications for health planning and effort to reduce avoidable blindness. **Methods:** Pensioners aged 60 years or more (n=389) were assessed on demographics, social security/pension-related issues, eye care services utilisation and eye care-seeking behaviour. All participants had standard ophthalmic examination to determine the predominant cause of visual impairment (VI). **Results:** The prevalence of moderate VI, severe visual impairment VI and blindness was 11.1%, 3.6% and 0.8% respectively. Eye health care services utilisation rate was 24.4% in the preceding 12 months while about 36.5% of subjects have never visited an eye care professional. Health insurance coverage and other age-related non-ocular morbidities increased the likelihood of eye care services utilisation. **Discussion:** The prevalence of visual impairment among pensioners was high with a low utilisation rate of eye health care services. Pensioners receiving care for non-ocular age-related diseases as well as health insurance beneficiaries were better utilisers of eye health care services.

**Keywords:** pensioners, elderly, utilisation, visual impairment, developing countries, eye healthcare

## INTRODUCTION

Pensioners are recipients of periodic payment called pension, as support upon retirement after a period of employment usually under pre-determined legal and contractual terms. Buckley and Schmidt (1974) defined retirement as an inevitable stage of ageing where the individual gradually disengages from the mainstream of active work or social work.

The statutory retirement age in the Nigerian public service is 60 years with some institutional variations. Nigeria operates two distinct pension payment schemes namely the Defined Benefit Scheme (DBS) and Contributory Pension Scheme (CPS). Both schemes exhibit some strengths and implementation challenges. Pension was primarily designed to offer guaranteed income thereby, some degree of financial and social security for employees after exiting paid employment.(Fapohunda, 2013) One of the greatest challenges that face typical employees throughout their working life is life after retirement. In Nigeria, retirement brings considerable concerns ranging from emotional, psychological, as well as financial challenges. These problems seem to range from loss of

the usual monthly salary, anxiety about a residential home, lack of occupation, dwindling status, decreased strength and deteriorating health condition, physical disabilities, ageing and sudden loss of life.(Garba & Mamman, 2014)

Eye diseases and visual impairment are frequently encountered in the elderly population and ranks among the five leading causes of morbidity among the elderly in developing countries.(Bourne et al., 2017; Medhi, Hazarika, Borah, & Mahanta, 2006; Ogunniyi et al., 2001) Although ophthalmic pathologies in the elderly are rarely directly life-threatening, the consequences of visual impairment are wide-ranging.(Jaggernath et al., 2014) Age-related eye diseases are seen as a major global public health problem because of the challenge they pose to the elderly in performing their daily activities effectively. Global population figures suggest that at least about 4% of persons 60 years and above are blind and 65% are visually impaired (World Health Organization, 2002).

The Labour Force Statistics Report of 2017 showed that about 25% of the 77.6 million total

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working population of Nigeria work for salary or wages (National Bureau Of Statistics, 2018). Retirees from formal employment (pensioners) constitute a significant proportion of the elderly population in various societies. In view of steady increase of the average life expectancy of Nigerians from 38.7 years in 1960 to 54.5 years in 2015,(Ajomale, 2007; World Health Organization, 2016) It is expected that a significant proportion of literate and working adults in Nigeria will reach the statutory retirement age to continually swell the population of elderly/aged people.

Pensioners can be regarded as a fair representation of the elderly population that is more readily accessible for research because their average level of literacy and social awareness tend to be higher than that of the general population of elderly of the same age group. They are therefore expected to have better health outcomes than the general population. Their health-related data can therefore be used to project how the expected boom of the general elderly population with the expected increasing literacy rate and likely increase in the frequency of eye diseases in the one of the fastest-growing demographic segments of the Nigerian population (United Nations Department of Economic and Social Affairs Population Division, 2015; World Health Organization, 2002) may affect efforts to reduce avoidable blindness and significantly increase the demand for eye care services in the future.

