Barriers to Cataract Surgery in Africa: Providers’ Perspective (Research Protocol)

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1. Introduction
   a. General Information:
Cataract is the leading cause of blindness in low and middle-income countries (Liu et al., 2017). While preventable causes of blindness such as corneal opacification and trachoma are decreasing in sub-Saharan Africa, cataract remains the leading cause of blindness in sub-Saharan Africa (Flaxman et al., 2017), and has increased from 37.5% of blindness in 1990 to 40% of all blindness in 2015 (Naidoo et al., 2020). Increased age is a major risk factor for developing cataracts (Liu et al., 2017). As life expectancy increases throughout sub-Saharan Africa (Dicker et al., 2018), it is likely that the burden of blindness from cataracts will continue to increase. There is no proven medical intervention to prevent the development of cataracts. The standard treatment for cataract is surgical removal of the cataractous lens and replacement with a synthetic intraocular lens (Liu et al., 2017). Cataract surgery has been shown to have good surgical outcomes and to restore visual function in previously visually impaired patients in developing countries (Ruit et al., 2007). Despite this, cataract surgical uptake is lower in less economically developed countries (Wang et al., 2016). It has been suggested that innovative solutions are needed in order to provide more individuals with access to cataract surgical care in these disproportionately affected developing countries (Liu et al., 2017; Naidoo et al., 2020; Wang et al., 2016).

   b. Overview of Research and Gaps:
To effectively design and implement cataract surgical services, a proper understanding of the patient barriers to receiving care is imperative. Previous studies reported that worldwide, barriers to care included lack of practitioners, cost of care, and lack of knowledge of the importance of cataract surgery (Lee & Afshari, 2017). There is only one published review article on barriers to cataract surgery in Africa. These researchers reported that cost was the most cited barrier to cataract surgery (Aboobaker & Courtright, 2016).

To date, there are no studies surveying ophthalmologists and mid-level cataract surgeons in Africa on their perceptions of barriers to cataract surgery uptake. This data is imperative for stakeholders when designing and implementing cataract surgical services.

c. Overall Purpose of Research:
The objective of this study is to provide a current understanding of barriers to cataract surgical uptake in Zambia, Ghana, Ethiopia, and Malawi, and then compare barriers by geographical region. This data will be collected through an online survey of ophthalmologists and mid-level cataract surgeons who are practicing in Ethiopia, Ghana, and Zambia. The data collected will assist the Himalayan Cataract Project and Daybreak Vision Project organizations on how to most effectively reach the greatest number of patients.
2. Statement of the Problem
   a. Short Summary of Background:
   Blindness from cataracts is the most common cause of vision loss in the world (Liu et al., 2017). Through a simple surgery, people can go from complete blindness to full functioning vision essentially overnight. Yet, many individuals in resource-poor settings are unable to access surgical services.

   b. Importance of Research:
   To design innovative cataract surgical services, an understanding of the barriers to care are needed. Thus, a study assessing these barriers is needed and will be informative.

3. Rationale/Justification
   a. Contribution to Body of Knowledge:
   In the literature, there are no studies surveying ophthalmologists and mid-level cataract surgeons in Africa on their perceptions of barriers to cataract surgical uptake. This survey will help contribute by providing this much needed data.

   b. Evidence:
   Surveying ophthalmologists is an effective way to get this important data. Mr. Scott Herrod previously conducted similar surveys of a different eye condition and it provided data to inform innovative eye care services.

4. Theoretical Framework:
The survey is being conducted in adherence to The Checklist for Reporting Results of Internet E-Surveys (CHERRIES) guidelines.

5. Literature Review

   Common Barriers to Cataract Surgery Around the World

   Gender-Related Barriers
   The World Health Organization reported that women represent 63% of cataract cases, but despite this, men are more likely to receive cataract surgery compared to women (Lewallen & Courtright, 2002). Another study conducted in Tanzania found that men are more likely to express a need for cataract surgery than women. The researchers from this study also discovered that women are more likely to feel like a burden to their family by requesting for surgery, so they often decide not to ask. Further, they also found that some families think that it is more important for a man to see than for a woman, and some women had to ask permission from their husband prior to getting treatment (Geneau et al., 2005). It is important to note that this study, although informative, has a small sample size, which may limit the generalizability of the findings.

