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Research Article

Psychological Effects of Eye Diseases: A Tertiary Eye Center Study

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Abstract

Aim: To elucidate the psychological effects of eye diseases on ophthalmic patients seen in a tertiary eye hospital in order to help eyecare professionals develop policies and counselling programs to support the mental health and care of the patients.

Materials and Methods: A cross-sectional descriptive study on ophthalmic patients in a tertiary eye centre using a pretested interviewer-administered, semi-structured questionnaire. Information sought included sociodemographic, knowledge of eye diseases, fears concerning eye disease, emotional reaction to the current ocular illness and the effect of ocular health status on their quality of life. Detailed ocular examination was done. Data obtained was analysed using the Statistical Package for the Social Sciences (SPSS) version 23 software.

Results: A total of 243 patients were interviewed and examined. There were 111(45.7%) males and 132(54.3%) females. Age range was 16 to 90 years (Mean age of 44.2 ± 18.1 years). Defective vision 127(52.3%) and ocular pain/discomfort 113(46.5%) were the commonest presenting symptoms; while ocular surface diseases 83(34.2%) and ametropia 55(22.6%) were the commonest diagnosis recorded. Forty (16.5%) patients were blind (presenting visual acuity <3/60). Fear of the loss of sight 103(42.4%), future implications of current eye disease 47(19.3%)

and inability to meet financial cost involved in care 24(9.9%) were the commonest nature of fear noted. Fears of current illness was significantly associated with blindness (P=0.005), and specific diagnoses like cataract and glaucoma (P=0.001) Respondents' emotional reactions to their eye disease were anxiety 112(46.1%), depression 63(25.9%), anger at God or someone 21(8.6%), and no emotions 47(19.3%). None reported happiness with occurrence of their eye disease. These emotional reactions caused insomnia, anorexia, and loss of concentration in one-third of the patients. Family history of blindness was significantly associated with manifestations of insomnia, anorexia, and loss of concentration (P=0.013).

Conclusion: Eye diseases are significantly associated with anxiety and depression. This is with regards to the current ocular illness and future life. Awareness of these among eyecare professionals is important to give the much-needed mental health support and care to these patients in collaboration with and referrals to mental health professionals.

Keywords: Eye diseases; Depression; Anxiety; Mental health

1. Introduction

Ill health and diseases are causes of mental distress.1 Mendive on causes of mental distress encountered by primary care physicians among patients, noted that health matters as significant issues generating depression are usually ignored, while problems like loss of jobs, loss of a spouse, and negative life events are more recognized [1]. In an online survey conducted in 2014 on 2,044 United States adults of different racial groups, blindness ranked high in ailments people of all races would rather not have [2]. Amongst US nationals, 47.4% reported loss of sight as the worst health affliction in an individual, while 87.5% believed that for a person to be said to be in overall good health, good vision must be present [2]. Approximately half of these population stated that loss of sight is worse than other losses like loss of a limb, memory, speech, and hearing [2]. The participants' major fear with loss of sight was the degradation of quality of life and loss of independence associated with blindness [2]. The presence of an eye disease with possibility of blindness and degraded quality of life would evoke negative emotional reaction [2]. Protracted systemic diseases are known to be associated with mental distress like anxiety, depression, sleep disturbances because of the perception on their quality of life, lifestyles, and aspirations [3]. Patients with eye diseases may have symptoms of pain and discomfort, degradation, or loss of vision, and may manifest anatomical or functional anomalies [4-6]. Studies in Nigeria have shown that eye diseases are common [7-9].

Eye diseases like glaucoma causes severe emotional reactions of anxiety, depression, and sleep disturbances [10-13]. Also, patients with diabetic eye disease, retinitis pigmentosa, and visual handicap from any eye disease manifests negative emotions such as depression [14-16].