**METHODOLOGY**

Three hundred and eighty-nine participants were consecutively recruited into the study from members of the Ile-Ife chapter of the Nigeria Union of Pensioners and its affiliated unions during their routine monthly meetings of July and August 2016. A semi-structured interviewer-administered questionnaire was deployed to obtain socio-demographic, pension and

other related information, perception of the state of own eye health status and eye health care seeking behaviour from participants. Approval of the ethical committee of Obafemi Awolowo University Teaching Hospital, Ile-Ife was obtained and the research was conducted in conformity with the declaration of Helsinki.

All participants also had ocular examination involving visual acuity assessment, anterior segment evaluation with pen torch and dilated fundus examination with direct ophthalmoscopy. Subjects with complain and significant ocular concerns were referred to the outpatient Eye Clinic of the base hospital for further evaluation and treatment. Visual acuity was assessed using a Snellen acuity chart. Visual impairment and blindness were categorized as described in the International Classification of Diseases and Related Health Problems (ICD-10) (World Health Organization, 2011).

Some selected participant attributes were classified based on Andersen’s theory of health care services utilisation into: predisposing factors (age, sex, education, and marital status), enabling factors (employment status, pension scheme, self-reported average monthly income and health insurance coverage) and needs factors (presence of eye complaint, perception of severity, visual status, and reported non-ocular health co-morbidity) (Babitsch, Gohl, & von Lengerke, 2012).

The data obtained was explored through descriptive analysis to obtain summary statistics of basic demographic features of the subjects. The determinants of eye health care service utilisation were assessed by multivariate analysis using multiple logistic regression models and adjusted odds ratio (OR) with 95% confidence interval (C.I.).

**RESULTS**

A total of 389 pensioners were studied. Based on Andersen's theory of healthcare utilization model, predisposing factors assessed in this study were sex, age group, education and marital status as shown in Table 1.

**Table 1: Demographic and Social Status Distribution of Subjects (Predisposing Factors)**

Sex	Frequency (%)
Male	291 (74.8)
Female	98 (25.2)
<b>Age Group</b>	
60-64 years	121 (31.1)
65-69 years	165 (42.4)
70-74 years	66 (17.0)
≥ 75 years	37 (9.5)
<b>Education</b>	
Primary	124 (31.9)
Post-Primary	186 (47.8)
University Degree and Equivalent	65 (16.7)
Postgraduate	12 (3.1)
Others	2 (0.5)
<b>Marital Status</b>	
Married	345 (88.7)

Widowed	41 (10.5)
Seperated	3 (0.8)

The male gender was predominant in the study population with a male-to-female ratio of 1:0.3. The age range of subjects was 60 – 85 years and the overall mean age was 67.1±5.1 years. The mean age of males was significantly higher than females (67.7±5.0 years versus 65.1±4.9 years; p<0.001, t=4.43).

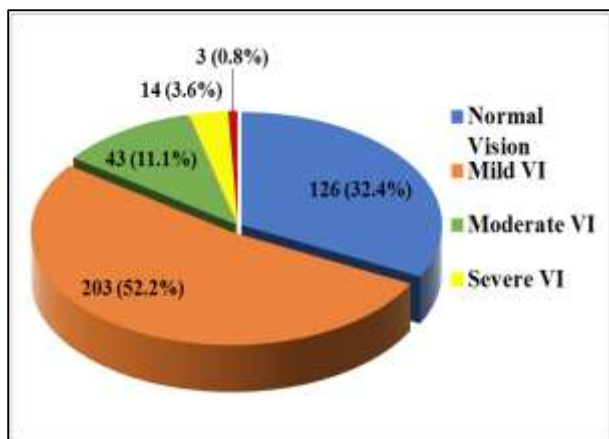
The enabling factors for eye care service utilisation assessed in this study as shown in table 2 were employment status, pension scheme, self-reported average monthly income, other sources of income apart from pension and health insurance coverage.

