

Original article

Predictors of willingness to accept glaucoma surgery among glaucoma patients at a quaternary hospital in Ghana

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ARTICLE INFO

Keywords

Glaucoma surgery
Glaucoma
Predictors
Willingness

ABSTRACT

Purpose: Glaucoma, an optic neuropathy and major cause of avoidable irreversible blindness worldwide, has public health implications for the quality of life of affected individuals. Surgery is usually indicated when medical treatments fail or as primary treatment in severe disease. Anecdotally, willingness to accept glaucoma surgery among patients at the Lions International Eye Centre (LIEC), Korle Bu Teaching Hospital (KBTH) is low. This study thus sought to determine the predictors of willingness to accept glaucoma surgery among glaucoma patients at the LIEC, KBTH.

Materials and methods: This was a cross-sectional, hospital-based study among adult patients with glaucoma at the LIEC, KBTH from July 2022 to February 2024. Data were analyzed using SPSS version 26. Descriptive and inferential statistics were performed on the data. P-values <0.05 were considered statistically significant.

Results: We included 240 participants, consisting of 122 (50.8%) females and 118 (49.2%) males. The majority (180, 75.0%) were aged ≥ 48 years. Ninety-eight (40.8%) had lived with glaucoma for ≥ 5 years. Most participants (149, 62.1%) were willing to accept surgery as a treatment option. Fear of surgery (53, 22.1%) and blindness (50, 20.8%) were reasons provided for non-acceptance of surgery. Educational level, residential area, and family history of glaucoma were associated with knowledge about glaucoma ($p < 0.05$). Male gender (AOR = 2.0; CI = 1.0–3.3; $p = 0.036$) and presence of comorbidities (AOR = 0.4; CI = 0.2–0.7; $p = 0.002$) were predictors of willingness to accept glaucoma surgery.

Conclusions: Most glaucoma patients at the Korle Bu Teaching Hospital were willing to accept glaucoma surgery. Male gender and presence of comorbidities predicted willingness to accept glaucoma surgery. Consequently, there is a need for increased education on the necessity of glaucoma surgery.

1. Introduction

Glaucoma remains the second highest cause of blindness worldwide after cataract, and is the leading global cause of irreversible blindness [1]. It results in an impaired quality of life and increased economic burden [2,3]. At an estimated global prevalence of 64.3 million cases, glaucoma is responsible for about 8.4 million cases of blindness [1].

Affected persons with glaucoma in developing countries, such as Ghana, are at an increased risk of glaucoma blindness unlike those in developed countries [4]. This may be attributed to an earlier age at onset

of glaucoma, more aggressive course, poor access to care, high cost of medication, poor adherence to treatment and higher prevalence rate in Africans and African-derived populations [5].

Early detection and prompt treatment are essential to the management of glaucoma to prevent the development of untoward complications [6]. Currently, medical, surgical and laser therapies are the available treatment options for persons with glaucoma. Initially, a single or a combination of topical antiglaucoma agents is employed [7]. Surgical management is subsequently indicated when these aforementioned therapies fail to achieve the desired intraocular pressure (IOP).

Abbreviations: GHS, Ghana Cedis; KBTH, Korle Bu Teaching Hospital; LIEC, Lions International Eye Center; TEM, Traditional Eye Medications; USD, United States Dollars.

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<https://doi.org/10.1016/j.jfop.2025.100177>

Received 20 December 2024; Received in revised form 29 April 2025; Accepted 4 June 2025

Available online 13 June 2025

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Trabeculectomy - the gold standard surgical treatment for glaucoma - has been advocated as the best treatment for glaucoma in Africa, owing to challenges of continuous medical treatment, such as affordability, availability, and adherence to therapy [7,8]. Trabeculectomy is often combined with the use of antimetabolites such as Mitomycin-C and 5-Fluorouracil to reduce the occurrence of bleb fibrosis and post-operative scarring [9].

Successful surgical treatment of glaucoma leads to long term control of IOP, nonetheless, its output is low in Africa with its acceptance varied across the continent [10,11]. This may be attributed to various factors including eye care providers, patients, and health systems at large [12]. Factors related to eye care providers include: inadequate skill of ophthalmologists, difficulties with postoperative care, and the inability to provide a cure [13]. Some of the patient factors accounting for a low surgical output of glaucoma surgeries include: fear of vision loss, possible failure of surgery resulting in multiple surgeries, and the exorbitant costs associated with them [7]. The reluctance of patients toward surgery may also be explained by fear of loss of remaining vision when trabeculectomy fails [14]. Health system-related factors include: inadequate medication and equipment, high cost of treatment, and the increasing need for training of ophthalmologists [7].

