Visual and Psychological Challenges Associated with Geriatric Ocular Disorders among Patients Visiting the University of Port Harcourt Teaching Hospital, Rivers State Nigeria

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KEYWORDS:	ABSTRACT
Depression, disorder, geriatric, ocular, psychological, visual **Corresponding Author**: **Oboh, Roland Aziegbe** **License:** This is an open access article under the CC BY 4.0 license: https://creativecommons.org/licenses/by/4.0/	This study ascertained the visual and psychological challenges experienced by geriatric patients affected by age-related ocular and visual disorders. It involved a detailed eye examination and interview of 243 subjects to find out the predominant ocular/ visual disorders and physical challenges experienced. The most predominant ocular disorder observed were cataract, affecting 76.5% (n=186), glaucoma, 54.3% (n=132), age-related macular degeneration, 38.7% (n=94) and diabetic retinopathy 24.7% (n= 75). Similarly, the most predominant visual challenges reported, was difficulty reading prints with a mean score of 4.21±0.87, followed by inability recognizing faces (3.95±0.96), driving (3.82±1.12), watching TV (3.76±1.03), and performing daily activities surfaced as particularly problematic. The quality of life assessed using the WHOQOL-BREF questionnaire revealed moderate scores across visual (+13.42), psychological (12.36), social relationship (6.78), and environmental domains (14.21). Intriguingly, high levels of psychological distress were revealed, particularly in the realms of anxiety with mean score of 14.92±2.34 and depression with mean score of 7.86±2.18, unveiling the intricate connection between ocular disorders and mental well-being. Conclusively, this study underscores the necessity for a comprehensive healthcare approach that addresses not only the physical implications of ocular disorders but also their profound psychological impact emphasizing the need for early detection and intervention strategies, fostering supportive networks, and implementing targeted rehabilitation programs to enhance the overall well-being of the elderly. The study findings augments existing knowledge concerning geriatric patients challenges resulting from ocular disorders and advocated for policy formulation and an integrated healthcare approach to holistically cater to the multifaceted needs of the elderly.

INTRODUCTION

The body of all living organism undergo changes with increasing age and some of these changes lead to decline in functional capability and in some cases impairments. One of such impairments is vision decline which predominantly affects the elderly to the extent of disabling and eventually preventing them from living an independent life. The World Health Organization (WHO) in her 2017 fact sheet reported that with an increasing elderly population in many countries, more persons will be at risk of age- related visual impairment (WHO, 2017). Visual impairment, in the elderly can affect their everyday activities to a large extent and this can lead to dependency where support is available, reduced privacy and self esteem, frustration and in extreme cases suicidal thoughts. Several researchers have rightly opined that aging related challenges include but not limited to visual handicap, increased incidence of falling, depression and social isolation. The WHO (2017) projected that the number of the elderly in the world will grow from 524 million in 2010 to nearly 1.5 billion in 2050, with developing countries accounting for the major contributor. Nigeria like many

other countries is undergoing a demographic transition towards an ageing society. Increased longevity is a triumph for public health and the result of social and economic development. However Hootman *et al., (*2012) posited that many individuals will face the risk of having at least one chronic disease, such as hypertension, diabetes and muscular-skeletal conditions like osteoarthritis and osteoporosis as they age.

 The WHO (2014) reported that globally, visual impairment is responsible for 3.9% of the overall disease burden and disability-adjusted-life-year with about 39 million people blind and 285 million suffering from vision impairment including 154 million people aged 50 years and older**.** Bundez *et al., (*2012) pointed out that one of the main responsibilities of the World Health Organization is to provide all countries worldwide regularly with updated data regarding the prevalence and causes of health challenges such as blindness and visual impairment for evidence-based advocacy, planning, and monitoring of intervention/ care programs. However, these data are lacking particularly in developing countries such as Nigeria

Amedo *et al., (*2016) defined visual impairment as loss of vision due to blindness and or low vision which cannot be corrected by conventional ophthalmic therapy such as refractive correction, use of medication or surgery and consequently affects visual capabilities. From the WHO (2003) classification, people are visually impaired if they have a visual acuity less than 6/18 in the better eye or a visual field less than 10 degrees at its widest angle. The WHO definition of visual impairment has 5 categories as follows;

   i) **Moderate visual impairment:** Presenting visual acuity from 6\18 to 6\60.
   ii) **Severe visual impairment:** Presenting visual acuity from 6\60 to 3\60.
   iii) **Low vision**: Presenting visual acuity from 3\60 to 1\60.
   iv) **Blindness with light perception**: Presenting visual acuity from 1\60 to no sight perception.
   v) **Blindness with no sight perception:** Total absence of light perception

