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ORIGINAL ARTICLE

Willingness to Accept Ocular Surgeries by Adults in a Community of Edo State, Nigeria

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ABSTRACT

Background: The acceptance of ocular surgery by patients can be influenced by a range of factors which encompass concerns about the surgical procedure, potential complications, financial implications and more. This study assessed willingness to accept ocular surgeries among adults in an urban community in Edo State, Nigeria.

Methodology: This was a descriptive cross-sectional study carried out among 308 adult male and female respondents in Evbomore, an urban community in Edo State between January and December 2023. Data collection was done using interviewer-administered structured questionnaires and was analysed using the Statistical Package for the social sciences version 25.0.

Results: The mean age (SD) of the respondents in this study was 35 (12.7) years. Most of the respondents (84.4%) were aware that ocular surgery is a treatment option in the management of eye conditions however, willingness to accept ocular surgery as a treatment option was quite low (24.0%). Skill level (p=0.018) and educational status (p=0.024) were significant predictors of willingness to accept this surgical treatment option.

Conclusion: The findings show a low willingness to accept ocular surgeries while identified determinants include skill level and educational status. These determinants should be harnessed by health workers in planning intervention programs such as health education campaigns and the provision of subsidized services through outreaches.

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INTRODUCTION

Eye health is essential to achieve many of the Sustainable Development Goals (SDGs) and ocular surgery, or eye surgery, holds significant importance due to its role in correcting vision problems, treating eye diseases, and addressing injuries or abnormalities affecting the eyes. Ocular surgeries are viable in the repair of eye injuries and preserve or restore vision in glaucoma, diabetic retinopathy, and retinal detachments.[1,2] Ocular surgeries, like LASIK

and cataract surgery, are pivotal for correcting refractive errors, improving visual acuity and preventing blindness. Procedures like blepharoplasty enhance the appearance of the eyelids, while reconstructive surgeries address congenital abnormalities, tumors, or deformities and significantly improve an individual's quality of life by reducing reliance on corrective lenses, relieving discomfort, and preserving or restoring vision.[3]

Worldwide, the leading causes of vision impairment and blindness are refractive errors and cataracts and these can be managed using ocular surgery which has been recommended as the primary treatment for varied ocular cases in Africa. However, global estimates show that only 36% of people with a distance vision impairment due to refractive error and only 17% of people with vision impairment due to cataracts have received access to an appropriate intervention.[4] Added to challenges with access to care is the documented unwillingness of patients to accept ocular surgeries, leading to the low rates of ocular surgery in Nigeria.[5]

One of the contributory factors is the low rate of acceptance of ocular surgery among eligible patients as shown by studies estimating acceptance rates of 48% in Tanzania for glaucoma surgeries, 32.5% in Benin City Nigeria, 8.2% found in Ile-Ife and 46.8% in Onitsha.[5-8] However, a multi-center cross-sectional survey conducted in 10 centres in Lagos Nigeria found that over two-thirds (68.8%) of the patients were willing to accept surgery as a treatment option for glaucoma.[9] An Ethiopian report showed that about 55% of the participants were willing to pay for the surgery.[10] More than half of all cases of visual impairment are caused by cataracts, with limited access to eye surgery in certain regions such as Africa and India[11] Patients who do not accept surgery as a treatment option for cataracts as prescribed by Ophthalmologists will become blind over time and this remains the leading cause of blindness (51%) globally.[12-14] Many reports have shown that fear is one of the reasons for poor cataract surgery uptake worldwide.[15,16] The fear of surgery and uncertainty of surgical outcome are the most common uptake barriers.[17] Apart from these genuine fears, the situation in African society is made worse by ignorance of the processes involved in ophthalmic surgery. For instance, there is a belief that an ophthalmic surgeon brings out the eyeball from the eye socket before operating on it.[18] These fears abound in patients who remain in their communities and do not come to hospitals to be counseled/educated about their misconceptions. All these constitute barriers to the uptake of ophthalmic services and maybe some of the reasons why cataract surgical rate in Africa is the lowest worldwide.[19]

This community-based study is part of a larger study that assessed knowledge of and willingness to pay for ocular study among respondents. The findings regarding knowledge showed that although, 84.4% of respondents in the Evbomore community were aware of ocular surgeries, only 16.2% of participants had good knowledge of ocular surgeries.[20] The objective of this study was to assess willingness to accept

ocular surgery and its determinants among adults in Evbomore Community, Edo State, Nigeria.