   Fear-Related Barriers
One commonly cited barrier to care in developing nations was fear of surgery. For example, in a study in Nigeria, 24.1% of respondents cited fear of surgery as a barrier to care (Ajibode et al., 2012). However, participants in the study were only those who came for follow-up visits. These participants may not be representative of those who did not return for follow-up care. In a study in India, it was found that 34% of respondents cited fear of surgery, 33% cited fear of worse outcomes, and 13% cited fear of death as barriers to them receiving surgery (Dhaliwal & Gupta, 2007). A study conducted in South Africa found that fear of surgery was cited as a barrier to treatment in 45% of respondents, and surgical intervention was only seen as a viable option if all other alternatives proved futile (Rotchford et al., 2002). This study had a small sample size of only 20 people, so although informative, it may not accurately represent barriers among the greater population. In addition, a study conducted in China reported fear of surgery as a barrier to care being cited in 17.5% of respondents, with the biggest reason being fear of worse outcomes (80.6%), followed by fear of pain (19.4%) (Zhang et al., 2014). Overall, the findings from these studies indicate that fear of surgery constitutes a major barrier to receiving cataract surgery in many resource-poor settings.

**Perceived Need Barriers**

A commonly cited barrier to cataract surgery—for a variety of reasons—was the lack of perceived need. In India, it was reported that the most prevalent barriers were attitudinally related. Researchers found that 71% of participants said they could manage their daily work without surgery, 64% said they can effectively use the other eye, 57% said they did not have enough time, and 29% thought that their condition was God’s will (Dhaliwal & Gupta, 2007). Along the same lines, researchers from a study in Tanzania discovered that 62.5% of respondents indicated that they would get treatment before paying their children’s school fees, indicating that 47.5% would rather pay for school fees than pay for surgery (Geneau et al., 2008). In accord with these studies, in Ethiopia, some patients indicated that they could manage well enough without surgery (Mehari et al., 2013). Again, the perceived need of receiving surgery was ranked below other activities. Furthermore, studies in both Tanzania and Malawi found that some respondents preferred herbalists or traditional healers instead of cataract surgery by a trained ophthalmologist (Geneau et al., 2005; Schwering et al., 2014). This suggests that cultural traditions also play a key role in preventing cataract surgical uptake in some regions. This suggests that it may not only be the lack of perceived need, but also that alternative activities take precedence over eyesight in the minds of many people.

Other researchers found that many individuals were not aware that treatment was an option (Rotchford et al., 2002; Zhang et al., 2014). For example, a South African study reported that 40% of respondents thought there was no treatment for their cataracts—thinking the condition was just a natural consequence of old age. In addition, 30% of respondents from this study did not see themselves as in need of treatment (Rotchford et al., 2002). A similar study conducted in China found that 67% of those who denied receiving cataract surgery did not see themselves as handicapped despite low performances on vision tests. 22.9% of respondents also
believed that blindness was just a result of old age and was not treatable (Zhang et al., 2014). These various reports suggest that one reason for the lack of perceived for cataract surgery may be the lack of awareness that their condition could be treated.

**Human-Resource Barriers**

Another commonly cited barrier in some resource-poor nations was lack of someone to accompany them to the surgical site (Dhaliwal & Gupta, 2007; Melese et al., 2004). For example, in India, it was found that 20% of respondents reported that a barrier to receiving surgery was not having someone to accompany them (Dhaliwal & Gupta, 2007). In a study conducted in Ethiopia, it was discovered that the third highest reason for not seeking eye care was the individual not having someone to accompany them to the clinic (9.4%), and women also reported they did not have anyone to watch their (Melese et al., 2004). Thus, the barriers to cataract surgery also encompass social support surrounding the blind individual.