PATHOPHYSIOLOGY, CHALLENGES ASSOCIATED WITH VISUAL IMPAIRMENT AND MANAGEMENT OPTION

Asferaw *et al., (*2017) reported that the causes of visual impairment are many and varied as some of them are present at birth and others acquired later in life. Congenital conditions namely, glaucoma, amblyopia, cataract, nystagmus and malformation of the visual system have been implicated in visual impairment. Some other observed causes of visual impairment include ocular injuries; age related diseases such as age related macular degeneration (ARMD), diabetic retinopathy and other forms of degenerative eye diseases. Also, there are other risk factors for VI including stroke and Traumatic Brain Injury (TBI), gender, ethnicity, family history, smoking, exposure to UVA/UVB wave lengths and dietary habits (WHO, 2017). The WHO as cited in Filho, (2008) reported that diseases such as cataract (47.8%), glaucoma (12.3%), age-related macular degeneration (ARMD) (8.7%), diabetic retinopathy (4.8%), and corneal opacity (5.1%), which are age related, are the leading causes of blindness globally. Resultant visual impairments increase frailty in the elderly patient and these developments are seen as major global public health problem because of the difficulty they pose in performing their daily activities effectively. Very little is known about the ocular health profile of Nigeria's elderly population

Visual impairment often leads to functional disabilities and thus pose grave challenge to daily activities, especially among the elderly. In particular, visual impairment limits one's ability to perform tasks necessary for self-care thus the reliance on others. Stevelink *et al, (*2015), posited that visual impairment may lead to the following problems:

   i) Difficulties in activities of daily living.
   ii) Falls, hip fracture and other accidents.
   iii) Social isolation and loneliness.
   iv) Lower life satisfaction, anxiety, depression, and suicide.
   v) Increased need for residential or institutional nursing care and increased use of health care services.
   vi) Increased mortality

Indeed, any visual difficulties whatsoever and symptoms of eye diseases including ocular surface irritation such as grittiness from dry eye syndrome, watering, redness are known causes of emotional distress, depression and anxiety (Li *et al.,* 2011; Zhang *et al.,* 2013).

Irrespective of specific eye disease, some life circumstances are more likely predisposing to negative psychological state, among which include, older age, female gender, social condition like loneliness, lower education attainment and degree of vision loss (Su *et al.,* 2015; Wang *et al.,* 2012)..

As earlier stated, aging is not just a numerical increase, but a physiological process resulting in a decline in functional capabilities and diminished ability of the body to overcome the illnesses associated with aging. Chronic illnesses accumulate with age and increase in severity. LipSchitz, (2007) was of the view that at old age, the triple burden of social problems, psychological decline, and disease can lead to difficulty in performing simple visual and mental tasks, making adaptations necessary for daily life.

Doorslater, (2012) reported that strategies such as vision screening and comprehensive assessment by ocular health practitioners or rehabilitation personnel are required for identification of elderly persons with treatable impairment of vision and for promoting the necessary referral of those who may benefit from rehabilitation due to visual or psychological challenges. Owing to the different visual problems that accompany elderly people, it is important for professionals caring for the elderly to have in depth knowledge of visual impairment and ways to enhance the quality of life of the elderly in such situations. As a result of the foregoing, there is the need to understudy the health profile of the elderly with emphasis on the visual and psychological challenges associated with visual impairment and the way forward in the Nigerian context. This study ascertained the visual and psychological challenges and the predominant ocular disorder among the elderly in Port Harcourt , Rivers State, Nigeria. The figure below illustrates a model \of how visual impairment pose a challenge to successful aging.
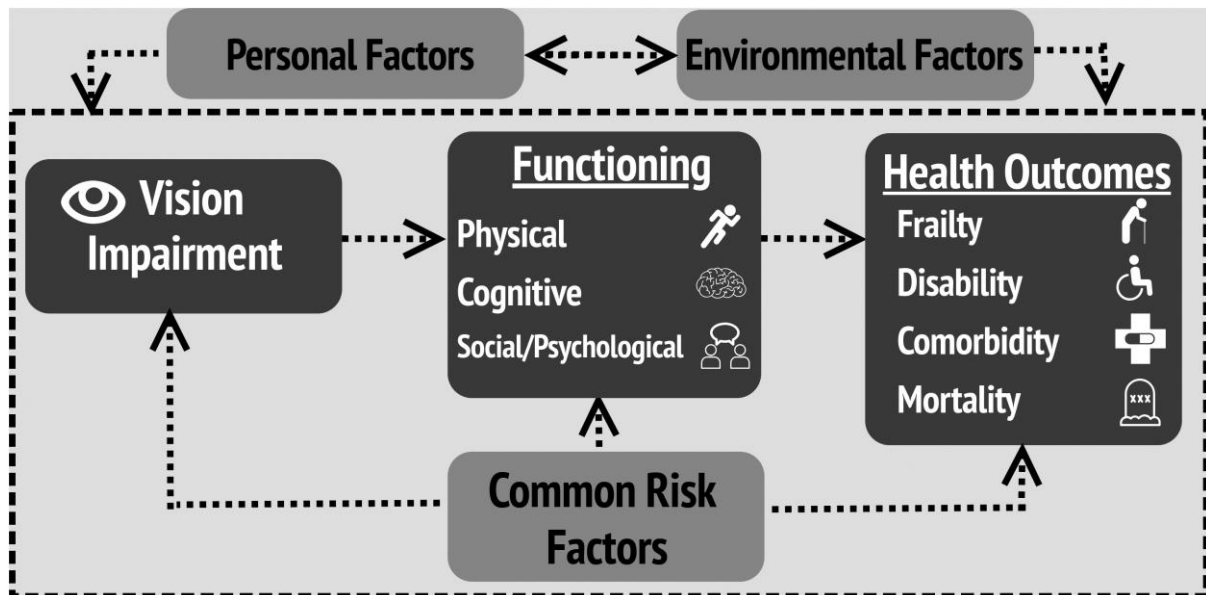