METHODOLOGY

The study was carried out in Evbomore community, Ovia Local Government Area (LGA), Edo State. Ovia North-east LGA has an area of 2,301 km^2 and an estimated population of 587,661 using a population projection of 2.8% per annum.

This was a community-based descriptive cross-sectional study carried out among adults in Evbomore Community. The minimum sample size was calculated with the Cochran formula for a single proportion using a prevalence of 14.3% from a previous study.[21] Addition of 10% non-response rate increased the minimum sample size to 308.

TABLE 1: SOCIO-DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS

VARIABLE	FREQUENCY (n=308)	PERCENT
Age(years)		
< 20	35	11.4
21– 30	89	28.9
31 – 40	87	28.2
41 – 50	54	17.5
51 – 60	35	11.4
> 60	8	2.6
Mean Age ± S.D = 35.9 ±12.7		
Sex		
Male	136	44.2
Female	172	55.8
Religion		
Christianity	296	96.1
Islam	9	2.9
African Traditional Religion	3	1.0
Marital Status		
Married	180	58.4
Single	112	36.4
Widowed	10	3.2
Others	6	2.0
Occupation*		
Skill level 0	38	12.3
Skill level 1	42	13.6
Skill level 2	186	60.4
Skill level 3	11	3.6
Skill level 4	31	10.1
Educational Status		
No formal Education	7	2.3
Primary	23	7.5
Secondary	173	56.2
Tertiary	105	34.1
Monthly Income (Naira)		
< 30,000	93	30.2
30,000 – 60,000	130	42.2
60,000 – 90,000	59	19.2
> 90,000	26	8.4

*Skill levels was based on the occupation of respondents using the modified International Labour Organization (ILO)

A multi-stage sampling technique was used for this study.

Stage 1: Ovia North-east Local Government Area (LGA) was selected using a simple random sampling method by balloting from the 18 Local Government Areas in Edo State.

Stage 2: There are 13 political wards in Ovia North-east LGA, Oluku ward was selected using a simple random sampling technique by balloting.

Stage 3: Oluku ward has 11 communities, a simple random technique by balloting was used to select Evbomore community.

Stage 4; Using a cluster sampling technique, this community was divided into two clusters A and B. Simple random sampling method by balloting was used to select cluster B and all the respondents were recruited into the study until the sample size was reached.

A pretested structured interviewer-administered questionnaire was used for data collection. The key research questions were: how willing are adults in Evbomore community to accept ocular surgery? What are the factors that affect their willingness to accept ocular surgery? The outcome variables were the proportion of respondents who are willing to accept ocular surgery as a treatment modality and the identification of the determinants of willingness to accept ocular surgery.

The occupation of respondents was grouped using the modified International Labour Organization (ILO) Classification into skill levels 0-4.[22] Skill level 0 includes Students, Housewives, Retired and Unemployed individuals, skill level 1 includes Farmers, Cleaners, Bricklayer and Carpenters, skill level 2 includes Butchers, Bus drivers, Secretaries, Tailors, Shop sales assistants, Police officers, Hairstylist, Electricians and Motor vehicle mechanics, skill level 3 includes Shop manager, Laboratory technicians and Commercial sales representatives while skill level 4 includes Engineers, Secondary school teachers, Pharmacists, Musicians, Nurses, Computer system analysts.

Socio-economic status (SES) was grouped into low, middle, and high based on income, level of education, and occupation: Low SES included partially skilled or unskilled individuals with no formal education and a monthly income less than 30,000 Naira (using the Nigeria minimum wage of N30,000); middle SES were skilled individuals, with a primary or secondary level of education and income ranging between 30,000 – 60,000 Naira per month while, high SES included individuals with professional, managerial, or technical skills with a tertiary level of education and a monthly income of greater than 60,000 Naira per month.

The following was done to ensure integrity of the data; The data in the filled questionnaires were screened for completeness and accuracy of information, coded, cleaned, entered into IBM SPSS version 25.0 software and analysed.

Answers indicative of willingness were given a score of one (1) point, while a score of zero (0) was given for responses that did not signify willingness. The score for willingness to accept ocular surgeries was converted to percentages such that scores between 0 – 49.9% were regarded as not willing to accept ocular surgeries as a treatment modality and respondents with scores of 50% and above were categorized as willing to accept ocular surgeries as a treatment modality. The test of association was done using the Chi-square test. A p-value <0.05 was considered statistically significant. Logistic regression was done to determine independent predictors of willingness to accept ocular surgery and their measures of effect and confidence interval recorded [OR (95%CI)]. Results were presented using prose, frequency tables and figures.