**Table 2: Distribution of Subjects by Enabling Factors**

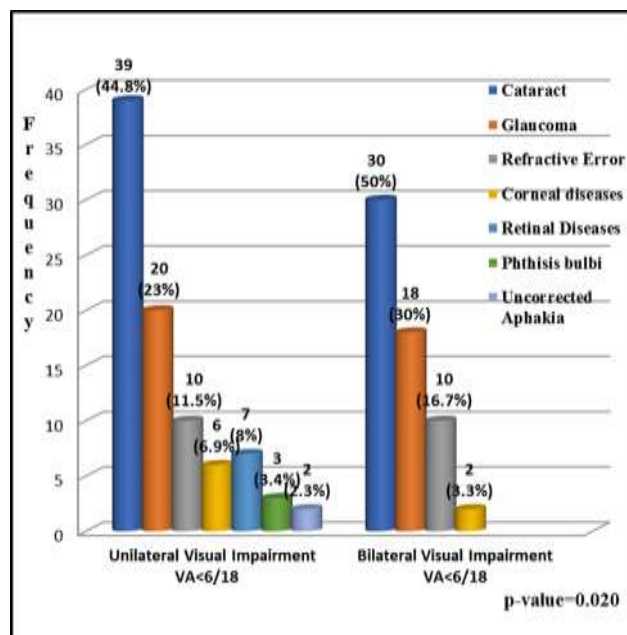
Employment status	Frequency (%)
None	251 (64.5)
Self-employed	117 (30.1)
Paid employment	21 (5.4)
<b>Pension scheme</b>	
DBS	193 (49.6)
CPS	196 (50.4)
<b>Reported average monthly income</b>	
Less than \$66	165 (42.4)
\$66 - \$164	174 (44.7)
\$164 - \$328	44 (11.3)
\$328 or more	6 (1.5)
<b>Other income sources</b>	
Yes	233 (59.9)
No	156 (40.1)
<b>Health insurance</b>	
Yes	164 (42.2)
No	225 (57.8)

DBS: Defined Benefit Scheme; CPS: Contributory Pension Scheme  
 Official exchange rate of US\$1 to ₦305 Nigerian Naira(Central Bank of Nigeria, 2018)

The pie chart (figure 1) showed that about 15% of the pensioners had moderate visual impairment or worse (presenting visual acuity worse than 6/18) and the leading causes of visual impairment (unilateral and bilateral) were cataract, glaucoma and refractive error (Figure 2).



**Figure 1: Prevalence of Visual Impairment (VI)**



**Figure 2: Aetiologic Pattern of Visual impairment**

Table 3 showed that while 46.5% of pensioners had eye complaint/symptoms at the time of the study, only about 53% of those with eye complaint had sought for treatment. Only about a quarter of pensioners had seen an eye care professional in the preceding 12 months while as much as 36.5% of them have never seen an eye care professional.

**Table 3: Pattern of Eye Care Services Utilisation**

Sought treatment for current eye complain	Frequency (%)
Yes	181 (46.5)
No, despite complaint	161 (41.4)
No need/ No complain	47 (12.1)
<b>Last visit to an eye care professional</b>	
Within the last 1 year (12 months)	95 (24.4)
Within the last 2 years but more than 1 year	36 (9.3)
3 years or more	116 (29.8)
Never	142 (36.5)

Tables 4, 5 and 6 showed that post-primary educational attainment and DBS were the significant predisposing factors that determined eye care services utilisation. While health insurance coverage and

reported non-ocular chronic health co-morbidities were the enabling and needs factors respectively, noted to be significant determinants of eye care services utilisation in the preceding 2 years.