Currently, Ghana remains one of the most affected countries globally with high prevalence of glaucoma [15]. However, not much is known about the reasons for the low uptake of glaucoma surgeries at the Lions International Eye Centre (LIEC) of the Korle Bu Teaching Hospital (KBTH) - which is one of the major health facilities for the management of glaucoma and the largest referral site for eye diseases in Ghana. Understanding the predictors of willingness to accept glaucoma surgeries is key to developing interventions for mitigating these predictors to facilitate increased uptake of glaucoma surgeries across health facilities in Ghana and, thus, improving the management of glaucoma. Consequently, the purpose of this study was to examine predictors of willingness to accept glaucoma surgeries among persons with glaucoma attending the LIEC, KBTH.

2. Materials and methods

This was a cross-sectional study of consenting adults with glaucoma, aged 18 years and above, at the LIEC, KBTH, from July 2022 to February 2024. Using an expected prevalence from a similar hospital based study in Ghana [16], a minimum sample size of 134 participants was calculated using the Cochran's formula [17]. In a bid to reduce the impact of missing data and provide a more precise estimate for the predictors of willingness to accept glaucoma surgery, the minimum sample size was increased to 240 during the data collection process.

We included participants with confirmed diagnosis of glaucoma, those with indications for glaucoma surgery (trabeculectomy), and those with no previous glaucoma surgery. Cases with co-existing psychiatric conditions and previous history of glaucoma surgery were excluded from this study. Patients meeting the inclusion criteria were selected by total enumerative sampling. Such participants were approached and the objectives of the study were explained to them after being seen by their eye doctors. Diagnosis of glaucoma was confirmed from clinical notes and on ocular examination by specialists.

A well-structured and validated questionnaire was administered to study participants by trained interviewers after written informed consent was obtained. The collection instrument was previously pre-tested among 15 patients with glaucoma from another eye clinic and recorded a Cronbach's alpha of 0.80 for reliability assessment.

The study variables collected were grouped into: demographic characteristics, clinical characteristics, socio-economic characteristics, knowledge of glaucoma, acceptance of glaucoma surgery and self-assessment of health status. The demographic characteristics included: age (in years), sex, educational level, marital status, occupation, location of residence, religious affiliation, duration of glaucoma, family history of glaucoma, treatment of glaucoma and presence of

comorbidities. Socio-economic characteristics included: income level (the amount of money earned by participants within a month), enrollment in a health insurance scheme and monthly expenses on glaucoma treatment.

The monthly income level of participants was defined as low [500 GHS (33.9 USD) – 4999 GHS (339.1 USD)], middle [5000 GHS (339.2 USD) – 8999 (610.5 USD)] and high income [$\geq$ 9000 GHS (610.6 USD)]. All United States Dollars (USD) equivalents for Ghana cedis (GHS) were calculated using the Bank of Ghana weighted median rate of 1 USD = GHS 14.74 as at 19th December, 2024 [18]. The national daily minimum wage, at the time of the current study, was GHS 18.15, resulting in a national average monthly minimum wage of GHS 490.05 (USD 33.25) [19,20].

In this study, knowledge of glaucoma referred to understanding glaucoma as a disease, its causes, risk factors, signs, its effects on the eye and management of the condition. A questionnaire on knowledge of glaucoma from the National Eye Institute (NEI) was adapted in assessing participants' knowledge about glaucoma [21]. A total of fifteen questions relating to patients' understanding about glaucoma as a disease, its causes, risk factors, signs, its effect on the eye and management, were presented to participants. For each question, participants were required to select the most appropriate response (Yes or No). Each question was assigned a score of one (1). Total scores were aggregated for each participant. Scores from 11 to 15 were described as "good knowledge", 6 to 10 as "average knowledge" and "poor knowledge" was ranked with a score less than 6. Illiterate participants were assisted by a translator in order to comprehend the questions in their preferred local language.

Willingness in this study referred to the readiness and expressed intent of participants to accept glaucoma surgery as an option for the management of glaucoma. Participants had "yes" or "no" answers as options to select from. Furthermore, they were asked if their stance would change if surgery was provided at no cost.