Some studies reported that causes of negative emotions observed in some people with eye diseases is not solely due to fear of blindness, but because of other physiological processes. Attribution has been made to sleep disturbance and depression observed in

advanced glaucoma as resulting from defective melatonin secretion from the brain caused by decreased light stimulus seen in profound visual field loss [17, 18]. Seeming to question the melatonin theory, is the observation that age-related macular degeneration causes depression and emotional distress irrespective of the fact that visual field loss is small compared to that resulting from advanced chronic simple glaucoma [19]. Moreover, visual acuity loss seen in refractive errors in which no visual field loss occurs; and in advanced cataract in which altered melatonin secretion has not been reported, caused depression in affected people [20, 21]. 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 [22, 23]. Irrespective of the specific eye disease, some life circumstances are more likely to predispose to negative psychological state. These include, older age, female gender, social condition like loneliness, lower education attainment and degree of vision loss [24-26].

Because eye diseases generate emotional and psychological problems, some authors strongly suggests that attending eye care physicians be on alert to recognize when they occur and incorporate into care strategic measures to attend to these co-morbidities [11, 26]. At the moment, there is no policy or practice requirements in Nigeria that demands that standard procedures should include assessing for and managing ophthalmic patients for depression, anxiety, fears, sleep disturbances and other emotional and psychological associations of their eye diseases.

2. Aim

The aim of this study is to determine the psychological effects of eye diseases on eye patients seen in a tertiary hospital in our locality, in order to create awareness among eye care professionals to impact on the mental health and care of these patients.

3. Materials and Methods

This study was done at the out-patient clinic of Guinness Eye Centre, Nnamdi Azikiwe University Teaching Hospital Onitsha. It is a stand-alone tertiary eye care institution that caters for patients from the five south-eastern states of the country and other regions bothering these states. Participants were consenting and consecutive old and new adult patients, who presented to the out-patient clinic in November 2020.

This is a cross-sectional descriptive survey of out-patients, utilizing a pretested interviewer administered semi structured questionnaire. Some of the questions were extracted from the Hospital Anxiety and Depression Scale (HADS) questionnaire. Questions were centred on the sociodemographic, knowledge of eye disease, fear concerning eye disease and treatment, emotional reaction to the illness and the effect of their ocular health status on quality of life. The visual acuity and ocular diagnosis were recorded. Sample size was derived from a study by Zhou and colleagues who found prevalence of 16.4% for depression in Chinese glaucoma patients [25].

Using $N=(1.96)^2pq/(E)^2$, in which N is sample size, p is prevalence, q is 1-p, E is precision of 5%, and 1.96 is confidence interval of 95%, the calculated sample

size was 211. Attrition of 15% was added to make it up to 243.

Ethical approval was obtained from the Nnamdi Azikiwe University Teaching Hospital Medical and health research ethics committee (Approval number NAUTH/CS/66/VOL.13/VER. III/51/2020/016) and adherence to the tenets of the Declaration of Helsinki was strictly observed. Participation was voluntary, and non-participation or non-response to any of the questions did not affect the care received by the patient.

All eligible participants gave a written informed consent. Inclusion criteria were consenting out-patients registered to be seen in the eye clinic during the period of study who were 16 years and above. Exclusion criteria were non-consenting patients and those under 16 years of age. Data generated was analysed with Statistical Package for the Social Sciences (SPSS) version 23 software and statistical calculations generated to validate findings as necessary.

3. Results

A total of 243 patients were interviewed. There were 111 males (45.7%) and 132 females (54.3%). The age range was 16 to 90 years. The mean age was 44.2 ± 18.1 years and modal age was 60 years. Religious professions were Christianity 235 (96.7%), Indigenous traditional religion 5 (2.1%), Islam 2 (0.8%) and 1 (0.4%) did not to have any religion.

Highest educational attainments were 74(30.5%) primary education, 95(39.1%) secondary education, and 30(12.3%) tertiary education, while 44 (18.1%) had no formal education. The occupations of the respondents were farming 33(13.6%), trading 52(21.4%), professionals 25(10.3%), artisans 18(7.4%) and unskilled labourers 6(2.5%). Students at all levels made up 70(28.8%) of the respondents. Twenty-seven (11.1%) were unemployed, while 12(4.9%) were retired. Majority 140 (57.6%) of the participants had mild or no visual impairment, while 40 (16.5%) were blind. The patients' visual acuities are presented in Table 1.