**Cost-Related Barriers**

Several studies have cited that the cost of treatment is the primary barrier to receiving cataract surgery (Ajibode et al., 2012; Dhaliwal & Gupta, 2007; Melese et al., 2004; Rabiu, 2001). A study in Nigeria reported that this was the most highly reported barrier, with 28.3% of respondents reporting this as a barrier (Ajibode et al., 2012). Another study in Nigeria indicated that 61% of the respondents reported that the biggest barrier to care was being unable to afford it (Rabiu, 2001). A study in Ethiopia reported that the biggest barrier patients reported were indirect costs, meaning the costs associated with traveling to and staying near the surgical site. The second most highly reported barrier in this study was direct costs, meaning the cost of the surgery itself (Melese et al., 2004). Furthermore, a study in India speculated that because patients more commonly reported insufficient family income, rather than the cost of surgery being too expensive, that indirect costs were the major barrier to care (Dhaliwal & Gupta, 2007). In Tanzania, it was found that financial assistance was needed for nearly all patients who had cataract surgery. Many of these patients had to borrow from relatives in order to cover the costs, suggesting that the ability to pay for surgery is also contingent upon relative’s perception of the value of surgery (Geneau et al., 2008). In fact, it was discovered that family members were only willing to contribute $20-30 towards cataract surgery, which does not cover the cost of the doctor accrues with all of the supplies for the surgery (Geneau et al., 2008). It should be noted, however, that this study had a small sample size—thus, the results may not be generalizable. Another study found that 54 of 60 respondents had to borrow money from a variety of family members to cover both direct and indirect costs. This study also found that in agricultural regions, income is seasonal and therefore paying for cataract surgery does not always meet the urgent needs of the family once their crops are sold (Geneau et al., 2005). This suggests that time of year plays a critical role in a patient’s ability to pursue cataract surgery. Overall, in resource-poor nations, both indirect and direct cost are major barriers to receiving cataract surgical care.

6. **Research Questions**
To date, there are no studies surveying ophthalmologists and mid-level cataract surgeons in Africa on their perceptions of barriers to cataract surgical uptake. This data is important for stakeholders when designing and implementing cataract surgical services.

Therefore, our research question is: What are the perceived barriers to cataract surgery as seen by eye care providers in Zambia?

7. Research aims

The objective of this study is to provide a current understanding of barriers to cataract surgical uptake in Zambia and comparing barriers by geographical region. The data collected will assist the Himalayan Cataract Project and Daybreak Vision Project organizations and others how to reach the greatest number of patients most effectively. Ophthalmologists from Africa are collaborators on this project and assisted in ensuring that the survey questions were appropriate for their colleague physicians in Africa.

8. Methodology
   a. Study Design
   Data will be collected through an online survey.

   b. Study Site and Population
   The respondents will be ophthalmologists, mid-level cataract surgeons, ophthalmic nurses, ophthalmic clinical officers, optical technicians, and other mid-level staff who are practicing in Ethiopia, Ghana, Zambia, and Malawi. Providers will complete the online survey on their own computer or mobile device.

   c. Selection of participants, sampling methods and sample size
   The contact information of ophthalmologists, mid-level cataract surgeons, ophthalmic nurses, ophthalmic clinical officers, optical technicians, and other mid-level staff who are practicing in Ethiopia, Ghana, Zambia, and Malawi will be collected through contact lists from the Himalayan Cataract Project and Daybreak Vision organizations and their partner physicians and societies in Africa. Additionally, Ophthalmological Societies in Africa will assist in distributing recruitment materials, implied consent form, and survey link. As many providers as possible will be surveyed. In total, it is estimated that at least 150 providers will be surveyed.

   d. Survey Dissemination Plan
   Each of the participants will be sent the link to the survey via email and/or WhatsApp Messenger by co-investigators in Ethiopia, Ghana, Zambia, and Malawi. Each participant will be sent an introductory message introducing the purpose of the project, that their responses will remain anonymous, that the survey is voluntary, that they can choose to stop the survey at any time, and the estimated time for survey completion.

   e. Data collection plan and tools
   The responses will be collected via Qualtrics Survey Software on a password protected account. The "Prevent Duplicate Responses" feature in Qualtrics will be used to prevent repeated
responses from the same individual and the IP address will be used to omit any duplicate responses.

f. Data management and storage
Upon completion of data collection, the data with no personal identifiers will be downloaded and inputted into Stata and other statistical software. Only those directly related to the study will have access to the data.

g. Data analysis plan
Statistical analysis will be conducted in Stata Statistical Software and other Statistical Instruments. Descriptive and comparative analysis will be performed to determine participants' perceptions on barriers to cataract surgical uptake in their region. These barriers include socio-cultural beliefs, institutional barriers, ability to access health insurance, and knowledge of cataract surgery as a viable treatment option etc. This analysis will help to compare perceived barriers to care and how they differ in Ghana, Ethiopia, Zambia, and Malawi.