Data was analyzed using SPSS version 26 software (IBM Corp., Armonk, NY). Descriptive statistics were analyzed and presented as mean $\pm$ standard deviations and percentages. The level of knowledge about glaucoma was assessed and presented as "good knowledge", "average knowledge" or "poor knowledge" based on the scores 11–15, 6–10, and less than 6 respectively. Tests of statistical significance associations between socio-demographic and clinical variables and level of knowledge about glaucoma and willingness to accept glaucoma surgery were determined using the Chi square and Fisher's exact tests. Predictors of willingness to accept glaucoma surgeries among participants were analysed using binary logistic regression analysis. Odds ratios and their corresponding confidence intervals were presented. P-values less than 0.05 were classified as statistically significant.

3. Results

3.1. Socio-demographic and economic characteristics of persons with glaucoma presenting at the LIEC, KBTH

Of the 240 participants, a female preponderance (122, 50.8%) was observed. Majority of the participants (180, 75.0%) were aged 48 years and above. One-hundred and ninety one participants (191, 79.6%) had a minimum of a high school education. Ninety-eight (40.8%) have had glaucoma for five or more years. Ninety-two participants (38.3%) had a family history of glaucoma. Majority of participants (133, 55.4%) had other comorbidities such as: hypertension (120, 50%), diabetes mellitus (30, 12.5%), asthma (8, 3.3%) and sickle cell disease (5, 2.1%) (Table 1). Other information pertaining to the socio-demographic characteristics of the study participants can be found in Table 1.

A little more than half of the participants (138, 57.5%) had a low income level. Majority (106, 45%) spent between GHS 150 (10.18 USD) and GHS 449 (30.46 USD) a month on glaucoma medications. Most participants (214, 89.2%) were actively enrolled in health insurance schemes (Table 2).

Table 1
Sociodemographic characteristics of persons with glaucoma in KBTH.

Demographic characteristics	N	%
All cases	240	100.0
Age, years		
18–27	15	6.3
28–37	16	6.7
38–47	29	12.0
48 and above	180	75.0
Gender		
Male	118	49.2
Female	122	50.8
Educational level		
Primary school	29	12.1
High school	99	41.3
Tertiary	92	38.3
No formal education	20	8.3
Marital status		
Single	45	18.8
Married	124	51.7
Divorced or widowed	71	29.5
Occupation		
Skilled worker	46	19.2
Non-skilled worker	52	21.7
Retired	109	45.4
Unemployed	33	13.8
Religious affiliation		
Christianity	208	86.7
Islam	31	12.9
Traditional	0	0.0
None	1	0.4
Location of residence		
Rural	46	19.2
Urban	194	80.8
Duration of glaucoma		
Up to one year	50	20.8
Two years	46	19.2
Three years	24	10.0
Four years	22	9.2
Five years or more	98	40.8
Family history of glaucoma		
Yes	92	38.3
No	148	61.7

Abbreviations: N = Frequency.

Table 2
Economic characteristics and monthly expenses of persons with glaucoma in Korle Bu Teaching Hospital.

Characteristics	N	%
All cases	240	100.0
Income level		
Low	138	57.5
Middle	92	38.3
High	10	4.2
Monthly glaucoma medication expenses		
Less than GHS 150	40	16.9
GHS 150–449	106	44.7
GHS 450–749	54	22.8
GHS 750–1000	27	11.4
More than GHS 1000	10	4.2
Health insurance		
Yes	214	89.2
No	26	10.8

Abbreviations: GHS = Ghana Cedis, N = frequency.

Almost all participants (217, 90.4%) in this study had used anti-glaucoma medications (Fig. 1).

3.2. Association between glaucoma knowledge and sociodemographic characteristics of participants

Educational level ($p = 0.002$), area of residence ($p = 0.028$) and family history of glaucoma ($p = 0.019$) were associated with knowledge

about glaucoma (Table 3).

3.3. Willingness to accept glaucoma surgery as a treatment option

One hundred and forty-nine participants (62.1%) were willing to accept surgery as a treatment option. Age, sex, occupation, and presence of comorbidities were associated with willingness to accept glaucoma surgery ($p < 0.05$) (Table 4).