**Table 4: Multivariate Logistic Regression Models for Association between Eye Care Utilisation within the Preceding Two Years and Selected Predisposing Factors**

Age group	Odds ratio (95% C.I.)	p-value
60-64 years	Ref.	-
65-69 years	1.55 (0.90-2.67)	0.111
70-74 years	1.13 (0.55-2.32)	0.737
≥ 75 years	0.96 (0.40-2.30)	0.920
<b>Sex</b>		
Male	0.607 (0.35-1.04)	0.070
Female	Ref.	-
<b>Education</b>		
Primary	Ref.	-
Post-Primary	<b>2.78 (1.63-4.75)</b>	<b>&lt;0.001</b>
B. Sc/HND	0.99 (0.48-2.05)	0.975
Postgraduate	1.98 (0.54-7.21)	0.303
<b>Marital status</b>		
Married	0.82 (0.41-1.66)	0.583
Widowed	Ref.	-
C.I.: Confidence interval; Ref: Reference category		

**Table 5: Multivariate Logistic Regression Models for Association between Eye Care Utilisation within the Preceding Two Years and Selected Enabling Factors**

Employment status	Odds ratio (95% C.I.)	p-value
None	Ref.	-
Self-Employed	0.77 (0.43-1.38)	0.373
Paid Employment	1.38 (0.48-3.93)	0.552
<b>Pension scheme</b>		
DBS	Ref.	-
CPS	<b>0.16 (0.08-0.32)</b>	<b>&lt;0.001</b>
<b>RAMI</b>		
Less Than 66	Ref.	-
66 - 164	0.97 (0.58-1.61)	0.900
164 Or More	0.62 (0.29-1.33)	0.223
<b>Other income sources</b>		
Yes	1.58 (0.93-2.67)	0.089
No	Ref.	-
<b>Health insurance</b>		
Yes	<b>2.37 (1.23-4.57)</b>	<b>0.010</b>
No	Ref.	-
C.I.: Confidence interval; Ref: Reference category; RAMI:Reported Average Monthly Income		

**Table 6: Multivariate Logistic Regression Models for Association between Eye Care Services Utilisation within the Preceding Two Years and Selected Needs Factors**

Eye complaint	Odds ratio (95% C.I.)	p-value
No	Ref.	-
Yes	6.34 (0.46-84.83)	0.166
<b>Perception of severity</b>		
None	Ref.	-
Mild	0.35 (0.03-4.81)	0.436
Moderate	0.45 (0.03-6.43)	0.553
Severe	1.70 (0.11-27.14)	0.707
<b>Visual status</b>		
Normal	Ref.	-
Mild VI	0.84 (0.47-1.50)	0.558
Moderate VI	0.27 (0.02-3.70)	0.323
Severe VI & Blindness	0.58 (0.04-9.17)	0.700
<b>Reported non-ocular health co-morbidity</b>		
No	Ref.	-
Yes	<b>2.09 (1.27-3.43)</b>	<b>0.004</b>

C.I.: Confidence interval; Ref: Reference category; VI: Visual impairment

## DISCUSSION

This study had a predominance of subjects in the seventh decade of life and with only a minority in the older elderly age range (>75 years). Since only pensioners that were ambulatory and fit enough to attend functions including the Pensioners' Union meetings were studied, many older elderlies would have been inadvertently excluded due to health and mobility challenges. The marked male predominance noted in the study could have resulted from the marked gender disparities in education, employment that occurred in the first 20 to 30 years post-independence and socio-cultural factors such that more males were engaged in formal employment in a developing country like Nigeria. (National Population Commission, 2003) This could explain the clear contrast to community-based studies of the elderly in the same locality which reported female gender predominance (Adegbehingbe, Fajemilehin, Ojofeitimi, & Bisiriyu, 2006; Odaman & Ibiezugbe, 2014).

The prevalence of presenting visual acuity less than 6/18 in the better eye in this study was significantly lower than the 33.9% reported for persons aged 60 years and older in the Nigerian National Blindness and Visual Impairment Survey (2005–2007). Cataract, glaucoma and uncorrected refractive error were the leading cause of both unilateral and bilateral visual impairment in this study. Cataract and glaucoma accounted for 72.8% of moderate visual impairment or worse. This is more than double the 33.2% prevalence rate reported in a community-based study in Ghana (Ocansey, S. *et al.*, 2013) but comparable with 74.7% reported by Adegbehingbe *et al.* (2006) and a Nigerian hospital-based study of the elderly (73.1%) by Abdurraheem *et al.* (2007) This might be as a result of differing levels of eye health care services accessibility and utilisation between the two West African nations.