9. Ethical considerations
Our study does not survey any individuals considered to be from vulnerable populations. Since the study is anonymous, the only risk associated with this study is the loss of data privacy if the respondent provides personal information in their responses. No personal information is requested as part of the survey, so this would only be a risk if the respondent input personal information into a free response box.

No personal identifiers will be collected. Participation is voluntary and participants will be made aware that they can stop the survey at any time. The data will be collected through a password protected Qualtrics Account, and survey data will only be shared with relevant investigators. Additionally, the implied consent form informs participants to not provide personal information in their responses.

10. Disseminating the Results of the Study
Following publication of the resulting manuscript from this study, the PDF document of the publication will be distributed to all survey participants. This will be done through our in-country collaborators. The PDF document will be distributed through the same contact lists through which the survey link was distributed.

11. Timelines
1. October 1, 2021: After IRB approval is obtained, our collaborator will distribute the survey to colleagues within their respective countries.


4. January 1, 2022 – February 1, 2022: Draft research manuscript
5. February 2, 2022: Submit manuscript for publication

6. April 1, 2022: Following publication, the manuscript will be disseminated to all survey participants.

12. **Budget**

Brigham Young University has provided free access to Qualtrics survey software. Since the survey is online and participants are not compensated, there are no costs associated with the study. Scott Herrod does declare time support from a College of Life Sciences CURA student grant to work on this project.

13. **References**


14. Appendices:
   a. Participant Information Sheet

Introductory email or WhatsApp Message:

Dear colleague,

The purpose of this questionnaire is to assess perceived barriers to cataract surgical uptake in Ghana, Ethiopia, Zambia, and Malawi. This study is being conducted in collaboration with Dr. Bo Wiafe (Ghana), Dr. Michael Gyasi (Ghana), Dr. Akwasi Ahmed (Ghana), Dr. Grace Mutati (Zambia), Michael Masika (Malawi), Dr. Sadik Taju (Ethiopia), Dr. John Welling (USA), Dr. Matt Oliva (USA), Dr. Geoff Tabin (USA), Dr. Josh West (USA), and Dr. Cougar Hall and Scott Herrod are the principal investigators in this study. Your participation is voluntary, your responses will remain anonymous, and there will be no personal identifiers collected. After starting the survey, you may stop at any time. This research study was approved by the Brigham Young University IRB and assigned study number IRB2021-086. There is no compensation in relation to completing the study.

To access the survey please click this link:

(personal hyperlink will be provided)

We appreciate your participation.

Cougar Hall and Scott Herrod

Questions? Contact Scott Herrod (scottkherrod@gmail.com)

b. Consent Forms

Since this is an online survey, we are specifically applying for implied consent, meaning there is the consent form that provides all of the necessary information for the participant, but that the participant does not need to give his/her signature or thumbprint because of the online nature of the survey. On the next page is the implied consent form:
This research study is being conducted by Scott Herrod (undergraduate student at Brigham Young University), Professor Cougar Hall (Department of Public Health, Brigham Young University), the Himalayan Cataract Project, and Daybreak Vision Project. You are being invited to participate in this research study about barriers to cataract surgical uptake in sub-Saharan Africa. We hope this study will add to our collective understanding of barriers to cataract surgical uptake and how to best overcome them. Being in this study is optional.

If you choose to be in the study, you will be asked to complete a survey, that should take approximately 15 minutes of your time.

You can skip questions that you do not want to answer or stop the survey at any time. The survey is anonymous, and no one will be able to link your answers back to you. The only risk associated with this study is the loss of data privacy if the respondent provides personal information in their responses. Please do not include your name or other information that could be used to identify you in the survey responses. You will not be paid for being in this study.