The majority of the participants (127, 52.9%) expected an improvement in their eyesight, while 51 (21.3%) hoped for a reduction in their intraocular pressures. Other reasons given for willingness to accept surgery, included stopping the use of glaucoma medications after surgery (48, 20.0%) and no longer needing to attend the glaucoma clinic (19, 7.9%). Additionally, two participants (0.8%) believed that they would be cured by undergoing a glaucoma surgical procedure.

Out of the 240 participants, 91 (37.9%) were not interested in undergoing glaucoma surgery. Fear of surgery (53, 22.1%) and fear of going blind (50, 20.8%) were the most common reasons given for their refusal of surgery. Some (24, 10.0%) believed there would be no improvement in their condition while 11 (4.6%) cited difficulties with the postoperative period as a reason for declining glaucoma surgery. Other reasons provided included: high cost of surgery (20, 8.3%), a negative report from someone who has had a glaucoma surgery (17, 7.1%) and a perceived lack of skilled expertise (6, 2.5%). The majority (165, 68.8%) of participants were willing to undergo glaucoma surgery if provided at no cost.

3.4. Predictors of willingness to accept glaucoma surgery among persons with glaucoma attending Korle Bu Teaching Hospital

In a univariate analysis, gender, occupation and presence of comorbidities were identified as predictors of willingness to accept glaucoma surgery. In a multivariate regression analysis, gender and presence of comorbidities were found to be predictors of willingness to accept glaucoma surgery. Males were two-times more willing to accept glaucoma surgery compared to females (AOR = 2.0; CI = 1.0–3.3; $p = 0.036$) and participants with comorbidities were less likely to have glaucoma surgery compared to those with no comorbidities (AOR = 0.4; CI = 0.2–0.7; $p = 0.002$) (Table 5).

4. Discussion

This study highlights predictors of willingness to accept glaucoma surgeries in persons with glaucoma attending a quaternary teaching hospital in Accra, Ghana. To the best of our knowledge, this is the first published work in Ghana that describes willingness to accept glaucoma surgery. Contrary to our expectations, most of the participants (62%) interviewed were willing to accept surgery as a treatment option. Fear of surgery (22.1%) and blindness (20.8%) were reasons given for non-acceptance of surgery in 37.9% of participants. Male participants were more willing to accept surgery while the presence of co-morbidities was associated with willingness to accept glaucoma surgery.

The study found that more than half of participants (51.6%) had good knowledge of glaucoma. This is comparable to a study in Kunming, China, which also found that 51.61% of participants had good knowledge [22]. This is particularly encouraging, since good knowledge of glaucoma is essential to early presentation for treatment and subsequent compliance to management plans [22,23]. In addition, a further 46.3% of participants in this study had a moderate knowledge of glaucoma. These results, generally, highlight overall sufficient knowledge of glaucoma and advocate for continued public health education on glaucoma and other ocular conditions.

Participants' educational level, urban residence and family history of glaucoma were factors significantly associated with knowledge of glaucoma ($P < 0.05$, all cases). This is not surprising as attaining higher levels of education facilitates good health information-seeking

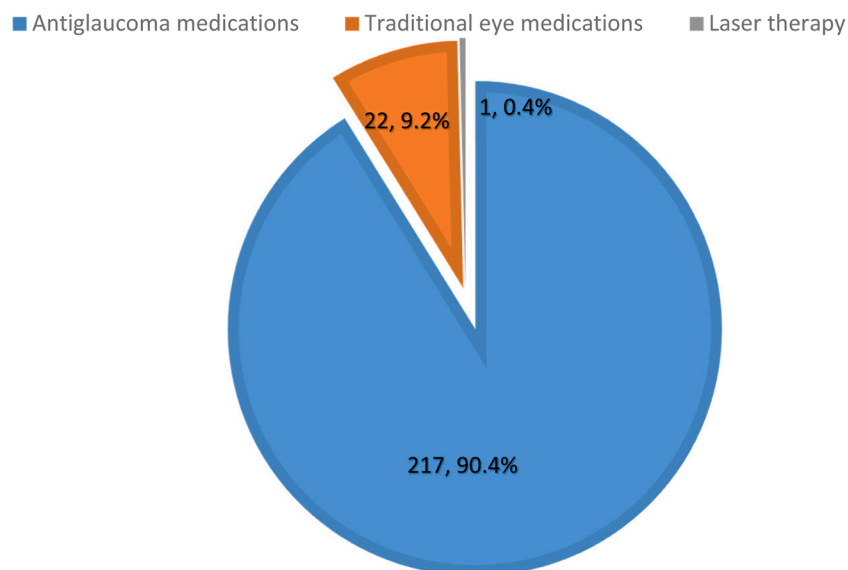


Fig. 1. A chart showing the treatment modalities used by glaucoma patients at KBTH.

