

Pattern of Ocular Disorders among Attendees of a Mental Health Clinic, Lautech Teaching Hospital, Ogbomoso

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ABSTRACT

Visual impairment appears to be yet another component of physical health that is overlooked and ignored in mentally ill individuals. This study aimed to assess the pattern of ocular disorders among attendees of a mental health clinic in LAUTECH Teaching Hospital. This was a hospital-based descriptive cross-sectional study that took place between September and November 2019. One hundred and fifty-seven consecutive respondents were selected using a simple random sampling technique. A pre-tested semi-structured interviewer-administered questionnaire was used. The data was analyzed using SPSS version 23.0. The male-to-female ratio was 1:1.2, the age range was 18-69 years, and a mean age of 40.7 ± 14.3 years. Antipsychotic 32(20.4%) was the most frequently prescribed psychotropic class. Most of the respondents, 138 (87.9%), had a previous history of previous eye complaints in the past five years. There was a statistically significant association ($p < 0.001$) between visual impairment among respondents and previous history of poor distance vision. The prevalence of visual impairment was 24(15.3%), while blindness was 1(0.6%). Normal vision was recorded in 132(84.1%), moderate visual impairment in 24(15.3%), and 1(0.6%) was blind. The prevalence of ocular disorders was 99(63.1%) with multiple responses, while 58(36.9%) had normal ocular findings. The common ocular disorders were refractive errors/presbyopia 68 (43.3%), pterygium 34 (21.7%), allergic conjunctivitis 32 (20.1%), cataract 31 (19.7%) and glaucoma 8(5.1%). Respondents with normal ocular findings had the lowest mean duration of exposure to the psychotropic treatment (1.0 years). The majority of respondents had good vision. The predominant eye disorders were refractive errors/presbyopia, pterygium, and cataracts.

Keywords: Visual Impairment, Ocular Disorders, Attendees of Mental Health Clinic.

INTRODUCTION

The World Health Organization (WHO) states that 80% of all visual impairment and blindness worldwide can be treated or prevented.¹ Visual impairment appears to be yet another component of physical health that is overlooked and ignored in mentally ill individuals.²

Patients under psychiatric treatment may have a visual impairment and any other type of eye disease, just like the general populace.³ The mentally ill population remains a vulnerable group that needs the attention of eye care providers.⁴ Considering the impact of distant visual impairment on

daily functioning, mentally ill patients need to be screened for impaired vision as part of their health assessment.⁵

Globally, about 450 million individuals suffer from mental disorders, making it one of the leading causes of illness and disability.⁶ Based on NCS-R data in the USA, it was estimated that the prevalence of mental illness, excluding substance use disorders, was 24.8% in adults.⁷ Among Nigeria's 171.8 million people, an estimated 20%–30% suffer from mental illness.⁸

The possible cause of ocular disorders among mentally ill patients could be due to illness-related factors and the effects of psychotropic medications.²

These ocular adverse effects are eyelid pigmentation, pigment deposits in the cornea and lens, corneal edema, cataracts, and dry eye syndrome due to the anticholinergic effects of Clozapine and tricyclic antidepressants (TCA).⁹ This

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includes accommodation interference, uveal tract disorders, angle-closure glaucoma, and pigmentary retinopathy. Other side effects are ocular dystonia, eye movement disorder, impaired perception of colour, and impaired discrimination of contrasts.⁹

Long-term use of phenothiazines, lithium, and Chlorpromazine resulted in pigmentation of the eyelids, interpalpebral conjunctiva, cornea, and lens.¹⁰ Also, the anticholinergic effects of tricyclic antidepressants (TCAs) and selective serotonin reuptake inhibitors (SSRIs) affect accommodation, leading to blurred near vision.^{9,11} Cataracts from antipsychotics, mainly from high dosages of Chlorpromazine or thioridazine, also predominantly due to pigment deposits.¹¹ Additionally, some atypical antipsychotics, such as Olanzapine and Clozapine, have a diabetogenic effect, which risk of diabetes and also increases the risk of cataractous changes in the lens.¹²

Acquired myopia and angle-closure glaucoma have been frequently linked with topiramate. Pigmentary and degenerative retinopathy are related to high dosages of Clozapine, Chlorpromazine and thioridazine.¹⁰