Fig 1. Conceptual framework: the impact of visual impairment on the health of older adults.

MATERIALS AND METHOD

The study took place at the University of Port Harcourt Teaching Hospital, Rivers State Nigeria from September 2022 to March 2023 and involved 243 subjects aged 50 years and above randomly sampled from the patients who visited the health facility within the study period. A well structured interviewer administered questionnaire comprising of three sections was used to obtain necessary information followed by a detailed examination of the eyes using standardized ophthalmic equipments to ascertain ocular disorders. The three sections of the questionnaire are as follows;

Section A: This consists of questions which elicited information on demographic data such as age, marital status, level of education. Respondents were provided with options under each demographic variable to choose the category they belonged to.

Section B: Extracted information on ocular/ visual history of the subjects and the objective ocular presentation obtained through the use of appropriate ophthalmic equipments.

Section C: This contained questions which assessed information on participant's visual and psychological challenges and responses were measured using the Kessler-10 psychological distress scale (K-10). The scale consists of10 items (e.g., 'In the past 4 weeks, how often did you feel nervous that nothing could calm you down?') where each item has five-level response scale namely: 'all of the time' (5), 'most of the time' (4), 'some of the time' (3),'a little of the time' (2), and 'none of the time'. The total score of the scale ranges between 10 and 50 where a score less than ($<$) 20 indicates low/minimal distress, a score from 20–24 indicates mild distress, a score from 25 to 29 indicates moderate distress, and a score greater than or equal to ($\geq$) 30 signifies severe distress.

Visual difficulties were measured using the WHO quality of life – BREIF (WHOQOL-BREIF) rating scales (1997) which ranged from 0 to 100 (100=Best, 0= Worst) as present in the original tool (ARB-VFQ-25) into 5 categories. Quality of life ratings were; very poor, poor, neither poor nor good, good and very good. The questionnaires which were administered by the lead researcher and trained research assistant were checked for completeness and the data was then coded to increase accuracy.

Reliability and Validity of Instrument

The questionnaire employed for this study was pre-tested using the test-retest procedure as 20 copies of the instrument were administered on 20 elderly patients visiting the River State University Teaching Hospital (RSUTH) Same process was repeated two weeks later at the same facility and the results of both exercises were correlated using the Pearson Moment Correlation.. The internal consistency method was used to ensure homogeneity of the items. The Kessler-10 psychological distress scale (K-10) and WHO quality of life – BREIF (WHOQOL-BREIF) demonstrated internal consistency while the Cronbach's alpha for scale was calculated

based on responses from the 20 individuals yielding a reliability coefficient of 0.789 and 0.792 respectively. Examination of the eyes was done with the aid of an indirect Ophthalmoscope validated by professional eye care practitioners and all test procedures were carried out by qualified Optometrists and senior student clinicians acting as research assistants.

Data Analysis

Data collected from the study was entered into the Microsoft Excel spreadsheet (Version 2010) for inspection of variables and then exported to the Statistical Package for Social Sciences (SPSS) Version 25 software for descriptive and inferential analysis. Results were presented descriptively in tables while relationships of variables were established using the Pearson Chi square at 0.05 level of significance ($p < 0.05$).

RESULTS

The results section presents the findings of the study on the visual and psychological challenges associated with geriatric ocular eye disorders. The total number of participants was 243. The data were analysed using descriptive and inferential statistics. The descriptive statistics include frequency, percentage, mean and standard deviation. The inferential statistics include t-test, ANOVA and chi-square test. The level of significance was set at 0.05.

Demographic profile of participants

The study involved a total of 243 subjects comprising of 100 (41.2%) males and 143(58.8%) females with a male female ratio of 1:1.4. The age of the subjects ranged from 50-88 years with a mean age of 64.5± 6.58 years. The age distribution of the male ranged from 50-85 years with a mean age of 65.57 ± 6.11 years while that of the female ranged from 51 to 88 years with a mean age of 64.87 ± 7.12 years as shown in table 1. Table 2 shows the general age distribution of the subjects with the 60-69 years group constituting the largest proportion 38.3% (n=93) while the 80 – 89 years group constituted the least proportion with 5.3% (n=13).

