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Factors associated with low drug compliance among patients attending the eye department at Jinja Regional Referral Hospital. A cross-sectional study.

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Abstract

Background.

Low drug compliance among patients is a global public health problem. This study assesses factors associated with low drug compliance among patients attending the eye department at Jinja Regional Referral Hospital.

Methodology.

A descriptive cross-sectional study was conducted on a sample of 100 participants attending the eye department at JRRH. Quantitative data were collected through semi-structured questionnaires from simple random samples of participants. Data analysis was done manually, and results were presented in the form of tables, charts, and figures.

Results:

The majority of the participants, 70(70%), were male, patients in the moderate age range of 26-35 and 36-40 years of age showed the highest compliance. Education levels significantly influenced compliance, with those of higher education levels having the highest compliance than those with lower levels, most especially those with primary education level 40(40%), who had the highest levels of low compliance. People who lived in distances greater than 50km from JRRH had the lowest test levels of low compliance, 7(7%), while those living in distances less than 5km showed the highest compliance levels, 50(50%). 61(61%) of the participants reported that healthcare providers had a negative attitude towards them.

Conclusion:

Demographic factors, poor and negative patients' perception, as well as patient-provider relationship, and other factors such as accessibility to health facilities, poverty, and educational levels impact the compliance of patients toward recommended treatment.

Recommendation:

There is a need to provide clearer and more accessible education, treatment, outreach, transport support, good communication, together with empathy, campaigns to create awareness, and regular follow-ups can help improve the compliance of patients.

Keywords: *Low drug compliance, Medication adherence, Ophthalmic patients, Jinja Regional Referral Hospital.*
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Background.

Low drug compliance is a global problem. A study carried out in the United States of America found that out of 1087 respondents who took part in the study, 50% of adults with chronic diseases such as glaucoma, diabetes, and arterial hypertension were not compliant with their treatments, which led to avoidable expenses, chronic visual impairment, and death. (Humbrto et al, 2023)

A study by L. Tamrat et al (2015) on low drug compliance in 135 patients with eye conditions found that patients with low medication adherence were faced with a higher rate of visual loss and increased health care costs. He also found out that a higher proportion of patients, especially those with glaucoma, had low compliance with their medication regimens. Similar results were observed in East Africa, out of 2101 respondents, the magnitude of low compliance to the recommended ocular medication was higher (31.64%) than expected. (Kibruyisfaw et al, 2024).

In Uganda, Nassanga Sarah (2023) stated that among 131 patients interviewed on drug compliance, 49.6% were not adhering to their prescribed drugs, hence recommended further studies to be carried out on the factors associated with drug compliance. Kanime Pauline (2023) carried out a similar study in Jinja Regional Hospital and revealed that (33-66%) of patients with arterial hypertension had low compliance with arterial hypertension drugs. Therefore, there is a need to identify the factors associated with low drug compliance among eye patients attending the eye department at Jinja Regional Referral Hospital.

Methodology.

Study Design

The study used a descriptive cross-sectional design because it takes a short period of time during data analysis and interpretation. It involved quantitative methods to examine the factors associated with drug compliance among eye patients attending the eye department at Jinja Regional Referral Hospital.

Study area

The study was carried out in Jinja Regional Referral Hospital, which is located in Jinja City along Baxi Road in the eastern part of the country.

Study population.

The study population was all patients with eye conditions on treatment attending the eye department at Jinja Regional Referral Hospital.

sample size determination

The sample size was determined using **Cochran's formula** below.

n= (Z^2pq) d^2

n= sample size

Z is the standard normal deviation estimated at 1.96(adapted from a Z distribution at a confidence interval.

P is the number of people with low drug compliance (target population). We therefore estimate it at 7%=0.07, which is the maximum. Q=1-7(1-0.07) =0.93(the probability of selecting respondents with low drug compliance

The minimum error

was n=100 respondents were considered for the study.

sampling technique

A simple random sampling was used as a sampling technique because it is straightforward and avoids bias among the respondents included in the study.

Sampling procedure

The principal investigator wrote numbers on pieces of paper, and the randomly selected numbers were used in the sample; for example, if 'number 5', then every 5th patient participated in the study.

Data collection tool(s)

Data was collected using research-administered questionnaires. Administered these questionnaires to the respondents at the eye department, including the health providers and patients. It was arranged in accordance with the specific objectives.