Studies done among hospitalized mentally ill patients in Nigeria, Kenya, and China showed that the prevalence of ocular disorders was 54.6%, 41.3%, and 33%, respectively.^{3,5,13}

Also, studies conducted in Nigeria and Gambia showed that the significant eye disorders among their respondents were refractive errors and cataracts. In contrast, ocular disorders in the China study were primarily refractive errors.^{3,4,13} In contrast, a study in Nairobi reported that lens and corneal deposits accounted for 42.7% of the ocular disorders among their respondents.⁵ The studies conducted in Hong Kong and the United Kingdom showed a high prevalence of impaired distant vision, 75% and 65%, respectively.^{14,15} However, a study conducted among psychiatric inpatients in China reported that the prevalence of distant visual

impairment among the respondents was 12.6%.⁵

The study population is a vulnerable minority group in our larger population.^{4,16} Few studies have examined the pattern of ocular disorders among attendees of a mental health clinic. This study has provided data for their ocular disorders in this environment. The study emphasizes the importance of including eye tests in periodic comprehensive health assessments for mental health clinic patients. These data will aid in developing new policies to promote eye health among this population.

MATERIALS AND METHODS

The research was conducted in the LAUTECH Teaching Hospital's Mental Health and Eye Clinic. The hospital is a state-owned teaching hospital in Ogbomoso, Oyo State, South West Nigeria.

A descriptive cross-sectional study of 157 consecutive attendees of a mental health clinic between 18-65 years. These respondents were selected using a simple random sampling technique.

The inclusion criteria were those who were on psychotropic medications for at least three months and who gave written informed consent. The exclusion criteria included those with a diagnosis of organic brain disorders such as epilepsy and those who were too ill or agitated to cooperate with ocular examinations.

The sample size was calculated using a single proportion formula. The sample size was 157, based on a 54.6% prevalence,³ a 5% margin of error, a 95% confidence level, and a 10% non-response rate.

Ethical approval was obtained from the hospital ethical review committee with protocol number LTH/OGB/EC/2017/152. Further approval was obtained from consultants in charge of each clinic. Written informed consent was obtained from all respondents and caregivers after the purpose of the study was explained to them and their right to withdraw at any time. The

participant's data were kept confidential and anonymized.

Respondents' data were collected using a pretested semi-structured questionnaire. The questionnaires were interviewer administered. Section A dealt with the socio-demographic data of the respondents, Section B assessed the pattern of ocular disorders, and Section C was for the ocular examination.

Respondents' case notes were retrieved to establish their diagnosis, medication, and duration of treatment.

A HOTV chart (tumbling E) was used to assess distance visual acuity at 3 meters, while near visual acuity was measured using a British N near chart at 40cm. Visual acuity assessment was done unaided and aided (pinhole/spectacle correction).

The presenting visual acuity for distance in a better eye was categorised using the World Health Organization (WHO) criteria for visual impairment and blindness: normal/near normal $\geq 6/18$, moderate visual impairment ($<6/18-6/60$), severe ($<6/60-3/60$), and blindness ($<3/60$).¹⁷ Presbyopia was defined as difficulty in reading near chart N8 optotype at 40cm for those aged 40years and above.¹⁸

Refractive error was defined as an error of 0.5 diopters or more in either eye using a spherical equivalent refraction.¹⁹ Refraction was conducted only for those whose visual acuity improved with a pinhole, which was done at the eye clinic. Anterior segment examination was done with the use of a pen torch (both in dim illumination and bright illumination) and with a slit lamp biomicroscope. Intraocular pressure was measured using a Perkins application tonometer. With the aid of a direct ophthalmoscope and a 78D non-contact lens coupled with a slit lamp biomicroscope, the posterior segment was checked.

Both eyes of the respondents were dilated using guttae 1% tropicamide with 2.5% phenylephrine hydrochloride (trophene) to assess the posterior segment and peripheral retinal comprehensively. The

peripheral retina was examined using binocular indirect Ophthalmoscopy with a +20D lens.

Data was analysed using the SPSS version 23.0 database. Descriptive data were obtained and presented in tables and charts. Statistical significance was determined by a p-value of 0.05. Binary logistic regression analysis examined the relationship between independent and dependent variables. In order to ensure precision, 95% confidence intervals were used. The Chi-Square test determined the statistical significance of connections between categorical variables ($p < 0.05$).