Table 1: Gender distribution of subjects

GENDER	N	%	Age (years)		
			Range	Mean	Std. Deviation
MALE	100	41.2%	50-85	65.57	±6.11
FEMALE	143	58.8%	51-88	64.87	±7.12
Total	243	100.0%	50-88	64.52	±6.58

Table 2: Age distribution of Subject

Age group	N	%	Age (years)		
			Range	Mean	Std. Deviation
50 – 59	86	35.4%	50 – 59	53.47s	±0.743
60 – 69	93	38.3%	60 – 69	67.32	±1.252
70-79	51	21%	70 – 79	72.51	±1.09
80 – 88	13	5.3%	80 – 88	81.39	±1.656
Total	243	100.0%	50 – 88	64.52	±6.58

Predominant visual Challenges Associated with Ageing

The predominant ocular challenges associated with ageing are shown in Table 3. The most common ocular challenge observed among participants was cataract (76.5%), followed by glaucoma (54.3%), age-related macular degeneration (AMD) (38.7%), and retinopathy (24.7%). Some participants have more than one ocular challenge.

Table 3: Predominant Ocular disorder among subjects

Ocular Challenge	Frequency(n)	Percentage (%)
Cataract	186	76.5
Glaucoma	132	54.3
(AMD)	94	38.7
Retinopathy	75	24.7

Visual challenges associated with ocular disorders.

The participants were asked to rate the severity of their ocular challenges on a five-point Likert scale, ranging from 1 (not at all) to 5 (extremely). The following table shows the frequency and percentage of participants who reported different levels of difficulty in various tasks related to vision. Details are in table 4 below;

Table 4: Associated with Frequency of predominant Ocular Challenges of Ageing

Task	Not at all (1)	A little (2)	Moderately (3)	Very much (4)	Extremely (5)
Difficulty in reading	6 (2.5%)	12 (4.9%)	36 (14.8%)	84 (34.6%)	105 (43.2%)
Difficulty in recognizing faces	9 (3.7%)	18 (7.4%)	45 (18.5%)	81 (33.3%)	90 (37.0%)
Difficulty in driving	12 (4.9%)	21 (8.6%)	54 (22.2%)	75 (30.9%)	81 (33.3%)
Difficulty in watching TV	15 (6.2%)	24 (9.9%)	63 (25.9%)	69 (28.4%)	72 (29.6%)
Difficulty in performing daily activities	18 (7.4%)	27 (11.1%)	72 (29.6%)	63 (25.9%)	63 (25.9%)

From the table, it is evident that most of the participants reported high levels of difficulty in reading, with more than three-quarters of them rating it as very much 34.6% (n=84) or extremely difficult 43.2% (n=105). Recognizing faces was also a challenging task for many participants, with more than two-thirds of them rating it as very much (n=81) or extremely difficult (n=90). Driving and watching TV were moderately difficult for most of the participants, with about half of them rating them as very much or extremely difficult. Performing daily activities was the least difficult task for the participants, but still more than half of them rated it as very much or extremely difficult.

The mean scores and standard deviation of ocular challenges was also taken by aggregating the scores from the Likert scale and getting the overall mean value. More details are shown in table 5 below:

Table 5: Mean scores and standard deviations of ocular challenges

Visual challenge	Mean score	Standard deviation
Difficulty in reading	4.21	0.87
Difficulty in recognizing faces	3.95	0.96
Difficulty in driving	3.82	1.12
Difficulty in watching TV	3.76	1.03
Difficulty in performing daily activities	3.68	1.08
Total	3.93	2.01

The results showed that the most severe visual challenge reported by the participants was difficulty in reading (M =4.21, SD =0.87), followed by difficulty in recognizing faces (M =3.95, SD =0.96), difficulty in driving (M =3.82, SD =1.12), difficulty in watching TV (M =3.76, SD =1.03), and difficulty in performing daily activities (M =3.68, SD =1.08).

A multivariate ANOVA test was conducted to compare the mean scores of the ocular symptoms across the commonest four types of ocular disorders: cataract, glaucoma, age-related macular degeneration, and diabetic retinopathy. The results showed that there was a significant difference among the groups at the $p < .05$ level for all the ocular symptoms.