Data collection procedure.

The principal investigator started by creating rapport with the respondents and reassuring them about confidentiality. Self-administered questions for those who were able to read and write. The questions were read thoroughly and interpreted by the research assistants for those who could not read or write.

Study variables:

The dependent variable was drug compliance; drug compliance was the primary outcome measure, which indicated the extent to which patients adhered to the prescribed medication regimen. Self-report questionnaires were used to measure this variable.

Independent variables were: age measured in years, education levels assessed by the highest level of education, health beliefs and perceptions measured by a questionnaire, cost of medication measured by the amount of money spent on medications per month, and patient-provider relationship evaluated using standardized patient surveys, also measured by the questionnaires.

Quality control.

Pre-testing.

Questionnaires were pre-tested for completeness and reliability on four patients in Walukuba Health Centre IV**.** This was aimed at evaluating the validity and reliability of the questionnaire. The data tool was revised, and errors were collected.

Time of data collection

Data was collected from May to July to give ample time to analyze and present the data. Standard operating procedures were followed in the study.

Inclusion criteria

Data was collected from all patients, both male and female, above 15 years of age with eye conditions attending the eye department at Jinja Regional Referral Hospital.

Patients who consented.

Data processing, analysis, and presentation

Data was processed quantitatively by tallying manually because it's cheap and can be presented by narration, use of tables, bar graphs, and pie charts.

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Results

Demographic data of the respondents.

Table 1: showing demographic data of the respondents.

VARIABLES	CATEGORIES	FREQUENCY(f)	PERCENTAGES (%)
AGE	18-25 26-35 36-45 46-55	30 15 05 50	30% 15% 5% 50%
	TOTAL	100	100
GENDER	Male Female	70 30	70% 30%
	TOTAL	100	100%
Educational level	Primary education Secondary education Tertiary education Postgraduate (college /university)	40 24 20 16	40% 24% 20% 16%
	TOTAL	100	100%
Distance from JRRH	Within 5km 6-10 km 11-20km More than 50km	07 30 23 50	7% 30% 23% 50%
	TOTAL	100	100%
What is your employment status?	Employed Unemployed Student Self-employment	13 49 18 20	13% 49% 18% 20%
	Total	100	100%

Source: primary data, 2024.

Table 1 shows that among the patients attending the eye department of JRRH, the majority, 30(30%) of the respondents, presented with low drug compliance were female, and the remaining 70(70%) were male.

The majority, 50 (50%) of these patients were aged between 46 and 55 years of age, 30(30%) were between 18 and 25 years of age, 15(15%) between 26 and 35 years of age, and the last 5(5%) were aged between 36 and 45 years.

Most respondents, 40(40%), had primary level education, 24(24%) secondary level education, 20(20%) tertiary level of education, and only 16(16%) had postgraduate level of education. This might have contributed to low drug compliance.

Majority 50(50%) of the respondents stayed in a distance more than 50km, 30(30%) of the respondents lived within a distance of 6-10 km, 23(23%) lived with a distance of 11-20km and only a few 7(7%) lived within 5km this might have contributed to low drug compliance.

Patient's Perception Towards the Recommended Treatment.

Table 2: Route of drug administration preferred by the patient.

Variable	Categories	Frequency(f)	Percentage
Route of drug administration preferred	Intra-venous Topical Oral Others	18 70 10 02	18% 70% 10% 2%
	Total	100	100%

Table 2 shows that, majority, 70(70%) of the respondents preferred the topical route of medication, 18(18%) of the respondents preferred intravenous, 10(10%) of the respondents preferred oral, and only 2(2%) preferred other routes.

Figure 1 shows the understanding of treatment by patients.