Table 3

Demographic characteristics and glaucoma knowledge among persons with glaucoma in Korle Bu Teaching Hospital (N = 240).

Characteristics	N	Level of knowledge			χ^2	df	P-value
		Poor (0–4)	Average (5–9)	Good (10–14)			
All cases	240	5 (2.1%)	111 (46.2%)	124 (51.7%)			
Age, years					5.104	6	0.531
18–27	15	0	4	11			
28–37	16	0	8	8			
38–47	29	0	16	13			
48 or above	180	5	83	92			
Gender					0.175	2	0.916
Male	118	2	55	61			
Female	122	3	56	63			
Educational level					20.57	6	0.002*
Primary school	29	0	20	9			
High school	99	2	48	49			
Tertiary	92	2	29	61			
No formal education	20	1	14	5			
Marital status					9.803	6	0.133
Single	45	0	16	29			
Married	124	3	54	67			
Divorced	19	1	9	9			
Widowed	52	1	32	19			
Occupation					8.801	6	0.185
Skilled worker	46	1	22	23			
Non-skilled worker	52	1	31	20			
Retired	109	1	45	63			
Unemployed	33	2	13	18			
Income level					1.851	4	0.763
Low	138	3	67	68			
Middle	92	2	41	49			
High	10	0	3	7			
Location of residence					7.17	2	0.028*
Rural	46	2	28	16			
Urban	194	3	83	108			
Presence of comorbidities					0.492	2	0.782
Yes	133	2	62	69			
No	107	3	49	55			
Family history of glaucoma					7.924	2	0.019*
Yes	92	1	33	58			
No	148	4	78	66			
Treatment of glaucoma					0.535	2	0.765
Yes	237	5	109	123			
No	3	0	2	1			

Abbreviations: N = Frequency. *Statistically significant association.

Table 4
Demographic and economic characteristics and willingness to accept glaucoma surgery of persons with glaucoma attending Korle Bu Teaching Hospital.

Characteristics	N	X ²	df	P-value
All cases	240			
Age, years				
18–27	15	7.845	3	0.049*
28–37	16			
38–47	29			
48 or above	180			
Gender				
Male	118	8.172	1	0.005*
Female	122			
Educational level				
Primary school	29	1.679	3	0.642
High school	99			
Tertiary	92			
No formal education	20			
Marital status				
Single	45	1.202	3	0.752
Married	124			
Divorced	19			
Widowed	52			
Occupation				
Skilled worker	46	10.942	3	0.012*
Non-skilled worker	52			
Retired	109			
Unemployed	33			
Income level				
Low	138	2.313	2	0.315
Middle	92			
High	10			
Duration of glaucoma				
Up to one year	50	2.728	1	0.134
Two years	46			
Three years	24			
Four years	22			
Five years or more	98			
Presence of comorbidities				
Yes	133	9.592	1	0.002*
No	107			
Monthly glaucoma medication expenses				
Less than GHS 150	40	5.884	4	0.208
GHS 150–449	106			
GHS 450–749	54			
GHS 750–1000	27			
More than GHS 1000	10			

* Statistically significant association. Abbreviations: df = Degrees of Freedom, GHS = Ghana Cedis. N = Frequency.

behaviour in patients and allows them to better understand information pertaining to their condition [24]. The association of participants living in urban areas with good knowledge of glaucoma could be explained by the fact that participants living in an urban area like Accra would most likely have opportunities of higher education when compared to those in rural settings, and would more likely have access to health information through social media [25]. Those with first degree relatives also affected by glaucoma may have been exposed to information about glaucoma beforehand, and as such, would be more knowledgeable than their counterparts.