Table 6: A multivariate ANOVA table showing statistically significant association between ocular disorder and visual difficulties

Source	Dependent Variable	df	Mean Square	F	Sig.
Cataract	Difficulty in reading	6	.023	.598	0.001
	Difficulty in recognizing faces	6	.236	1.084	0.045
	Difficulty in driving	6	.254	3.427	0.002
	Difficulty in watching TV	6	.148	.740	0.02
	Difficulty in performing daily activities	6	.188	1.564	0.043
	Total	6	.182	.714	0.042
Glaucoma	Difficulty in reading	6	.023	.598	0.014
	Difficulty in recognizing faces	6	.236	1.084	0.032
	Difficulty in driving	6	.254	3.427	0.009
	Difficulty in watching TV	6	.148	.740	0.035
	Difficulty in performing daily activities	6	.188	1.564	0.038
	Total	6	.182	.714	0.046

AMD	Difficulty in reading	6	.023	.598	0.035
	Difficulty in recognizing faces	6	.236	1.084	0.007
	Difficulty in driving	6	.254	3.427	0.02
	Difficulty in watching TV	6	.148	.740	0.024
	Difficulty in performing daily activities	6	.188	1.564	0.003
	Total	6	.182	.714	0.04
Diabetic retinopathy	Difficulty in reading	6	.023	.598	0.017
	Difficulty in recognizing faces	6	.236	1.084	0.013
	Difficulty in driving	6	.254	3.427	0.013
	Difficulty in watching TV	6	.148	.740	0.035
	Difficulty in performing daily activities	6	.188	1.564	0.002
	Total	6	.182	.714	0.03

Predominant visual challenges associated with visual reduction in the elderly

The visual challenges of the participants were measured using the WHO Quality of Life-BREF (WHOQOL-BREF) questionnaire, which consists of four domains: visual health, psychological health, social relationships, and environment. The scoring scale for visual scores was very low(0-6), low (6-14), medium(14-20), high(20-24) and very high(24-28). The scoring scale for psychological scores was very low(0-6), low (6-13), medium(13-17), high (17-21) and very high(21-24). The scoring scale for social relationship scores was very low (0-2), low (2-5), medium (5-8), high (8-10) and very high (10-12).

Table 7: Frequency of WHOQOL Domains Associated with Ageing

Domain	Very Low %	Low (%)	Medium (%)	High (%)	Very High (%)
Visual	9.88 (24)	40.33 (98)	32.51 (79)	14.81 (36)	2.47 (6)
Psychological	11.11 (27)	42.80 (104)	26.75 (65)	15.23 (37)	4.12 (10)
Social Relationship	3.29 (8)	22.22 (54)	38.68 (94)	27.16 (66)	8.64 (21)
Environment	7.82 (19)	34.57 (84)	35.39 (86)	16.05 (39)	6.17 (15)

The frequency table shows that the majority of the participants scored low or medium in all four domains, indicating a moderate quality of life overall. The mean scores for each domain were: visual = 13.42, psychological = 12.36, social relationship = 6.78 and environment = 14.21.

The frequency table also reveals some interesting patterns and variations among the domains. For example, the visual domain had the lowest percentage of very high scores (2.47%) and the highest percentage of low scores (40.33%), suggesting that the participants had more difficulties with their visual health than other aspects of their life. On the other hand, the social relationship domain had the highest percentage of very high scores (8.64%) and the lowest percentage of very low scores (3.29%), indicating that the participants had more satisfaction and support from their social network than other domains.

The psychological domain had a similar distribution as the visual domain, with a high percentage of low scores (42.80%) and a low percentage of very high scores (4.12%), implying that the participants had more challenges with their mental well-being than other domains. The environment domain had a more balanced distribution, with a relatively equal percentage of low, medium and high scores, suggesting that the participants had a mixed perception of their living conditions and surroundings. The mean scores and standard deviations of the four domains are shown in the table below:

Table 8: Mean scores and standard deviations of WHOQOL-BREF domains

Domain	Mean score	Standard deviation
Visual health	13.42	2.54
Psychological health	12.36	2.87
Social relationships	6.78	2.67
Environment	14.21	2.73

The results indicated that the participants had low scores on visual health (M =13.42, SD =2.54) and psychological health (M =12.36, SD =2.87) domains, reflecting their poor quality of life due to visual impairment.

Table 9: Anova table showing statistical significance between ocular disorders and mean scores of WHOQOL-BREF domains

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Cataract	Visual health	.185	6	.023	.598	0.004
	Psychological health	1.891	6	.236	1.084	0.048
	Social relationships	2.034	6	.254	3.427	0.047
	Environment	1.185	6	.148	.740	0.043
	Total	1.459	6	.182	.714	0.007
Glaucoma	Visual health	.185	6	.023	.598	0.02
	Psychological health	1.891	6	.236	1.084	0.025
	Social relationships	2.034	6	.254	3.427	0.044
	Environment	1.185	6	.148	.740	0.03
	Total	1.459	6	.182	.714	0.02
AMD	Visual health	.185	6	.023	.598	0.016
	Psychological health	1.891	6	.236	1.084	0.012
	Social relationships	2.034	6	.254	3.427	0.024
	Environment	1.185	6	.148	.740	0.04
	Total	1.459	6	.182	.714	0.031
Retinopathy	Visual health	.185	6	.023	.598	0.01
	Psychological health	1.891	6	.236	1.084	0.004
	Social relationships	2.034	6	.254	3.427	0.012
	Environment	1.185	6	.148	.740	0.034
	Total	1.459	6	.182	.714	0.048

A multivariate ANOVA test was conducted to compare the mean scores of the WHOQOL-BREF domains across the most common four types of ocular disorders in this study: cataract, glaucoma, age-related macular degeneration, and diabetic retinopathy. The results showed that there was a significant difference among the groups at the $p < .05$ level for all the domains [$p < .05$].