Ethical approval was obtained from the Health Research Ethics Committee of the University of Benin Teaching Hospital (ADME 22/A/VOL.VII/148301188), Date of approval was 29/9/23.Informed consent was obtained from the respondents and confidentiality was ensured.

RESULTS

Three hundred and eight respondents participated in this study, giving a response rate of 100% and almost half of them 124 (40.3%) were between 18-30 years of age with a mean age of 35 ±12.7 years. Over half of the respondents 172 (55.8%) were females; the predominant ethnicity was Benin 120(39.0%) and the majority 296 (96.1%) were Christians. Over half 180 (58.4%) of respondents were married. Two-thirds of the respondents 186 (60.4%) were at skill level 2; (such as traders, receptionists, civil servants, bus drivers, farmers, and tailors) and more than half of the respondents 173 (56.2%) had a secondary level of education. Almost half of the respondents, 130 (42.2%), earned between 30,000 and 60,000 Naira monthly. (Table 1).

Over a quarter of respondents, 117 (38.0%) were somewhat willing to accept ocular surgery, 66(21.4%) respondents were very willing and 16(5.2%) respondents were extremely willing to accept ocular surgery. About 62(20.1%) were unwilling to accept ocular surgery at all. More participants were reportedly more willing to accept ocular surgery if counseled by an Ophthalmologist; there appeared to be a reduction in the degree of willingness from somewhat willing to extremely willing 19 (6.2%). However, 49 (15.9%) of the respondents were still unwilling to accept ocular surgery. (Table 2)

Only 24.0% of the respondents were willing to accept ocular surgery. (Table 3) The relationship between socio-demographic characteristics and willingness of respondents to accept ocular surgery revealed that respondents with skill level 4 had the highest likelihood to accept ocular surgery compared to those with skill level 1 who had the highest likelihood of unwillingness to accept ocular surgery (p=0.018). Respondents with tertiary education (33.3%) were more likely to be willing to accept ocular surgery compared to those with no formal education who were most

likely to be unwilling to accept ocular surgery (p=0.024). (Table 4) Skill level 2 was a significant determinant of willingness to accept ocular surgery (p=0.028,95% CI-0.197-0.910). (Table 5)

TABLE 2: WILLINGNESS TO ACCEPT OCULAR SURGERY AMONG RESPONDENTS AND ASSOCIATED FACTORS

Variables	Frequency(n=308)	Percent
Willingness to accept ocular surgery		
Not willing	62	20.1
Slightly willing	47	15.3
Somewhat willing	117	38.0
Very willing	66	21.4
Extremely willing	16	5.2
Willingness to accept on Specialist Recommendation		
Not willing	49	15.9
Slightly willing	43	14.0
Somewhat willing	108	35.1
Very willing	89	28.9
Extremely willing	19	6.2
Reasons for willingness (n=171)*		
Improve vision	98	57.3
Prolong life	34	19.9
Reduce pain	27	15.8
Cosmetic reason	12	7.0
Reasons for unwillingness (n=164)*		
Fear of blindness	75	45.7
Cost	66	40.2
Cultural belief	8	4.9
Objection from family	8	4.9
Religious belief	7	4.3
Ocular surgery less acceptable than other surgeries		
No	169	54.9
Yes	139	45.1
Reason for less acceptance of ocular surgery (n=317) *		
The eye is delicate	255	80.4
The eye cannot be replaced	62	19.6
Concern about potential risks associated with ocular surgery (n=308)		
Not concerned	11	3.5
Slightly concerned	19	6.2
Somewhat concerned	100	32.5
Very concerned	75	24.4
Extremely concerned	103	33.4