Owing to the progressive nature of glaucomatous damage to the optic nerve, there is the need for early detection of glaucoma and immediate initiation of IOP-lowering treatment. These include the use of medications, laser treatment and surgery. Although the use of medical therapy is very common in Africa, affordability of drugs and difficulty with adherence to rigid treatment are some of the challenges encountered [26,27]. These result in poor control of glaucoma in these areas. Surgical management, in the form of trabeculectomy, is preferred as it avoids these major challenges [26,27]. Despite the huge glaucoma burden in Africa and the suggestion of trabeculectomy as a preferred surgical modality, there is a low uptake of glaucoma surgery in Africa [28]. Reasons cited for this low uptake include reluctance of

Table 5
Univariate and multivariate analysis of predictors of willingness to accept glaucoma surgery among persons with glaucoma attending Korle Bu Teaching Hospital.

Variables	OR	95% CI	P-value	AOR	95% CI	P-value
Age (years)						
18–27	0.5	0.1–2.3	0.375	0.6	0.1–2.9	0.492
28–37	0.3	0.1–1.3	0.107	0.3	0.1–1.3	0.100
38–47	1.1	0.4–3.2	0.867	0.7	0.2–2.4	0.549
48 or above	Reference					
Gender						
Male	2.2	1.3–3.7	0.005*	2.0	1.0–3.3	0.036*
Female	Reference					
Occupation						
Skilled worker	1.2	0.5–2.9	0.733	1.1	0.4–2.9	0.812
Non-skilled worker	2.8	1.3–6.1	0.009*	1.9	0.8–4.3	0.148
Retired	2.7	1.0–7.0	0.047*	2.0	0.7–5.8	0.192
Unemployed	Reference					
Presence of comorbidities						
Yes	0.4	0.2–0.7	0.002*	0.5	0.3–0.9	0.029*
No	Reference					

* Significant predictors of willingness to accept glaucoma surgery.

ophthalmologists to treat glaucoma with surgery, and refusal of glaucoma surgery by persons with glaucoma [26,27,29].

This study revealed that 62.1% of participants were willing to accept surgery as a treatment option. This increased to 69% if the surgery was offered free of charge. This is much higher than the researchers expected but was similar to findings in Lagos by Adekoya et al. who reported that 69% of their participants (208) were willing to accept surgery [8], but higher than reported in other studies conducted in Nigeria: Ile Ife (8.1%) [30], Ekiti State (17.4) [31], Benin City (32.5%) [10], and in Tanzania (48.0%) [28]. This higher rate may be attributed to a response bias due to the face-to-face method of data collection. It may also be attributed to prior education of participants by trained ophthalmic nurses and ophthalmologists on the benefits of glaucoma surgery in managing glaucoma. The LIEC offers trabeculectomy training to glaucoma surgeons from the West Africa sub region once a year. Four of such courses have been conducted since 2019. Surgeries are provided at a subsidized rate. It is possible that beneficiaries of the surgery, who may be off medication or on fewer medications, informed others of the benefits of the procedure. This could explain the increased willingness of more participants to undergo trabeculectomy, with the percentage likely to rise if the surgery is offered free of charge. This high acceptance of trabeculectomy is encouraging and may result in better managed cases with a reduction in glaucoma blindness. The increase in surgical output will greatly benefit ophthalmology residency training programs and improve the quality of healthcare provision in centres through capacity building.

Major reasons provided by those who were interested in glaucoma surgery included an improvement in their eyesight (52.9%), a reduction of their intraocular pressures (21.3%) and no need for continued use of glaucoma medications (20.0%). These reasons provided suggest a good understanding of the treatment benefits of glaucoma surgery by some. This alludes to good glaucoma education of these participants by the hospital staff. There is the need, however, to educate patients that glaucoma surgery unlike cataract surgery may not improve vision.

Among the participants who were not interested in glaucoma surgery, the main reasons for refusal were fear of surgery (22.1%) and fear of blindness (20.8%). The reasons for refusal are similar to findings from a study in Lagos, Nigeria where 47.7% of patients were afraid of surgery and 29.2% were afraid of blindness [8]. This current study however had a lower percentage of participants identifying fear as a reason for refusal. This disparity in the percentage may be explained by good

education of the participants by the dedicated glaucoma nurses and doctors about surgery as a treatment option for glaucoma as well as the study type. This was a single center study whereas the study from Nigeria was a multicenter study. Other reasons provided for non-acceptance of surgery included: belief that there would be no improvement in visual status after surgery (10.0%) and a high cost of surgery (8.3%).