The eye health care utilisation rate in the preceding 12 months among pensioners as elicited in this study (24.4%) was higher than the average rate of 18% reported for developing countries by Vela *et al.* (2012) but significantly lower than the 45.9% in India (Nirmalan, P. K. *et al.*, 2004), 64% among older Americans (Orr, Barrón, Schein, Rubin, & West, 1996) and 51.2% reported from a Ghanaian study (used preceding 5 years) This study showed that males were less likely to access eye care services in the preceding two years compared to females. This is similar to findings in some other low and middle-income countries (Ntsoane & Oduntan, 2010; Vela *et al.*, 2012) and developed countries (Lee *et al.*, 2009) while some other studies noted the reverse. (Nirmalan, P. K. *et al.*, 2004; Ocansey, S. *et al.*, 2013) The findings of this study suggest that women are more careful about their eye health than men. Sight is essential in everyday activities, therefore, any disturbance in vision or symptom associated with the use of the eyes will easily be noticed and should lead to eye care visits, yet we found only a third (33.7%) of pensioners and less than half (45.6%) of those with visual impairment had sought for eye care in the preceding two years while 34.7% of those with visual impairment had never sought for eye care services. Although, the figure obtained for "never seen an eye care professional" in this study is comparable to the 38% overall global rate, it is significantly lower than the rate for low-income countries (61%) while it higher than 20%, 26% and 5% reported for lower middle income, upper middle income and higher-income countries respectively. (Vela *et al.*, 2012) Since the average educational attainment of retirees from formal employment is expected to be higher than that of their age group peers in the general population, this could have accounted for the better rate of lifetime eye care services utilisation (lower rate of "never seen an eye care professional").

The study also showed that the majority of subjects had some level of education with two-third of subjects educated beyond primary school. However, the odds of utilizing eye health care service within the preceding two years was found to be significantly higher among subjects with post-primary (secondary & technical school) education when compared with subjects with primary school level of education while higher levels of education did not demonstrate same. Though no particular reason can be adduced for this, it should be noted that post-primary level of education consists of a broad range of educational qualifications with a wide spectrum of knowledge and cognitive skills. While many studies reported an increased level of utilisation with higher levels of education, (Ocansey *et al.*, 2013; Vela *et al.*, 2012) some authors have also noted that the odds for utilisation of eye care services was not highest among those with the highest educational levels. However, just like in this study the authors considered that the small sample size of people in these groups (higher educational qualification) precludes making any inferences of education (Ocansey *et al.*, 2013; Vela *et al.*, 2012) Some have also noted that the odds for utilisation of eye care services was not highest among those with the highest educational levels. However, just like in this study the authors considered that the small sample size of people in these groups precludes making any inferences (Nirmalan *et al.*, 2004).

This study identified employment status, type of pension scheme, average monthly income, presence or absence of other sources of income and health insurance as possible enabling factors for health care utilisation including eye health care. About two-third of subjects reported not to be engaged in any paid employment or self-employment. Lack of employment might be considered to be a positive enabling factor when the issue of availability of time is considered while it might as well be a negative enabling factor when the financial capability to afford health services and reduced work-related visual need is considered. There was no current national index with which to divide the population into different economic groups, hence the researcher considered the national minimum wage of 18,000 Naira (approximately 20,000 naira which was equivalent to US\$66 at the time of data collection) benchmark to classify into the income group used. Four-fifth of subjects reported an average monthly income of less than ₦50,000 (\$164) with about half of them earning less than ₦20,000 (US\$66). Although higher income are associated with better eye health care service utilisation in many countries among the elderly, (Vela *et al.*, 2012) this study did not find a significant association between eye health care service utilisation and the income level of pensioners. To the best of the researcher's knowledge, no study has been done regarding economic gap in eye care services utilisation and its determinant among the elderly or pensioners in Nigeria.