Questions? Please contact Dr. Grace Mutati at gcm.mutati@gmail.com or +260966264162. You can also contact Dr. Cougar Hall at cougar_hall@byu.edu or +1(801)422-5656. If you have questions or concerns about your rights as a research participant, you can call the BYU Institutional Review Board at +1 (801)-422-1461 or irb@byu.edu. You can also call the University of Zambia biomedical Research Ethics Committee at 256067.

If you want to participate in this study, click the link to start the survey.
Implied Consent

Title of the Research Study: 
IRB ID#: IRB2021-086

This research study is being conducted by Scott Herrod (undergraduate student at Brigham Young University), Professor Cougar Hall (Department of Public Health, Brigham Young University), the Himalayan Cataract Project, and Daybreak Vision Project. You are being invited to participate in this research study about barriers to cataract surgical uptake in sub-Saharan Africa. We hope this study will add to our collective understanding of barriers to cataract surgical uptake and how to best overcome them. Being in this study is optional.

If you choose to be in the study, you will be asked to complete a survey, that should take approximately 15 minutes of your time.

You can skip questions that you do not want to answer or stop the survey at any time. The survey is anonymous, and no one will be able to link your answers back to you. Please do not include your name or other information that could be used to identify you in the survey responses. You will not be paid for being in this study.

Questions? Please contact Professor Cougar Hall at cougar_hall@byu.edu or +1 (801) 422-5656. If you have questions or concerns about your rights as a research participant, you can call the BYU Institutional Review Board at +1 (801)-422-1461 or irb@byu.edu.

If you want to participate in this study, click the link to start the survey.
c. Data Collection Tools
Survey Attached on next page:
Default Question Block

Dear colleague,

This is a multi-national study of cataract surgeons and ophthalmologists in Ethiopia, Ghana, Malawi, and Zambia. Thank you very much for sharing your insights and recommendations regarding cataract surgical services in your country and region. We look forward to sharing the study results with you and hope this data will prove valuable in our collective efforts to eliminate needless cataract blindness.
In order to maximize the value of this data, please answer as completely and accurately as possible. Your responses will remain anonymous. Estimated completion time is about 15 minutes.

Sincere thanks for your participation – we greatly value your input.

Dr. John Welling, Dr. Matt Oliva, Dr. Geoff Tabin, Dr. Michael Gyasi, Dr. Boateng Wiafe, Dr. Akwasi Ahmed, Michael Masika, Dr. Grace Mutati, Dr. Sadik Taju, Dr. Josh West, Dr. Cougar Hall, and Mr. Scott Herrod

Are you male or female?

- Female
- Male

Please select your specialty

- Ophthalmologist
- Non-ophthalmologist Cataract Surgeon
How long have you been in practice?

- 0-4 years
- 5-9 years
- 10-14 years
- 15-20 years
- 21+ years

Which of the following best describes your work setting? (Mark all that apply)

- Government Hospital
- Private Practice
- Non-profit Organization

How would you rate your current level of satisfaction with financial reimbursement for cataract surgery in your work setting?

- Extremely satisfied
- Satisfied
- Neither satisfied nor dissatisfied
- Dissatisfied
- Extremely dissatisfied
In your region, which of the following would provide you the best financial reimbursement incentives?

- Government Hospital
- Private Practice
- Non-profit Organization

Please indicate how much you agree with the following statement: The reimbursement structure in my current practice environment incentivizes ME to be as productive as possible (in other words, if I see more patients and do more surgery, I receive higher reimbursement)

- Strongly Agree
- Agree
- Neither Agree Nor Disagree
- Disagree
- Strongly Disagree

What (if anything) could be done to strengthen YOUR productivity incentives in your current practice environment?
Please indicate how much you agree with the following statement: The reimbursement structure in my current practice environment incentivizes MY STAFF to be as productive as possible (in other words, if they work harder or work longer hours, they receive higher reimbursement)

- Strongly Agree
- Agree
- Neither Agree Nor Disagree
- Disagree
- Strongly Disagree

What (if anything) could be done to strengthen YOUR STAFF’s productivity incentives in your current practice environment?
Where were you trained for cataract surgery? (Mark all that apply)

☐ In the country I currently practice in
☐ In a country in Africa, but not the country I currently practice in
☐ Abroad (Not in Africa)

Which country do you currently practice in?