RESULT

A total of 165 consecutive attendees of the mental health clinic were recruited. However, 5 declined consents for the study and were excluded from participation. One hundred and sixty (160) questionnaires were administered, 158 were returned, and a person failed to respond to any of the questions. One hundred fifty-seven were analysed, yielding a 98.8% response rate.

The male-to-female ratio was 1:1.2, with an age range of 18-65 years and a mean age of 40.7 ± 14.3 years. Also, most of the respondents, 138 (87.9%), have a history of ocular problems in the last five years [Table 1]. Most frequently prescribed psychotropic class was antipsychotic 32(20.4%) [Table 2]. One hundred and thirty-eight (87.9%) respondents had ocular problems in the last 5 years, while 19 (12.1%) had no ocular problem [Table 3].

Based on the WHO classification, 132 (84.1%) had normal visual acuity, 24 (15.3%) had moderate visual impairment, and no severe visual impairment was seen [Table 3]. However, blindness was recorded in a respondent (0.6%) was due to uveitic cataract.

There was a statistically significant association ($p = < 0.001$) between visual impairment among respondents and previous history of poor distance vision [Table 4].

The prevalence of ocular disorders among the respondents was 63.1% [Figure 1]. Ninety-nine (63.1%) respondents had a diagnosis of at least one ocular disorder, and 58 (36.9%) had normal ocular findings [Figure 1].

Among the respondents, sixteen types of ocular disorders were found; some had more than one diagnosis [Table 5]. The common ocular disorders were refractive errors/presbyopia 68 (43.3%), pterygium 34 (21.7%), allergic conjunctivitis 32 (20.1%),

cataract 31 (19.7%) and glaucoma 8(5.1%) [Table 5]. Among the major ocular disorders was refractive errors/presbyopia 68 (43.3%), and among the least was anterior lens deposit 1 (0.6%) [Table 5]. Respondents with normal ocular findings had the lowest mean duration of exposure to the psychotropic treatment (1.0 years) [Table 5]. Also, anterior lens deposit was noticed in a respondent with average duration of 1.2 years on psychotropic [Table 5].

Table 1: Gender, Age and Past Ocular Problem among Respondents

Variables	Frequency (n)	Percentage (%)
Gender		
Female	101	64.3
Male	56	35.7
Male to Female ratio	1:1.2	
Age Group (Years)		
≤40	82	52.2
>40	75	47.8
Mean Age ± SD	40.7±14.3	
Past Ocular Problem in the last 5 years		
Yes	138	87.9
No	19	12.1
Types of Ocular Problem		
Itching	37	26.8
Poor distant Vision	21	15.2
Poor Near Vision	21	15.2
Red Eye	19	13.8
Foreign Body Sensation	15	10.9
Eye Pain	10	7.2
Trauma	9	6.5
Tearing	3	2.2
Double Vision	2	1.5
Twitching	1	0.7
Cause of Eye Problem		
Un-intentional	100	100.0
Self-Inflicted	0	0.0

Table 2: Treatment Received by Respondents

Specific treatment	No of respondents	Percentage (%)
Antipsychotics only	32	20.4
Antipsychotics and ECT	28	17.8
Antipsychotic and Other drugs	26	16.6
Antidepressant only	20	12.7
Antidepressant and Other drugs	18	11.5
Antipsychotics and Antidepressant	15	9.6
Antipsychotics and Mood stabilizer	8	5.1
Anxiolytic only	6	3.8
Mood stabilizer only	4	2.5

*Other drugs =Anti-hypertensive drugs and Oral hypoglycemic drugs.

Table 3: Presenting Visual Acuity (in the better eye) among Respondents.

Severity	Visual Acuity	
	Frequency (n)	Percentage (%)
Normal Vision ($\geq 6/18$)	132	84.1
Moderate VI ($< 6/18 - 6/60$)	24	15.3
Severe VI ($< 6/60 - 3/60$)	0	0.0
Blindness ($< 3/60$ -NPL)	1	0.6
Total	157	100.0

NPL= No Perception of Light.