Pensioners that are beneficiaries of the more recent private sector-driven contributory pension scheme (CPS) were found to be less likely to have utilized eye health care services within the preceding two years. The CPS has a much lower pension payment default rate and the beneficiaries are more likely to be much younger than beneficiaries of the Defined Benefit Scheme (DBS) (Fapohunda, 2013). The reason for poor utilisation of eye care services by beneficiaries of the CPS may be due to their relatively younger age and possibly lower prevalence of age-related eye disease. Also, pensioners under CPS have been reported to significantly earn less than their corresponding counterparts under the DBS with a significant reduction in their income post-retirement. (Oyerogba, Olaleye, & Solomon, 2013) This could constitute an enabling factor barrier to utilisation of eye care service in the face of other socioeconomic and healthcare demands. Pensioners with health insurance were about two times more likely to have utilised eye care services than subjects without coverage. This corroborates findings from other studies (Lee *et al.*, 2009; Ntsoane & Oduntan, 2010; Vela *et al.*, 2012) and underscores the role of improved health financing that minimizes out-of-pocket payment to improve the health-seeking behaviour and health status of the citizenry as well as achieve universal health coverage. (Etobe & Etobe, 2015; Olakunde, 2012) Although some studies have noted that in addition to medical insurance coverage, increasing income level is also associated with better eye health care utilisation, (Keeffe, J. E. *Et al.*, 2002; Ocansey, S. *et al.*, 2013) this study did not find such association with the increasing reported average income.

This study showed that needs factors that significantly increase the likelihood of eye care service utilisation were the presence of other systemic comorbid diseases. This is in agreement with many studies where systemic diseases such as diabetes mellitus, hypertension and joint problems were found to be associated with higher eye care service utilisation. (Keeffe *et al.*, 2002; Ntsoane & Oduntan, 2010; Vela *et al.*, 2012) This may be a reflection of the better health-seeking of such individuals in addition to the higher likelihood of ocular manifestations of diseases such as diabetes mellitus that warrants the consultation of an eye care professional. This suggests that eye healthcare-seeking behaviour can be improved among the elderly by improved integration of eye health education and promotion into other more readily available healthcare services such as general practice, hypertension and diabetes clinics.

The likelihood of visiting an eye care professional was higher among subjects with eye complaint(s), self-perception of their complaint as severe and researcher's evaluation of bilateral visual impairment. Although these variables were not statistically significant, they demonstrated a trend that shows that needs factors are considerable determinants

of eye care utilisation. This finding is also consistent with the report by other researchers.(Ntsoane & Oduntan, 2010; Ocansey et al., 2013) Such trend of needs-driven utilisation of eye care services may significantly undermine the fight against reducing irreversible but avoidable blindness from ocular diseases that are usually asymptomatic during the early stages such as glaucoma and to some extent age-related macular degeneration.

The pattern of visual impairment found in this study is not significantly different in comparison with what available global data shows. However, in this study, it is obvious that the determinants of eye health care service utilisation show some variations. It is therefore obvious that eye care service utilisation does not necessarily have to be associated with income level/ poverty, gender or age but rather, the health-seeking behaviour of the individuals within populations which can be enabled by functional health insurance coverage.

In conclusion 3 out of every 20 pensioners studied have moderate visual impairment or worse and the causes are mainly age-related eye diseases that cause avoidable blindness namely: cataract, glaucoma and refractive error. Entrenching a culture of regular eye examination irrespective of presence or absence of eye complaint or visual impairment particularly among such a high-risk age group is a key strategy to curtail the burden of avoidable blindness. Key enabling and needs factor that increased the likelihood of utilizing eye care services were health insurance coverage and the presence of other age-related non-ocular co-morbid diseases, hence effort need to made to considerably improve public health expenditure and health insurance coverage among them to stem the tide of avoidable blindness, visual impairment and related systemic diseases in this vulnerable and increasingly larger age group.

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