☐ Ethiopia
☐ Ghana
☐ Malawi
☐ Zambia

Note to participant: Advancing to the next page will prevent you from being able to change your previous responses. Please double check your answers and
make any changes before advancing to the next page.

Ghana

Which region/province/state in your country do you currently practice in?

☐ Ahafo
☐ Ashanti
☐ Bono
☐ Bono East
☐ Central
☐ Eastern
☐ Greater Accra
☐ North East
☐ Northern
☐ Oti
☐ Savannah
☐ Upper East
☐ Upper West
☐ Volta
☐ Western
☐ Western North
Ethiopia

Which region/province/state in your country do you currently practice in?

☐ Afar
☐ Amhara
☐ Benishangul-Gumuz
☐ Gambela
☐ Harari
☐ Oromia
☐ Somali
☐ Southern Nations, Nationalities, and Peoples’
☐ Tigray
☐ Sidama
☐ Addis Ababa
☐ Dire Dawa

Malawi

Which region/province/state in your country do you currently practice in?

☐ Northern
☐ Central
Zambia

Which region/province/state in your country do you currently practice in?

- Central
- Copperbelt
- Eastern
- Luapula
- Lusaka
- Muchinga
- North-Western
- Northern
- Southern
- Western

Block 5

How many cataract surgeons (including both ophthalmologists and non-ophthalmologist cataract surgeons) are performing cataract surgery in your clinical practice?
In 2019, how many total cataract surgeries do you estimate YOU PERSONALLY performed in your clinical practice?

- ≤ 100
- 101–250
- 251–500
- 501–1000
- ≥ 1001

In 2019, how many total cataract surgeries do you estimate were performed by ALL CATARACT SURGEONS in your clinical practice?

- ≤ 250
251–500
501–1000
1001–1500
1501–2000
2001–3000
≥ 3001

Which group do you think receives more surgeries in your clinical practice?

- Females
- Males
- Equal

Of the total number of surgeries performed in your clinical practice, what percentage would you estimate are provided at NO DIRECT COST to the patient (100% of the direct costs are sponsored by a charitable organization, for example)?

0 10 20 30 40 50 60 70 80 90 100

Percentage
Of the total number of surgeries performed in your clinical practice, what percentage would you estimate are provided at a SUBSIDIZED DIRECT COST to the patient (a percentage of the direct costs are sponsored by a charitable organization, for example)?

For patients who receive cataract surgery in your clinical practice at a SUBSIDIZED DIRECT COST (a percentage of the direct costs are sponsored by a charitable organization, for example), what percentage of the total direct cost are patients typically required to contribute?

What percentage of your annual cataract surgeries are performed in an outreach setting? In other words, surgeries performed at a facility OTHER THAN your home institution/clinic?
How do patients MOST OFTEN pay for the direct costs of cataract surgery (cost of procedure) in your clinical practice?

- Government Insurance
- Private Insurance
- Personal Funds
- Familial Support
- Sponsored by your Clinic
- Sponsored by a Charitable Organization
- Other: (please specify)

How do patients MOST OFTEN pay for the indirect costs of cataract surgery (travel, lodging etc.) in your clinic?

- Government Insurance
- Private Insurance
- Personal Funds
- Familial Support
- Sponsored by your Clinic
Which of the following cataract surgery techniques are available in your clinical practice? (Mark all that apply):

- Manual Small Incision Cataract Surgery (SICS)
- Large Incision Extracapsular Cataract Surgery (ECCE)
- Phacoemulsification
- Intracapsular Cataract Surgery
- Other: (please specify)

Which of the following cataract surgery techniques are performed in your clinical practice MOST FREQUENTLY? (Mark only one):

- Manual Small Incision Cataract Surgery (SICS)
- Large Incision Extracapsular Cataract Surgery (ECCE)
- Phacoemulsification
- Intracapsular Cataract Surgery
- Other: (please specify)
What percentage of patients who have received cataract surgery in your clinical practice undergo refraction within 6 months of surgery?