Category**	**Presenting Acuity***	
	No	**%**
Mild or No Visual Impairment (≥6/18)	140	57.6
Moderate Visual Impairment (<6/18- ≥6/60)	40	16.5
Severe Visual Impairment (<6/60- ≥3/60)	23	9.4
Blindness (<3/60)	40	16.5
Total	243	%

*Presenting visual acuity in persons was defined using the presenting vision in the better eye
**Categorization based on the 10th revision of the International classification of diseases (ICD-10).

Table 1: Presenting visual acuity (better eyes of patients).

The presenting symptoms and ocular diagnoses are shown in Table 2 and Table 3 respectively.

Presenting symptom*	**Frequency (%)**
Defective vision	127(46.5)
Eye pain/discomfort	113 (41.4)
Distorted appearance (lumps, growth, ptosis)	14 (5.1)
Red eye	13(4.8)
Eyeball protrusion	6 (2.2)

*17 patients had more than one symptom

Table 2: Presenting symptoms of the patients.

Ocular Diagnoses	**Frequency (%)**
Ocular surface disease	83 (34.2)
Ametropia/presbyopia	55 (22.6)
Cataract	43 (17.7)
Glaucoma	23 (9.5)
Vitreo-retinal disease	21 (8.6)
Ocular trauma	17 (7.0)
Adnexal/orbital disease	6 (2.5)
Uveitis	4 (1.6)

*5 patients had more than one diagnosis

Table 3: Main ocular diagnoses of patients.

There were 40 (16.5%) patients who reported a positive family history of blindness, while 203(83.5%) had no family history of blindness. Table 4 shows patients fear concerning their eye disease and treatment. Majority of the participants were fearful of losing their sight 103(42.4%) and the future implications of current eye disease 47(19.3%), while 42 (17.3%) had no fear of their eye disease or treatment.

Fears concerning current eye disease	Frequency /percentage
Loss of vision	103(42.4)
Future implications of current disease	47(19.3)
No fears	42(17.3)
Finance inadequacy to manage the disease	24(9.9)
Effect of disease on social, work and family commitments	16(6.6)
Capacity of care providers to treat condition	8(3.3)
Fear that disease is of supernatural origin and beyond capacity of doctors to treat	3(1.2)
Total	243 (100.0)

Table 4: Depicting fears/concerns of participants about their diseases.

Fears of current illness was significantly associated with blindness (P=0.005), and specific diagnoses like cataract and glaucoma (P=0.001). Symptoms of eye pain and defective vision are significantly associated with fear as demonstrated in this study (P= 0.049).

Based on the patients' responses, emotional reaction to current illness were grouped as no reaction, anxiety, depression, and anger. This is shown in Figure 1. Depression was significantly associated with blindness (P= 0.005).