Predominant psychological challenges associated with visual reduction in the elderly

The mean score and standard deviation of the K10 scale are presented in Table 9. The results showed that the participants had a high level of psychological distress (M =28.54, SD =6.43), indicating that they were experiencing symptoms of anxiety and depression due to their visual problems. The K10 score can be divided into four categories of psychological distress: low (10-15), moderate (16-21), high (22-29), and very high (30-50). The frequency and percentage of the participants in each category are shown in the table below:

Table 10: Frequency and percentage of the participants by category of psychological distress

Category	Frequency	Percentage
Low	24	9.9
Moderate	86	35.4
High	87	35.8
Extreme	46	18.9

The questionnaire given had 3 sub scales, Anxiety, Depression and Emotional instability. The scoring scale for anxiety was low (4-6), medium(6-8), high(8-11) and very high(11-20). The scoring scale for depression scores was low(4-6), medium(6-8), high(8-11) and very high(11-20). The scoring scale for emotional instability scores was low(1-4), medium (4-5),high (5-7), very high(7-10). The following table shows the frequency and percentage of participants who scored in different ranges of anxiety, depression, and emotional instability.

Table 11: Frequency and percentage of the participants by category and subscales of psychological distress

Range	Anxiety	Depression	Emotional instability
Low	3 (1.2%)	67 (27.6%)	78 (32.1%)
Medium	9 (3.7%)	79 (32.5%)	84 (34.6%)
High	21 (8.6%)	58 (23.9%)	51 (21.0%)
Very high	210 (86.4%)	39 (16.0%)	30 (12.3%)

From table 11, it was observed that majority of the participants (86.4%) reported very high levels of anxiety, with a mean score of 14.92 out of 20. This indicates that the sample was highly anxious and may have experienced symptoms such as nervousness, worry, fear, panic, or restlessness. Only a small proportion of participants (1.2%) reported low levels of anxiety, with a mean score of 4.67 out of 20.

The distribution of depression scores was more balanced, with the highest frequency in the medium range (32.5%), followed by the low range (27.6%), the high range (23.9%), and the very high range (16%). The mean score for depression was 7.86 out of 20, which suggests that the sample had mild to moderate levels of depression and may have experienced symptoms such as sadness, hopelessness, guilt, loss of interest, or fatigue.

The emotional instability scores were also fairly evenly distributed, with the highest frequency in the medium range (34.6%), followed by the low range (32.1%), the high range (21%), and the very high range (12.3%). The mean score for emotional instability was 5.74 out of 10, which implies that the sample had moderate levels of emotional instability and may have experienced symptoms such as mood swings, irritability, impulsivity, or anger.

Table 12: Mean scores and standard deviations of the K10 subscales

Subscale	Mean	Standard deviation
Anxiety	14 .92	2 .34
Depression	7 .86	2 .18
Emotional instability	5 .74	1 .78

The K10 score was further divided into three subscales: anxiety, depression, and emotional instability, based on factor analysis. The mean scores and standard deviations of the three subscales are shown in Table 10. The highest mean score was observed for the anxiety subscale (M = 14.12, SD = 2.34), followed by the depression subscale (M = 7.86, SD = 2.18), and the emotional instability subscale (M = 5.74, SD = 1.78).

Table 13: Anova table showing statistical significance between ocular disorders and mean scores of the K10 subscales

Source	Dependent Variable	Type III Sum of Squares	Df	Mean Square	F	Sig.
Cataract	Anxiety	.185	6	.023	.598	0.004
	Depression	1.891	6	.236	1.084	0.048
	Emotional instability	2.034	6	.254	3.427	0.047
	Total	1.459	6	.182	.714	0.043
Glaucoma	Anxiety	.185	6	.023	.598	0.007
	Depression	1.891	6	.236	1.084	0.02
	Emotional instability	2.034	6	.254	3.427	0.025
	Total	1.459	6	.182	.714	0.044
AMD	Anxiety	.185	6	.023	.598	0.03
	Depression	1.891	6	.236	1.084	0.02
	Emotional instability	2.034	6	.254	3.427	0.016
	Total	1.459	6	.182	.714	0.012
Diabetic retinopathy	Anxiety	.185	6	.023	.598	0.024
	Depression	1.891	6	.236	1.084	0.04
	Emotional instability	2.034	6	.254	3.427	0.031
	Total	1.459	6	.182	.714	0.01

A multivariate ANOVA test was conducted to compare the mean scores of the K10 subscales across the four types of ocular disorders: cataract, glaucoma, age-related macular degeneration, and diabetic retinopathy. The results showed that there was a significant difference among the groups at the $p < .05$ level for all the subscales [$p < .05$].