TABLE 4: SOCIODEMOGRAPHIC FACTORS AND WILLINGNESS OF RESPONDENTS TO ACCEPT OCULAR SURGERY

Variable	Willingness to accept ocular surgery		$\chi 2$	p-value
	Willing Freq (%)	Unwilling Freq (%)		
Age (years)			**Fisher's Exact**	
< 20	11(31.4)	24(68.6)	5.466	0.354
21 - 30	22(24.7)	67(75.3)		
31 -40	16(18.4)	71(81.6)		
41 -50	16(29.6)	38(70.4)		
51 -60	6(17.1)	29(82.9)		
>60	3(37.5)	5(62.5)		
Sex				
Male	27(34.6)	109(80.1)	2.541	0.281
Female	47(27.3)	125(72.7)		
Skill Level of Respondents				
Skill level 0	14(36.8)	24(63.2)	11.917	**0.018**
Skill level 1	7(16.7)	35(83.3)		
Skill level 2	37(19.9)	149(80.1)		
Skill level 3	3(27.3)	8(72.7)		
Skill level 4	13(41.9)	18(58.1)		
Educational Status				
No formal Education	1(14.3)	6(85.7)	9.399	**0.024**
Primary	7(30.4)	16(69.6)		
Secondary	31(17.9)	142(82.1)		
Tertiary	35(33.3)	70(66.7)		
Monthly Income				
< 30,000	25(26.9)	68(73.1)	1.632	0.652
30,000 – 60,000	28(21.5)	102(78.5)		
60000 – 90000	13(22.0)	46(78.0)		
> 90000	8(30.8)	18(69.2)		

DISCUSSION

This study assessed the willingness to accept ocular surgery among adults in an urban community. The mean age (SD) of the respondents was 35.9 (12.7) years. This is similar to the findings of a cross-sectional study done in Nepal, India on awareness and attitude to ocular diseases among adults where the mean age (SD) of respondents was 38.38 (15) years.[23]

Less than a third of the respondents of this study were willing to accept ocular surgery with those having a tertiary level of education being the most willing. Higher educational level improves access to information through multiple channels such as social media, the internet, and health care personnel, which in turn increases knowledge, an important factor that may determine willingness to utilize surgical treatment options. This is in tandem with a study on the awareness of and attitude towards glaucoma among adults in Osun State, South-west Nigeria which revealed that 73.2% of respondents were unwilling to accept surgery as a treatment option for glaucoma, and another cross-sectional study that explored the attitude to blindness among rural adults in Northern Nigeria where higher educational status was a positive association for willingness to accept surgical treatment options for eye diseases.[24-25]

Respondents who were professionals such as lawyers, engineers, teachers, nurses, accountants and managers, (Skill level 2) were more willing to accept ocular surgery compared to those with lower skill levels such as gardeners and cleaners, and this was statistically significant. This may be due to the financial implications of the procedure, which will be more affordable for skilled professionals who are more likely to earn more. This was similar to the findings of a study that showed that household earnings were positively correlated with treatment options for cataracts and the surgical reimbursement ratio for cataracts.[24] More males were willing to accept ocular surgery when compared with the females. This finding could be due to a higher risk tolerance in men compared to women, making them more receptive to surgical procedures. This is similar to the findings in a study done to appraise cataract surgical outreach in a tertiary hospital at the University of Benin Teaching Hospital, Nigeria where surgical uptake for cataracts was lower in females.[26] In addition, a study done to assess the Barriers to free Cataract Surgery willingness during a Surgical Outreach Camp in Nasarawa, Nigeria, had similar findings; females were less likely willing to accept free cataract surgical services.[27] This was in contrast to another study conducted in Manila, Philippines to assess the demographic and clinical profile of patients who underwent refractive surgery screening which revealed that mostly females accepted to be screened and were willing to accept the surgery compared to the males.[28] This contradictory finding may be because women tend to exhibit a greater level of concern and care regarding their health compared to men.

TABLE 5: LOGISTICS REGRESSION MODEL FOR WILLINGNESS TO ACCEPT OCULAR SURGERY

Variable	OR	95% Confidence Interval		p-value
		Min.	Max.	
Sex	0.666	0.387	1.144	0.141
Skill Level				
Skill level 0	1			
Skill Level 1	0.345	0.118	1.010	0.052
Skill Level 2	0.423	0.197	0.910	**0.028**
Skill Level 3	0.654	0.147	2.920	0.578
Skill Level 4	0.895	0.315	2.547	0.835
Educational Status				
No formal Education	1			
Formal Education	1.764	0.200	15.530	0.609

OR=Odds Ratio

In conclusion, most of the respondents in Evbomore community in Edo State were unwilling to accept ocular surgeries as a treatment option. The level of education of respondents as well as higher skill levels were significant determinants of willingness to accept ocular surgery. There is a need for Ophthalmologists and other relevant stakeholders to adopt methods such as health education via the media and community participation in ocular care protocols to improve willingness to accept ocular surgery as a treatment option among individuals in the community and optimize eye health.

Findings from this study provide insights into the value placed on surgical treatment modalities for eye diseases and can serve as baseline data that can guide clinicians and other relevant stakeholders on appropriate and targeted intervention methods to optimize eye health.

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