Our findings also demonstrate that male gender and the presence of comorbidities were predictors of willingness to accept glaucoma surgeries. From the study, males were two-times more willing to have glaucoma surgery compared to females. Also, participants with comorbidities were less likely to have glaucoma surgery compared to those with no comorbidities. The study from Lagos, however, did not find any statistically significant relationship between gender and comorbidities and willingness to accept glaucoma surgeries [8]. This disparity is difficult to explain. Males being more willing to accept surgery may be due to the fact that males are generally more configured to take risks than females. Most of the participants in this current study were over 48 years and likely to be traumatized by the burden of having comorbidities and glaucoma. Over 57% of the study participants were low-income earners. The additional cost of surgery in addition to medical therapy of the comorbidities may be a disincentive for these patients. Quite encouragingly, 16 more participants were willing to accept surgery if it were provided at no cost. This highlights the influence of costs of surgery on patient health decision-making.

Although most participants (98.8%) were on antiglaucoma medications either as monotherapy or in combined forms, 22 participants (9.2%) admitted to using traditional eye medications (TEM). Traditional eye medications are biologically based therapies and practices as well as herbal and non-herbal concoctions often prescribed by traditional healers for achieving desired ocular effects [32]. An increasingly common trend now, some patients opt for these medications to solve common ocular problems [33]. Adekoya et al. [8] found a statistically significant relationship between refusal to accept glaucoma surgery and the use of TEM. Our study did not test association between use of TEM and refusal of glaucoma surgery. The use of TEM results in delayed presentation, with patients presenting in advanced stages of the disease. They may also result in harmful physical effects upon instillation into the eye [34].

Most participants (57.5%) reported earning a low level of income. A considerable proportion of them (37.9%) spend more than GHS 500 (USD 33.92) in a month on glaucoma medications, owing to higher prices associated with the brands of drugs available, the number of different medications they require and how many times they need a replacement within a month. This places a great financial burden on them as they have to spend more than the national average monthly minimum wage on glaucoma medications alone. Even though most participants (89.2%) were enrolled on the National Health Insurance Scheme (NHIS), the costs of glaucoma medications and surgeries are not covered by the Scheme [35,36]. Consequently, the cost of glaucoma treatment is almost entirely out-of-pocket.

This study had some limitations. Although the study site used was the largest referral eye facility in the country, involving participants from other regions in the country would have provided more inclusive findings. This study, however, being the first of its kind in this subject area in Ghana, provides much-needed information to understanding glaucoma surgery acceptance in Ghana and forms a foundational basis for future multicenter studies in Ghana.

5. Conclusion

Most persons with glaucoma attending the Korle Bu Teaching Hospital were willing to accept surgery as a treatment modality. Predictors of willingness to accept glaucoma surgery included male gender and presence of comorbidities. These predictors should be taken into consideration when offering surgery to glaucoma patients at the centre.

CRedit authorship contribution statement

NNT, SIK and YAE had full access to all the data in the study and take responsibility for the integrity of the data and the accuracy of the data analysis. NNT and SIK conceptualized and designed the study. YAE, BA and SIK acquired, analysed, and interpreted the data. MJ mobilised clients and administered questionnaires, NNT, SIK, YAE, MJ and VAE wrote the original draft. NNT, MAP, BA, YAE and VAE did critical revision of the manuscript for important intellectual content. YAE and BA did statistical analysis. NNT and VAE supervised the study. All authors read and approved the final manuscript.

Informed consent and patient details

The study was conducted at the Lions International Eye Centre of the Korle-Bu Teaching Hospital from July 2022 to February 2024, with ethical approval from the Institutional Review Board of the Korle Bu Teaching Hospital (KBTH-ADM/00086/2022).

The authors declare that they obtained a written informed consent from the patients and/or volunteers included in the article and that this report does not contain any personal information that could lead to their identification.

Human and animal rights

The authors declare that the work described has been carried out in accordance with the Declaration of Helsinki of the World Medical Association revised in 2013 for experiments involving humans as well as in accordance with the EU Directive 2010/63/EU for animal experiments.

Data availability statement

The datasets generated during and/or analysed during the current study are available from the corresponding author on reasonable request.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper. Preliminary data of 120 patients was presented as a poster at the World Glaucoma Congress 2023 in Rome, Italy (PLB 024).

Acknowledgements

The authors acknowledge all nurses who assisted in the data collection process including all patients who volunteered as study patients.

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