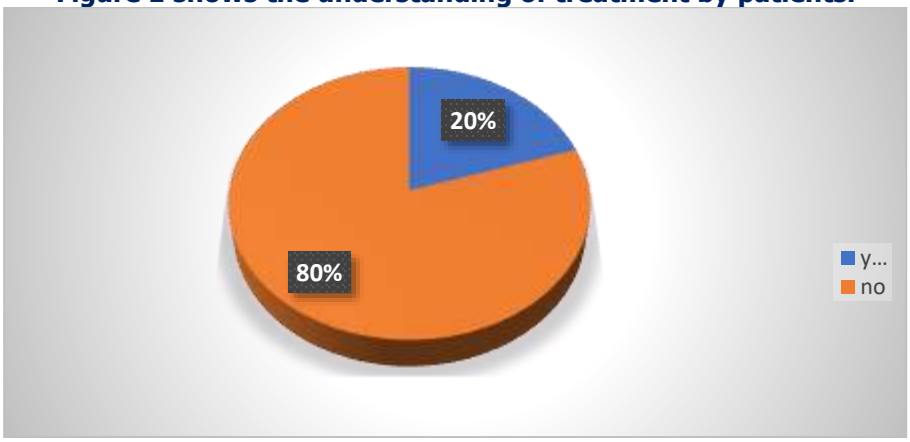

Figure 1 shows that 80(80%) of the respondents stated they did not understand their treatment, whereas only 20(20%) of the respondents stated that they understood their treatment.

Figure 2 shows the satisfaction of patients with the services delivered at the health facility.

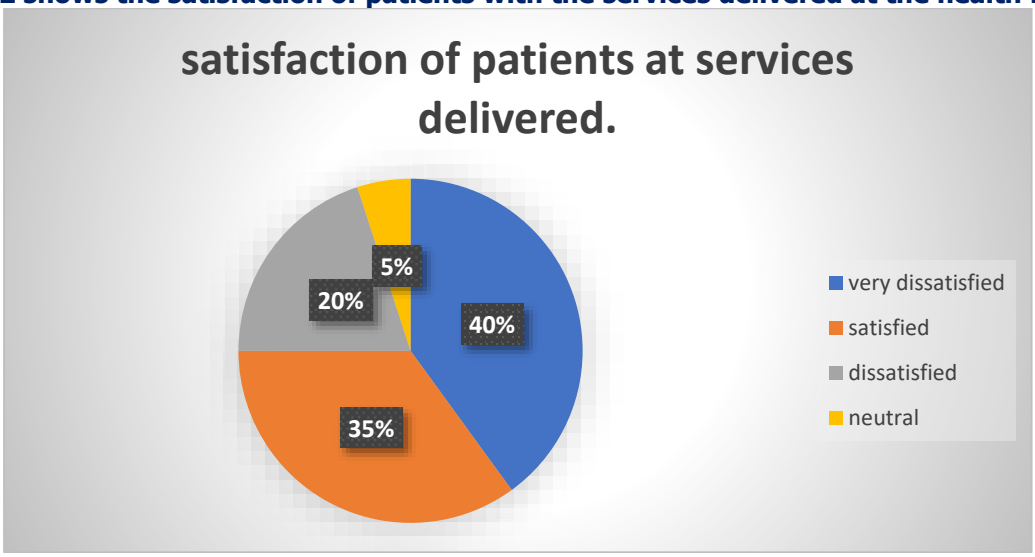

Figure 2 shows that when respondents were asked whether they were satisfied with treatment prescribed, majority 40(40%) of the respondents were very dissatisfied, only 35(35%) of the respondents were satisfied with the services offered at the health facility, 20(20%) of the respondents were dissatisfied and 5(5%) of the respondent were neutral which might have contributed to low drug compliance.

Patient–Provider Relationship in the Promotion of Compliance

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Table 3 shows how informed patients are by their service providers about their prescribed drugs and services.

Variable	Categories	Frequency(f)	Percentage (%)
How informed patients are by their service providers about prescribed drugs and services	Very informed Moderately informed Informed Not informed	10 20 29 41	10% 20% 29% 41%
	Total	100	100%

The majority of the patients with low drug compliance, 41(41%), were not informed by their service providers about the prescribed drugs and services. 20(20%) of the respondents were moderately informed, 29(29%) of these were informed, and 10(10%) of them were very informed.

Figure 3 shows the attitudes of health care providers towards clients.