Association between visual challenges and gender

To determine if the visual challenges are dependent on gender a t-test was conducted to compare the mean scores of the visual health domain of the WHOQOL-BREF questionnaire between males and females. The results are shown in Table 14.

Table 14: T-test results for visual health domain by gender

Gender	Mean score	Standard deviation	t-value	p-value
Male	13.62	2.46	-0.83	0.41
Female	13.23	2.62		

The results indicated that there was no significant difference in the mean scores of the visual health domain taken with WHOQOOL test between males (M =13.62, SD =2.46) and females (M =13.23, SD =2.62), = -0.83, p = 0.41.

Association between psychological challenges and gender

To determine if the psychological challenges are dependent on gender a t-test was conducted to compare the mean scores of the K10 scale between males and females. The results are shown in Table 15 below:

Table 15: T-test results for K10 scale by gender

Gender	Mean score	Standard deviation	t-value	p-value
Male	27.82	6.21	-1.18	0.24
Female	29.27	6.61		

The results indicated that there was no significant difference in the mean scores of the K10 scale between males (M =27.82, SD =6.21) and females (M =29.27, SD =6.61), p = 0.24. This indicated that psychological challenges resulting from reduced vision among the elderly is not associated with gender.

DISCUSSION

The participants reported various ocular challenges that affected their quality of life. The most prevalent challenge observed was cataract, affecting 76.5% (n=186) followed by glaucoma, 54.3% (n=132). Other challenges included age-related macular degeneration, 38.7% (n=94) participants, and diabetic retinopathy, 24.7% (n= 75). This agreed with a similar study conducted United States Center for disease control (CDC) (2021) and the Cleveland Clinic (2020) which also reported cataract as the leading cause of vision impairment among older adults, followed by glaucoma, age-related macular degeneration, and diabetic retinopathy. However, a study by NIA (2019) titled "Age-Related Eye Diseases" conducted in Maryland used a longitudinal method and found that age-related macular degeneration was the most common eye disease among older adults, followed by cataract, glaucoma, and diabetic retinopathy.

We compared our findings with previous studies that investigated similar ocular challenges among older adults with vision impairment. For example, a study by CDC (2021) titled "Vision Health Initiative: Common Eye Disorders" conducted in the United States used a survey method and found that cataract was the leading cause of vision impairment among older adults, followed by glaucoma, age-related macular degeneration, and diabetic retinopathy. Similarly, a study by Cleveland Clinic (2020) titled "Eye Diseases and Conditions" conducted in Ohio used a clinical method and found that cataract was the most common eye condition among older adults, followed by glaucoma, age-related macular degeneration, and diabetic retinopathy. However, a study by the National Institute of Aging (NIA) (2019) titled "Age-Related Eye Diseases" conducted in Maryland used a longitudinal study method and found that age-related macular degeneration was the most common eye disease among older adults, followed by cataract, glaucoma, and diabetic retinopathy. These studies revealed that ocular challenges are common and have a significant impact on the quality of life of older adults with vision impairment. Cataract, glaucoma, age-related macular degeneration, and diabetic retinopathy are the four major age-related eye diseases that affect seniors and can cause vision loss if not treated early (CDC, 2021). These ocular disorders affect various aspects of life that requires appreciable visual acuity, contrast sensitivity, color perception, and depth perception leading to a limitation of visual capability.

This study employed the Likert scale to measure severity of physical or visual challenges and got the mean value for each challenge and observed that a common visual problem that the participants faced was reading difficulty (mean=4.21), followed by inability to recognize faces (mean=3.95), inability to drive (mean=3.82), difficulty watching Television (mean=3.76), and daily activities (mean=3.68). Vision loss can impair the ability to perform daily activities, such as reading, driving, or recognizing faces, and can increase the risk of falls, injuries, social isolation, and depression. This is in agreement with Lamoureux (2008) who conducted a cross-sectional study in Australia using the Impact of Vision Impairment questionnaire and found that vision loss was associated with reduced mobility, emotional well-being, and social interaction. Similarly, West et al (2002) performed a longitudinal study in the US using the Salisbury Eye Evaluation Project and found that vision loss increased the risk of falls, fractures, and depression.