Percentage

What percentage of patients who have received cataract surgery in your clinical practice receive glasses within 6 months of surgery?

Percentage

Which of the following techniques has your clinical practice used to recruit patients for cataract surgery? (Mark all that apply)

☐ WhatsApp
☐ Facebook
☐ TV Commercials
☐ Radio Broadcast
☐ Print Advertisements
☐ Word of Mouth
☐ Community Healthcare Workers
☐ Other (Please Describe):

In your experience, which of the following has been the most effective method of recruiting patients for cataract surgery?

☐ WhatsApp
☐ Facebook
☐ TV Commercials
☐ Radio Broadcast
☐ Print Advertisements
☐ Word of Mouth
☐ Community Healthcare Workers
☐ Other (Please Describe):

Please describe what you think could be done differently to increase awareness of cataract surgery as a treatment option in your region.
Please describe what you think could be done to increase cataract surgical uptake in your region

Please describe what you think could be done differently to improve the long-term sustainability of cataract surgical services in your region?
Below are a number of possible barriers to cataract surgical uptake. Please read each one and based upon your experience indicate to what extent you agree or disagree it is a major barrier to cataract surgical uptake in your region.

<table>
<thead>
<tr>
<th>Barrier</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither Agree nor Disagree</th>
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<tbody>
<tr>
<td>Distance to the cataract surgical centre (transportation etc.)</td>
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<tr>
<td>Lack of cataract surgical centers</td>
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<td>Lack of cataract surgeons</td>
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<td>Lack of surgical equipment (microscopes, cataract sets etc.)</td>
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<td>Lack of access to surgical consumables (IOL’s, viscoelastic, keratome knives, postop drops etc.)</td>
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<td>Lack of cataract surgical outreaches performed</td>
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<td>Lack of someone to accompany patient to surgical site</td>
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<td>Lack of accommodations for escort</td>
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<td>DIRECT COSTS of cataract surgery (cost of procedure)</td>
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<td>INDIRECT COSTS of cataract surgery (travel, inability to work, lodging etc.)</td>
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<td>Fear of surgical procedure (anesthesia, pain, recovery etc.)</td>
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<td>Fear of going blind or having worse visual outcomes</td>
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<td>Fear of travelling to an unfamiliar location for cataract services</td>
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<td>Fear of hospital/clinic setting</td>
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<td>Fear of surgical staff</td>
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<td>Strongly Agree</td>
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<td>Fear of contracting COVID-19 at surgical site</td>
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<td>Fear among potential female patients</td>
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<tr>
<td>Fear among potential male patients</td>
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<tr>
<td>Fear among potential older patients (≥50 years)</td>
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<tr>
<td>Fear among potential younger patients (≤49 years)</td>
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<td>Knowledge of someone who had an unsuccessful surgery</td>
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<tr>
<td>Distrust of modern medicine</td>
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<td>Preference for traditional healers/herbalists</td>
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<td>Lack of familial support</td>
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<td>Socio-cultural beliefs</td>
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<tr>
<td>Gender based societal discrimination against females</td>
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<td>Gender based societal discrimination against males</td>
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<tr>
<td>Tribal based discrimination</td>
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<tr>
<td>Belief that their cataract is God’s will</td>
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<td>Responsibilities in the home (No one to take care of family members during patient’s absence)</td>
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<td>Responsibilities at work (Not able to take time off)</td>
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<td>Political instability</td>
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<td>Tribal/Clan Conflict</td>
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<td>Sees no need (Able to function without surgery)</td>
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<td>Loss of pride/dignity</td>
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Lack of awareness regarding the existence of cataract surgery as a treatment option

Lack of knowledge of where to access cataract surgical services

Lack of knowledge of how to access health insurance

Please indicate any additional major barriers to cataract surgical uptake in your region which were not previously highlighted.

Note to Participant: This is the final question to the survey. Please verify that all of your responses are correct. If you would like to change any of your responses, please do so before advancing to the next page or you will no longer be able to alter your responses. You may use the back arrow to access previous questions.