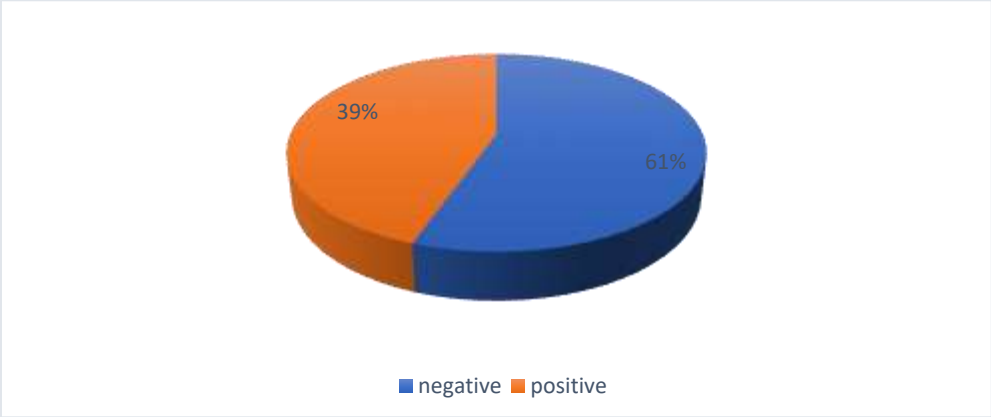

Figure 3 shows that most respondents61(61%) reported that healthcare providers had a negative attitude towards them, whereas only39% reported of positive attitude of the healthcare providers, which might have contributed to low drug compliance.

Accessibility to health facilities

Figure 4 challenges accessing transportation to health facilities.

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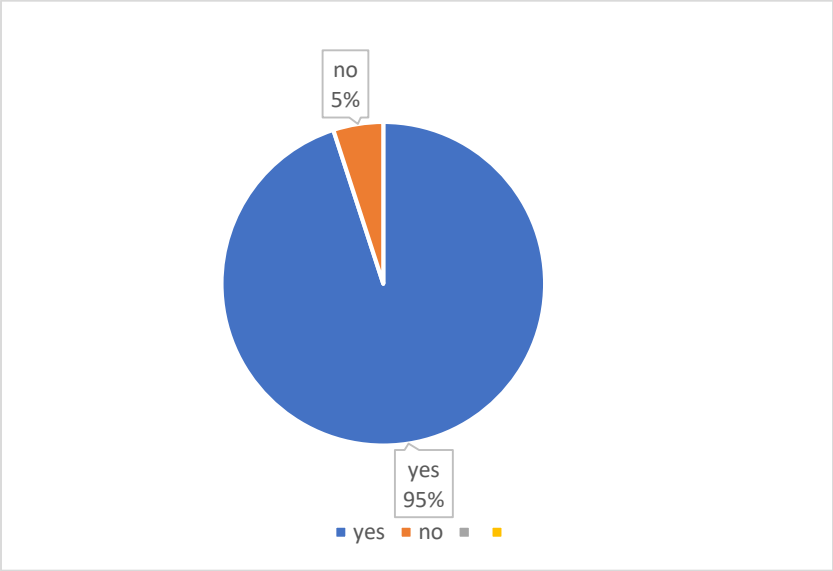

Source: primary data 2024

Figure four shows that most 95(95%) of the patients with low drug compliance had challenges accessing transportation to health facilities, whereas a few of them 5(5%) had no challenges with transport. This might have contributed to low drug compliance.

Table 4 shows difficulties faced in affording prescribed medication.

Variable	Categories	Frequency	Percentage
How difficult do you find it to afford prescribed medication?	Not difficult difficult Very difficult	25 28 47	25% 28% 47%%
	Total	100	100%

Table 4 shows that most patients, 47(47%), stated that it was very difficult to afford their prescribed drugs. 28(28%) of the respondent found it difficult and Only 25(25%) did not find difficult to afford their prescribed medication.

Figure 5 shows whether patients were informed about the consequences of not adhering to their eye medication.

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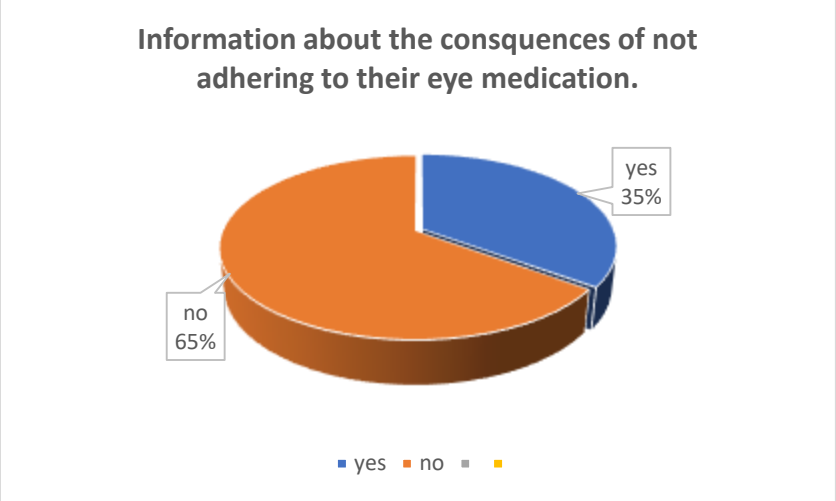