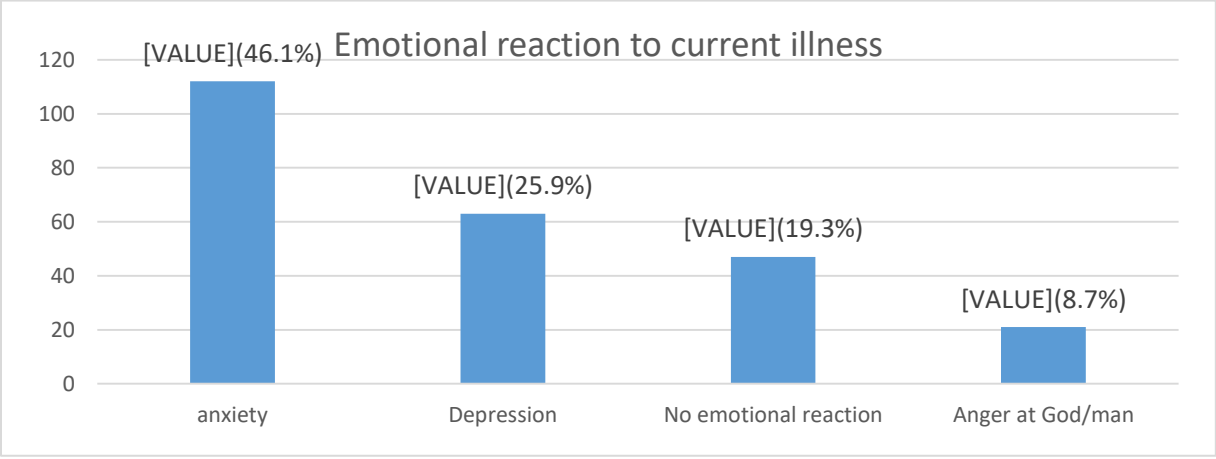

Figure 1: Emotional reaction to current illness.

Effects of eye disease on the quality of life which was categorized as no effect, minimal effect, moderate effect, and major effect is shown in Figure 2. Forty-nine (20.2%) patients had major effect of their eye diseases on their quality of life.

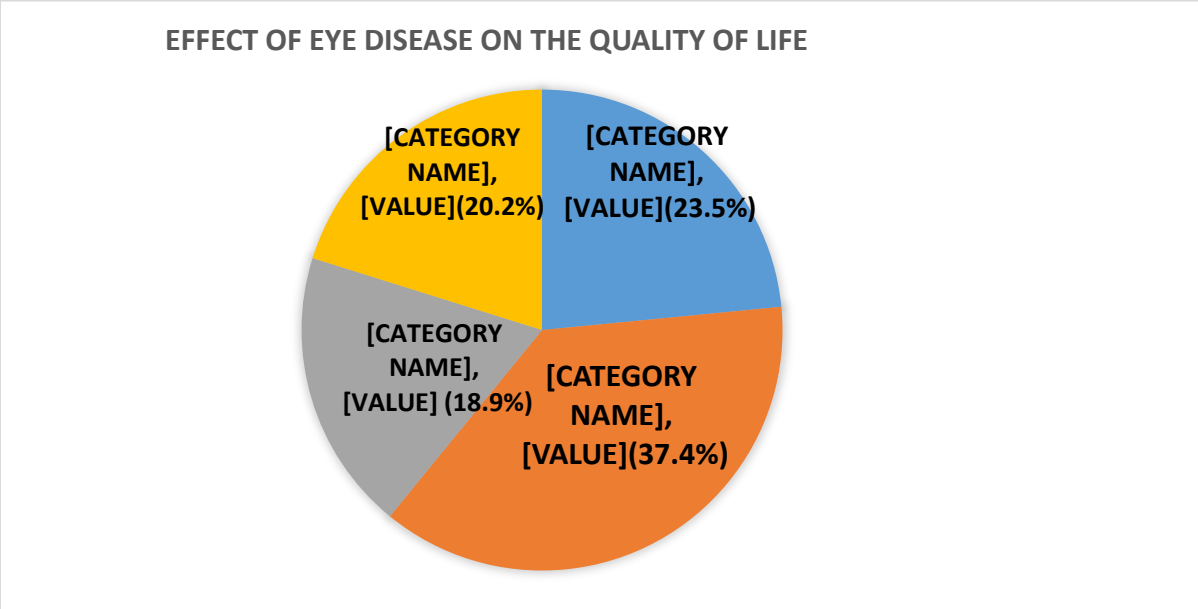

Figure 2: Effect of eye disease on the quality of life.

Negative emotions on eye diseases were significantly associated with educational level above secondary level (P=0.003), and specific diseases such as cataract and glaucoma (0.019). Eighty-six (35.4%) patients developed insomnia, anorexia, and loss of concentration because of their ocular illness.

Family history of blindness was significantly associated with manifestations of insomnia, anorexia, and loss of concentration (P=0.013).