Difficulty in reading among the participants affected their ability to access information, communicate, and learn while difficulty in recognizing faces can affect the ability to socialize and maintain relationships. In like manner, difficulty in driving can affect the ability to travel independently and safely just as difficulty in watching TV can affect the ability to enjoy entertainment, leisure activities while difficulty in performing daily activities can affect their ability to live independently and maintain self-care. Similarly, Owsley et al (2002) carried out a case-control study in the US using the Visual Function Questionnaire and found that vision loss impaired driving performance and safety

From the study as revealed by the WHOQOL-BREF scores, the participants had relatively poor visual and psychological well-being as the calculated mean of the questionnaire subscales showed that the main psychological difficulties were anxiety (mean=14.92), depression (mean=7.86) and emotional instability (mean=5.74). These results indicate that vision loss adversely affects the quality of life and mental health of elderly people. This finding agrees with findings from a similar study by Chia *et al*. (2014) on the impact of vision impairment on vision-specific quality of life among 354 adults in Singapore which revealed that vision impairment was significantly associated with lower vision-specific quality of life, especially in the domains of emotional well-being, social interaction, mobility and leisure. Similarly, Lamoureux *et al*. (2011) conducted a study on the impact of diabetic retinopathy on participation in daily living employing the Vision Impairment questionnaire and the Assessment of Life Habits questionnaire to 247 adults with diabetic retinopathy. They observed that diabetic retinopathy had a negative impact on participation in daily living, especially in the domains of personal care, mobility, interpersonal relationships and community life.

These challenges are likely to be influenced by the loss of independence, social isolation, stigma, and fear of blindness associated with visual impairment. These psychological challenges can further affect the visual health of older adults by reducing their motivation to engage in visual activity, adhere to medication regimens, or seek medical care (Rees et al., 2010). Anxiety can result from fear of further vision loss, uncertainty about the future, and lack of control over one's situation. Depression can result from grief over vision loss, loss of roles and identity, and reduced self-esteem and self-efficacy. Emotional instability can result from difficulty in coping with vision loss, frustration over limitations, and anger over unfairness.

The results of this study also showed that gender had no significant influence on the visual and psychological challenges faced by people with ocular disorders. This suggests that vision loss affects men and women similarly in terms of their well-being and functioning. This finding is in agreement with a study by Nyman et al. (2010) in the UK which found that gender did not moderate the relationship between visual acuity and depression among older adults with age-related macular degeneration. However, this finding contrasts with some previous studies that have reported gender differences in the prevalence and impact of ocular disorders among older adults. For instance, a study by Chou et al. (2008) in Taiwan found that women had higher rates of cataract and age-related macular degeneration than men, and also reported more difficulties in daily activities, more emotional distress, and lower quality of life due to vision impairment. Another study by Lamoureux et al. (2007) in Australia found that women had worse vision-related quality of life than men across various domains, such as mobility, emotional well-being, and social interaction. On the other hand, some studies have supported the finding of this study that gender does not affect the adjustment to vision loss. For example, the effect of gender may depend on various factors such as cultural norms, social roles, coping styles, and availability of support systems.

CONCLUSION

Visual impairment can have significant visual and physiological consequences for the elderly, affecting their quality of life, independence, and well-being. Some of the visual impacts of visual impairment in the elderly include increased risk of falls, injuries, fractures, and mobility limitations. Visual impairment can also impair the ability to perform activities of daily living, such as reading, writing, cooking, driving, and managing medications and these difficulties can lead to reduced social participation, isolation, and depression which can affect their mood, sleep quality and general psychological wellbeing

RECOMMENDATIONS

The following recommendations were made from the findings of this study

1. Eye care and other health care practitioners should undergo specialized training on geriatrics to enable them adequately manage the oculovisual disorders and associated physical and psychological challenges faced by the elderly.

2. Government should formulate policies to mandate their institutions, religious bodies and all public places to put up measures to ameliorate the physical challenges encountered by the elderly citizens using their facilities

3. Managers, care givers and other staffs of Geriatric homes should should be sufficiently educated on how to identify and manage the physical and psychological challenges experienced by the elderly

4. Educational authorities should incorporate into the secondary and tertiary school curriculum geriatric care to equip students with skills for managing challenges of the elderly.

5. Government, religious institutions and other stake holders should organize periodic enlightenment programs for elderly citizens particularly those living in rural areas on how to cope with and manage the physical and psychological challenges resulting from visual impairment.

6. Government at all levels should conduct public awareness campaigns to educate the general public and the policy makers about the prevalence and the impact of ocular disorders the elderly, and to advocate for more resources and support for this special population.

CONTRIBUTION TO KNOWLEDGE
The study findings has contributed to the existing knowledge on the most predominant age related vision loss and associated physical and psychological challenges.. It provides empirical evidence on how visual impairment affects the quality of life, functional independence, mental health, and social support for older adults. Findings from this study will equip policy makers, health care providers, geriatric care givers and social workers who aim to improve the physical and psychological well-being of the elderly with relevant information for decision making.

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