Figure 5 shows that most patients 65(65%) were not informed about the consequences of not adhering to the prescribed medication. Only 35(35%) were informed, which contributed to the drug compliance.

Discussion of results.

Demographic data of the respondents

The study findings demonstrated that 50(50%) of the patients with low drug compliance were between 46 and 55 years of age. This suggests that most adult individuals suffer from low drug compliance. The probable cause of this distribution could be impaired vision, handicapping them from accessing and affording the medication. This finding agrees with findings by Jeremy A.G et al (2015), which showed that patients aged between 53 and 86 years did not take the conditions they had seriously, which led to low treatment compliance.

The study findings revealed that the majority, 70(70%) of the respondents with low drug compliance were males, whereas 30(30%) of the study. This reflected differences in healthcare-seeking behaviour or access to healthcare services between genders within the community. This could be attributed to cultural norms, economic disparities, or educational differences, leading to low drug compliance. This study is in the same line as the study by Bodunde. O.T and Otulana. T.O. (2020) on health-seeking behavior, there were more males (54.5%) than females (45.5%).

On the other hand, most patients with low drug compliance, 40(40%), had a primary level of education, and 16(16%) had a postgraduate level of education. This variation in the level of education contributed to the low understanding and high understanding in the levels of knowledge. Primary level holders in the level of education most probably did not understand the kind of treatment prescribed, leading to low compliance. This study agrees with the study carried out by Moore, S. G. et al (2023) on the assessment of levels of knowledge of Glaucoma.

The study findings showed that most patients, 50(50%), with low drug compliance had to travel a distance greater than 50km to access their medication from JRRH, and the remaining 7(7%) travelled a distance less than 5km. This variation in the distance is probably attributed to different geographical regions and the high transport expenses. This study finding is in the same line as study findings by Subhathra G. N et al (2021).

Patients' perception of the recommended treatment.

The study findings showed that the majority, 70(70%) of the respondents with low drug compliance preferred the topical route of drug administration compared to other routes. This is because of the fewer clinic appointments, low prices, or most probably less painful for them. This study agrees with a study carried out by Alexander et al (2017), which also showed a high percentage (74%) preferred the topical route of drug administration; the fear and dislike of other medication routes led to low drug compliance.

In addition, most of the participants, 40(40%), mentioned that they did not understand their kind of treatment, which was low. This study agrees with study findings from Andrew B.S et al (2016), which showed that the participants did not understand DED nor its treatment. This is because of the lack of information and also unclear information from the providers, which contributed to the low drug compliance amongst these patients.

The study findings showed that most participants, 40(40%), were very dissatisfied with services delivered at the health facility, which was relatively high. This study finding disagrees with the study findings of Pwaveno H. and Bamaiyi (2018), which showed a low percentage (22.1%) of the study participants were dissatisfied with services delivered at their health units. This was attributed to a lack of information, which led to low drug compliance.

According to the study findings, the majority, 40(40%) of the respondents reported not being informed by their service providers. This percentage is nearly half of the patients who participated in the study, which indicates a poor patient-provider relationship. This study finding agrees with the study finding by Kevin B.S et al (2020), which showed that (91%) of the patients with uncontrolled hypertension were not informed by the drug providers that the drug medication was good to control hypertension. Hence, this resulted in low drug compliance. Not being informed was probably attributed to insufficient time by the healthcare provider.

In addition, most respondents 61(61%) reported the negative attitude of their health care providers. The study findings agree with findings by Sibyl et al (2018), which showed that (60%) of the patients with arterial hypertension treated themselves by self-medication and use of herbal medicine due to the negative attitude of healthcare providers. Negative attitude was attributed to high self-esteem by the healthcare providers, which led to low drug compliance.

Factors associated with low drug compliance
Accessibility to health facilities.