Table 4: Relationship between Respondents' Past Ocular Problems and Visual Impairment/Blindness

Variable Past ocular problem	Visual impairment/blindness		Odds ratio	<i>p</i> value
	Yes n (%)	No n (%)		
Itching				
Yes	3 (1.9)	34 (21.7)	0.34	0.089
No	22 (14.0)	98 (62.4)		
Red eye				
Yes	2 (1.3)	17 (10.8)	0.508	0.529
No	23 (14.7)	115 (73.2)		
Poor distance vision				
Yes	15 (9.6)	12 (7.6)	9.67	* <0.001
No	10 (6.4)	120 (76.4)		
Foreign body sensation				
Yes	2 (1.3)	15 (9.6)	0.678	1.00
No	23 (14.7)	117 (74.4)		

OR (odds ratio), **p*-value < 0.05 indicate statistical significance.

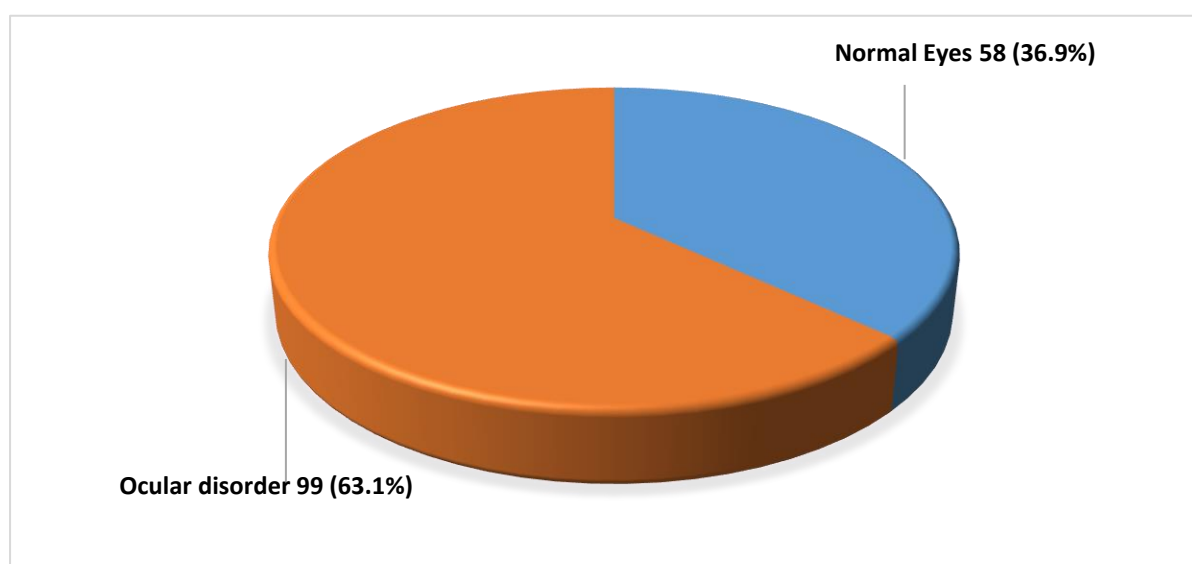
**Figure 1: Prevalence of Ocular Disorders among Respondents.**

Table 5: Ocular Findings and Mean Duration on Psychotropic Treatment among Respondents

Ocular findings	Frequency (n)	Percentage (%)	Mean duration on treatment (years)
Normal	58	36.9	1.0
Refractive error/Presbyopia	68	43.3	1.3
Pterygium	34	21.7	1.2
Allergic Conjunctivitis	32	20.1	1.3
Cataract	31	19.7	1.3
Glaucoma	8	5.1	1.3
Pingeculum	8	5.1	1.2
Pseudophakia	4	2.5	1.6
Corneal opacity	3	1.9	1.4
Uveitis	2	1.3	2.3
Ptosis	2	1.3	1.4
ARM D	2	1.3	2.0
Chalazion	1	0.6	1.3
Lid scar	1	0.6	1.2
Squint	1	0.6	1.2
Chorioretinal scar	1	0.6	1.5
Anterior lens pigment	1	0.6	1.2