4. Discussion

Demographic characteristics of these patients showed their mean age to be 44.2 ± 18.1 years and mode of 60 years, with an age range of 16 to 90 years. Results obtained are not age specific but applies to a broad spectrum of adults of differing age group. The gender distribution, educational attainment, occupation, and religion reflect the demographic characteristics of the catchment area of the hospital. Presenting symptoms as tabulated in 'Table 2' disclosed that defective vision 127(52.3%) and ocular pain/discomfort 113(46.5%) were the major symptoms presented by these patients. This reflects disease pattern presented in 'Table 3'.

The disease pattern compares with that observed in other studies of tertiary eye care centers in Nigeria [27, 28]. Result from this study can therefore reasonably be inferred to be valid for such other places.

Visual complaints were noted as the major reasons for presenting to the general ophthalmology clinic. Findings from the National Survey of Blindness and Visual Impairment in Nigeria and a study by Adigun et al in Ibadan both noted the potency of visual failure in degrading quality of life in Nigeria [29, 30]. Studies in other countries document poor vision as prominent cause of depression and anxiety [20, 21]. These results compare with findings in current study

where visual acuity of less than 3/60 was significantly associated with life style changes, depression and fears concerning current illness (P= 0.005).

Ocular discomfort and pain, the second most prominent symptoms noted in these patients, induced apprehension in affected persons. Ocular pain and discomfort were perceived as red flags signalling serious and potentially blinding conditions. They negatively affected normal pattern of living and caused psychological distress.

Similar observations have been found among people with chronic illness that physical pain resulted in psychological distress, depression, anxiety and insomnia [31, 32].

4.1 Quality of life

Diseases may alter quality of life because of partial ability or total inability to perform previously normal undertakings. Successful management of such diseases may be measured by how much quality of life has been restored or at least improved from morbid state. Measurement of quality of life using criteria like quality-of-life scale (QOLS) developed for a particular culture or country like is not universally applicable to all cultures and places. as priorities are different among different cultures and countries [33].

In this study, eye diseases were found to exert negative effect on the quality of life in 186 (76.5%) patients, and there was no difference between people with various educational attainments and occupation on reported effects of eye diseases on quality of life.

4.2 Fears

Fears among these survey participants documented in 'Table 4' showed that only 17.3% of eye clinic patients reported no fears or apprehension concerning their diseases. These were persons with normal visions, no ocular pain, or who presented with mostly ocular surface irritation and presbyopia. The rest presented with varieties of fears as tabulated in "Table 4". Fears reported are borne out of the fact that established institutional systems to cater for the sick or blind are inadequate. Most times, the cost of management of eye diseases are solely borne by affected people.

They are usually not able to finance their medical bills due to poverty and the result may be blindness. Experiences in the environment of the study are that profound degradation of vision and blindness lead to of loss of jobs, income, and poverty. Usually in these places, spouses would desert affected people as poverty supervenes, and social degradation ensues. Outcome of this social degradation is destitution as attested by many blind beggars on the streets of Nigeria and other poor countries of Africa. Symptoms of eye pain and defective vision are understandably significant causes of fear as demonstrated in this study (P= 0.049).

4.3 Negative emotions

In "Figure 1", depression, anxiety, and anger at God are emotional responses declared by these patients. These emotional reactions were so intense in 35.4% that it resulted in insomnia, anorexia, or loss of concentration.

Cause of these reactions may include discomfort occasioned by the disorders including resulting quality of life depreciation, absence of resources to effectively manage the disease, feared consequences of the disease including blindness and the implication of blindness in the study environment. In current study in which predominant complaints were of visual defect and ocular pain, it is not surprising that predominant responses were these negative emotions of depression, anxiety and anger at God or someone as were reported by 196 (80.7%) patients.

This concurs with reports of other studies where these symptoms were associated with negative emotions in patients [20-23]. Indeed, De Leo et al reported that previously stable individuals can profoundly deteriorate psychologically from impairment of vision resulting in suicides and attempted suicides [34].

People of education level above secondary level were significantly more likely to exhibit negative emotion with regards to eye diseases (P=0.03). This is probably because sight loss may be more consequential to their quality of life and occupations. Specific diagnoses such as glaucoma and cataract were more likely to elicit negative emotional reaction on directional measures with symmetrical test P=0.019.