The study findings revealed that 95(95%) of the respondents faced challenges accessing transportation to the health facilities, which led to low drug compliance. This study finding agrees with the study finding by Subhathra G.N et al (2021), which stated that more than half (51%) of participants treated for glaucoma during the lockdown period had low treatment compliance due to restrictions. 95% is a high percentage and is attributed to a lack of adequate transport means and different geographical areas; they had to travel a distance of more than 50 km to JRRH.

Poverty.

The study findings revealed that most respondents, 32(32%), found it very difficult to afford their prescribed medication, which led to low drug compliance. This study agrees with the study carried out by Moore, S.G. et al (2023) on the cost of different classes of drugs for the treatment of Glaucoma, where beta blockers had the most expensive range of above 150$, making it very difficult to afford their prescribed medication. The difficulties could be due to insufficient funds for the participants.

Patients' education on drugs

The study findings show that the majority, 65(65%) of the respondents had never received any education or counselling on medication adherence from healthcare providers. This study agrees with a study carried out by Iyabo F et al, which showed that (73. 64%) were not compliant with the prescribed drugs because they were not educated on the recommended treatment. This could be due to a lack of sensitization about the side effects of non-compliance.

Conclusion:

The study concludes that adults aged 46-55 years of age, with males showing lower compliance than females, due to cultural and societal differences in healthcare-seeking behaviour. These patients with lower educational levels, particularly those with only primary education, struggle more with drug compliance due to a lack of understanding of their treatments. Long distances to healthcare facilities, especially over 50km, create significant barriers to accessing medication, contributing to non-compliance. Many patients prefer topical medication, but lack understanding of their treatment, leading to low drug compliance.

Poor communication and negative attitudes from healthcare providers are linked to low compliance. Poverty makes it difficult for patients to afford their prescribed medications, contributing to low compliance.

Recommendations.

Based on the findings, the researcher would like to make the following recommendations:

The hospital and healthcare providers should provide clearer and more accessible education on conditions and treatment, especially for patients with lower education levels. Access should improve through outreach, transportation support, or closer healthcare facilities.

Healthcare providers should be trained to improve communication and show empathy towards patients.

Implementation of policies to reduce medication costs, particularly for low-income patients.

Public health campaigns should be highly emphasized to create awareness about the importance of medication.

Regular follow-ups and counselling programs should be introduced to improve patient support and adherence to treatment.

Acknowledgment

I would love to extend my sincere gratitude and acknowledgement to my supervisor (Madam Nanangwe Jalia), who actually became a mother to me and guided me through this process of proposal and report writing. More blessings to you. And to the entire committee of research led by Mr. Kabasa Micheal, your efforts are highly appreciated. The hospital, together with the eye department, has been of great help in the accomplishment of this study.

My mother, you have been a pillar in the funding of this project, and the entire family is praying for you that God will bless you beyond measure.

Lists of Abbreviations

DDHS	District Director of Health Services
DED	Dry Eye Disease
HIV	Human Immunodeficiency Syndrome
JRRH	Jinja Regional Referral Hospital
MoH	Ministry of Health
N/A	Not Applicable
NGO	Non-Government Organizations
OCO	Ophthalmic Clinical Officer's Training School
PMTCT	Prevention of Mother-to-Child Transmission

Source of funding
The study was not funded.

Conflict of interest.
There is no conflict of interest.

Availability of data.
Data used in this study are available upon request from the corresponding author.

The author's contribution.
DM designed the study, conducted data collection, cleaned and analyzed data, drafted the manuscript, and JN supervised all stages of the study from conceptualization of the topic to manuscript writing and submission.

Ethical approval.
An introductory letter from the Principal of Ophthalmic Clinical Officers' training school was taken to the Hospital director of JRRH for permission to carry out research, who recommended the researcher to the In-Charge of the Eye Department, JRRH.

Informed consent
Written consent was sought from the respondents after the explanation of the study topic. The respondents were assured of their right to consent or not to. Confidentiality was reassured to the respondents before the start of the process of data collection. Numbers were assigned to each respondent to avoid disclosure of their names.

Authors biography
Deacon Maseruka Mukisa is a student of the Diploma in Clinical Ophthalmology at Ophthalmic Clinical Officers' Training School, Jinja.
Jalia Nanangwe is a research supervisor at Ophthalmic Clinical Officers' Training School, Jinja.
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