Multiple responses allowed *Colour desaturation test was negative*

DISCUSSION

In the studied population, the gender distribution was biased towards females (64.3%). The finding was consistent with a study in Kaduna, Nigeria.³ Some studies have corroborated that women had a higher rate of use of mental health services.^{20,21} The finding could be attributed to pressure women experienced from their multiple responsibilities, discrimination, abuse, and poor coping mechanisms.^{20,21}

In this study, the frequently prescribed psychotropic medication class was antipsychotic (20.4%). Antipsychotics have been described as mainly used in psychotropics to treat mental illness.²² In addition to psychotropics, 44 respondents (28.1%) also took antihypertensives and oral hypoglycemics. Individuals with mental illness have been reported to have a higher prevalence of common illnesses, such as diabetes mellitus, compared to the general population.¹⁵

In this study, more than four-fifths

of the respondents had previous eye problems in the last five years. The typical reported past ocular complaints were itching, poor distant vision, and poor near vision. To corroborate this finding, a study done among psychiatric inpatients in a mental health unit showed that most (55%) respondents also had past ocular complaints.¹⁵

There was no respondent with a self-inflicted ocular injury in the past five years in this study. The result was similar to that seen in Kaduna's and Kenya's studies.^{3,13} However, cases of self-inflicted eye injuries have been reported among males with mental illness.²³

This study showed that nearly two-thirds of the respondents had normal vision according to the WHO classification of visual impairment and blindness. The finding was close to the findings in the Kaduna study, which reported that more than two-thirds of their respondents also had normal vision.³ Furthermore, a study in Gambia found that more than four-fifths of respondents had normal vision.⁴

In this study, 24 (15.3%) respondents and 1(0.6%) were visually impaired. The result was similar to what was observed in Kaduna's (22.4%) and China's (12.6%) studies, where a similar cut-off was used in categorizing visual impairment ($\geq 6/18$).^{3,5} This contrasts with the Hong Kong study, where 75% of the respondents were visually impaired. The high prevalence of visual impairment in their study could be due to the cut-off used in categorizing visual impairment ($\geq 6/12$) compared to be used in this index study and other similar studies. The prevalence of blindness in this study was 0.6%. The finding was similar to what was observed in other studies done in Africa among mentally ill individuals.^{3,13}

This study found the prevalence of ocular disorders to be 63.1%, with most respondents having multiple diagnoses. In African studies, Nairobi (41.3%) and Kaduna (54.6%) had a lower prevalence of ocular disorders.^{3,13} Meanwhile, the prevalence of ocular in a study done in Australia was higher than reported in this study (82.6%).²² The higher prevalence of ocular disorders in this study could be attributed to the small sample size.

Refractive error (43.3%), pterygium (21.7%), allergic conjunctivitis (20.1%), and cataracts (19.7%) were the predominant ocular disorders found in this study. The finding was close to the observed patterns in similar studies in Nigeria, Gambia, and the United Kingdom.^{3,4,15} However, a Nairobi study found that lens and corneal deposits (42.7%) and an Australian study reported cataracts and corneal pigmentation were the most common ocular disorders among mentally ill individuals.^{13,25} The higher percentage of refractive error than cataracts seen in this study could be explained by the mean age of the respondents (relatively young). The high prevalence of pterygium and allergic conjunctivitis were also observed among the respondents. Numerous conjunctiva diseases have been observed

among individuals living in warmer regions.^{24,26,27}

Respondents who had normal ocular findings had the least average exposure duration to psychotropics (1 year). The finding was similar to a study done in Kaduna, which reported that attendees of mental health clinics with normal ocular findings had the shortest average duration on psychotropic medications.³

Deposition on the anterior lens capsule (a side effect of an antipsychotic) was noticed in a respondent taking psychotropic medication for an average of 1.2 years. Deposition on the lens, with the involvement of the cornea, was also observed in some studies.^{13,25} American Psychiatric Association guidelines recommended that ocular examination be performed every two years for patients under 40 and once a year for those over 40 years.²⁸

Limitations

1. Being a cross-sectional study, the ocular disorders observed among the respondents could not be attributed to the effect of the psychotropic drug since no baseline ophthalmic examination was performed, prior to the study and on the controlled group.
2. The sample size is small

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Conflicts of Interest:

There are no conflicts of interest.

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