4.4 Manifestations of emotional reactions

In 35.4% of the respondents, insomnia, loss of appetite and loss of concentration were observed. People who had a blind family member were significantly more likely to exhibit these complaints than those without a family history of a blind person (P=0.013). This is probably because people with a blind family member have observed first-hand the consequences of blindness in a family and thus have developed fear and a strong aversion to it. The findings of this study compare with negative emotional manifestations found by other studies in association with eye diseases and other forms of disorders [1, 10-12, 15, 16, 22, 23]. Health centers must recognize that a significant proportion of their eye patients have psychological and emotional effects resulting from their diseases. Eye care centers should incorporate protocols to assess negative emotional states and manage them. Collaboration mental health professionals should be encouraged especially in the management of those with impaired vision or blindness.

Some studies strongly recommend development of mental health services and referral services for psychological support and care of people who are at risk of losing their sight or have lost a substantial portion of vision [11, 26, 34].

5. Conclusion

Patients presenting with eye diseases have been shown to have fears and negative emotional responses to their disease. The negative emotions could be intense, and the intensity directly related to severity of symptoms of discomfort, pain, and degree of visual loss. This psychological distress is present among all age groups and people of various educational attainments. Therefore, no patient with eye disease should be considered well managed without addressing the mental co-morbid aspects of their disease. Collaboration with mental health specialists and referrals should be incorporated into eye care services.

Conflict of Interest

Authors declares no conflict.

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References

1. Mendive J. Emotional distress : an alternative primary care perspective. Ment Health Fam Med 6 (2009): 125-127.
2. Scott AW, Bressler NM, Ffolkes S, et al. Public Attitudes About Eye and Vision Health. JAMA Ophthalmol 134 (2016): 1111-1118.
3. Turner J, Kelly B. Emotional dimensions of chronic disease. West J Med 172 (2000): 124-128.
4. Azari AA, Barney NP. Conjunctivitis: A Systematic Review of Diagnosis and Treatment. JAMA 310 (2013): 1721-1729.
5. Song Y, Kinouchi R, Ishiko S, et al. Hypertensive choroidopathy with eclampsia viewed on spectral-domain optical coherence tomography. Graefes Arch Clin Exp Ophthalmol 251 (2013): 2647-2650.
6. Porcar E, Pons AM, Lorente A. Visual and Ocular effects from the use of flat-panel displays. Int J Ophthalmol 9 (2014): 881-885.
7. Abdull MM, Sivasubramaniam S, Murthy GVS, et al. Causes of blindness and Visual Impairment in Nigeria: the Nigeria National Blindness and Visual Impairment Survey. Invest Ophthalmol Vis Sci [Internet]. The Association for Research in Vision and Ophthalmology 50 (2009): 4114-4120.
8. Okosa MC. Ocular Health Status of Secondary School children in Enugu Nigeria (1998).
9. Ezepue U. Magnitude and causes of low vision in Anambra State of Nigeria (result of 1992 point prevalence survey). Public Health 111 (1997): 305-309.
10. Agorastos A, Skevas C, Matthaei M, et al. Depression, Anxiety, and Disturbed Sleep in Glaucoma. J Neuropsychiatry Clin Neurosci 25 (2013): 205-213.
11. Lundmark PO, Trope GE, Shapiro CM, et al. Depressive symptomatology in tertiary-care glaucoma patients. Can J Ophthalmol [Internet]. Canadian Ophthalmological Society 44 (2009): 198-204.
12. Tastan S, Iyigun E, Bayer A, et al. Anxiety, depression, and quality of life in turkish patients with glaucoma. Psychol Rep 106 (2010): 343-357.
13. Wilson MR, Coleman AL, Yu F, et al. Depression in Patients with Glaucoma as Measured by Self-report Surveys. Ophthalmology 109 (2002): 1018-1022.
14. Robertson N, Burden ML, Burden AC. Psychological morbidity and problems of daily living in people with visual loss and diabetes : do they differ from people without diabetes? Diabet Med 23 (2006): 1110-1116.
15. Hahm B, Shin Y, Shim E, et al. Depression and the vision-related quality of life in patients with retinitis pigmentosa. Br J Ophthalmol 92 (2008): 650-654.
16. Pinquart M, Pfeiffer JP. Psychological well-being in visually impaired and unimpaired

individuals: A meta-analysis. Br J Vis Impair 29 (2011): 27-45.

17. Panda S, Nayak SK, Camo B, et al. Illumination of the Melanopsin Signaling Pathway. Science 307 (2005): 600-604.
18. Wang H, Zhang Y, Ding J, et al. Changes in the Circadian Rhythm in Patients with Primary Glaucoma. PLoS One 8 (2013): 1-7.
19. Hassell JB, Lamoureux EL, Keeffee JE. Impact of Age Related Macular Degeneration on quality of Life. Br J Ophthalmol 90 (2006): 593-597.
20. Owsley C, McGwin G, Scilley K, et al. Effect of Refractive Error Correction on Health-Related Quality of Life and Depression in Older Nursing Home Residents. Arch Ophthalmol 125 (2007): 1471-1477.
21. Ishii K, Kabata T, Tetsuro O. The Impact of Cataract Surgery on Cognitive Impairment and Depressive Mental Status in Elderly Patients. Am J Ophthalmol 146 (2008): 404-409.
22. Zhang X, Bullard KM, Cotch MF, et al. Association Between Depression and Functional Vision Loss in Persons 20 Years of Age or Older in the United States, NHANES 2005-2008. JAMA Ophthalmol 131 (2013): 573-581.
23. Li M, Gong L, Sun X, et al. Anxiety and Depression in Patients with Dry Eye Syndrome. Curr Eye Res 36 (2011): 1-7.
24. Wang SY, Singh K, Lin SC. Prevalence and Predictors of Depression Among Participants With Glaucoma in a Nationally Representative Population Sample. Am J Ophthalmol [Internet]. Elsevier Inc. 154 (2012): 436-444.
25. Mabuchi F, Yoshimura K, Kashiwagi K, et al. High Prevalence of Anxiety and Depression in Patients With Primary Open-angle Glaucoma. J Glaucoma 17 (2008): 552-557.
26. Su C, Chen JY, Wang T, et al. Risk factors for depressive symptoms in glaucoma patients : a nationwide case-control study. Graefes Arch Clin Exp Ophthalmol 253 (2015):1319-1325.
27. Adeoti CO, Akanbi A, Abioye-Kuteyi EA, et al. Pattern of Eye Diseases in a Tertiary Hospital in Osogbo, Southwestern Nigeria. Asian J Res Reports Ophthalmol 3 (2020): 1-8.
28. Oladigbolu KK, Abah ER, Chinda D, et al. Pattern of Eye Diseases in a University Health Service Clinic in Northern Nigeria. Niger J Med 21 (2012): 334-337.
29. Tran HM, Mahdi AM, Sivasubramaniam S, et al. Quality of life and visual function in Nigeria : findings from the National Survey of Blindness and Visual Impairment. Br J Ophthalmol 95 (2011): 1646-1651.
30. Adigun K, Oluleye TS, Ladipo MM, et al. Quality of life in patients with visual impairment in Ibadan: a clinical study in primary care. J Multidiscip Healthc 7 (2014): 173-178.
31. Wilson KG, Eriksson MY, D'Eon JL, et al. Major Depression and Insomnia in Chronic Pain. Clin J Pain 18 (2002): 77-83.
32. Woo AKM. Depression and Anxiety in Pain. Rev Pain 4 (2010): 8-12.

33. Burckhardt CS, Anderson KL. The Quality of Life Scale (QOLS): Reliability, Validity, and Utilization. Health Qual Life Outcomes1 (2003): 1-7.

34. De Leo D, Hickey PA, Meneghel G, et al. Blindness, Fear of Sight Loss, and Suicide. Psychosomatics 40 (1999): 339-344.