

Pilot operational research study into the durability, usability and wearability of near vision eyeglasses in Sierra Leone

Sightsavers' final report to the Livelihood Impact Fund's eyeglasses initiative

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Executive summary

Sierra Leone is a country on West Africa's southwest coast, with an estimated population of 8.6 million people [1]. A 2021 Rapid Assessment of Avoidable Blindness (RAAB) survey estimated that one in five people aged over 50 years (21 per cent) had some form of distance visual impairment [2]. Unaddressed refractive error (URE) was the leading cause of early distance visual impairment and the second leading cause of moderate distance visual impairment (accounting for 66 per cent and 15 per cent of the burden respectively). Of 2,650 people surveyed, only 35 (1.4 per cent) had access to distance vision eyeglasses, with 190 (7.6 per cent) having near vision eyeglasses [2].

Understanding patterns of near vision eyeglasses use and replacement is vital for developing and refining a model for the sustainable delivery of optical services across Sierra Leone, with lessons learnt replicable to other comparable settings.

We conducted a retrospective review of patient records maintained in the Sightsavers-supported Connaught eye clinic in Freetown and followed up with patients who had received near vision spectacles, with a telephone survey to find out whether they still used near vision eyeglasses, as well as understanding around patterns of replacement.

Study findings did not differ by gender or age, although the participants were relatively wealthy and well educated compared to the general population; so our results may not be generalisable when applied to the whole country.

The paper-based records and status of mobile phone network coverage in Freetown presented difficulties when following up with patients. However, the large pool of patient data available from the clinic meant we were able to complete the study successfully within the timeframe and resources. While there would be benefits to understanding use and replacement patterns in other parts of Sierra Leone, the differing contexts mean a similar study would require more resources and time to complete.

Key study findings

85.6 per cent of participants were still using either the original (34.9 per cent) or replacement (50.7 per cent) near vision eyeglasses 36 to 60 months later.

Two-thirds of people received replacements from hospitals or health centres, and most spent between 251 and 1,000 Leones (11 to 44 US dollars) on a replacement pair.

More than 95 per cent of study participants had overwhelmingly positive opinions about their original and replacement near vision eyeglasses.

More than half, 57.6 per cent, felt the near vision eyeglasses positively impacted their ability to work or earn income.

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Background

Livelihood Impact Fund and Sightsavers

Sightsavers and the Livelihood Impact Fund share a common goal to improve access to near vision eyeglasses for all. In January 2025, they embarked on a joint project to generate evidence on the sustainability of near vision spectacle provision in Sierra Leone, focusing on the patterns of use and replacement of near vision eyeglasses among individuals who received eyeglasses from the Sightsavers-supported Connaught Clinic in Freetown, between 2019 and 2021.

In return for financial support from the Livelihood Impact Fund, Sightsavers undertook to deliver a study described in this narrative report, which includes a description of the methodology and findings, and the survey tool, which is used to collect the data (attached as an appendix). A copy of the de-identified dataset has also been shared with the Livelihood Impact Fund, alongside a slide deck that summarises the study, including the methodology and its key findings.

Eyeglasses in Sierra Leone

Sierra Leone is a country on West Africa's southwest coast, with an estimated population of 8.6 million people [1]. A 2021 Rapid Assessment of Avoidable Blindness (RAAB) survey estimated that one in five people aged over 50 years (21 per cent) had some form of distance visual impairment [2]. Unaddressed refractive error (URE) was the leading cause of early distance visual impairment and the second leading cause of moderate distance visual impairment (accounting for 66 per cent and 15 per cent of the burden, respectively). Of 2,650 people surveyed, only 35 (1.4 per cent) had access to distance vision eyeglasses, and 190 (7.6 per cent) had near vision eyeglasses [2].

In the past 10 years, the Sierra Leonean government and partners have made significant investments into refractive and optical services. This includes the training of optometrists and optometry technicians, the set-up and equipping of vision centres, the delivery of outreaches in hard-to-reach areas and the use of technology to trial a task reallocation approach for service provision.

Sightsavers' most recent project supported refractive and optical services (screening, refraction, and eyeglasses provision) in 12 government facilities across all four provinces. Whilst government-funded, the facilities also receive donor support for capacity building, equipment/consumables, eyeglasses, and facility refurbishment [3]. Patients pay for services, but external support allows for service provision either at subsidised rates or free at the point of use for those meeting their vulnerability criteria.

Further sustainability of these refractive and optical services requires a good understanding of patient eye health-seeking behaviour and the parameters shaping the demand for services [4]. It is particularly important to understand how long patients wear near vision eyeglasses, as well as what they do to replace them when they break or their prescription changes. Since 2019, the partnership between the Ministry of Health and Sightsavers has provided eyeglasses (of all types) to over 40,000 adults (49 per cent female) across 12 sites in Sierra Leone. Data from this project provides an opportunity to respond to some of the key questions on patient eye health seeking behaviour and near vision eyeglasses demand.

Research questions

1. Do patients who received near vision eyeglasses via our project still use them 36 to 60 months after distribution?
2. Do patients replace near vision eyeglasses and, if so, which services do they use for replacement (and at what cost)?
3. What are patients' experiences with the wearability and durability of near vision eyeglasses?
4. How feasible is it to follow up with patients who received near vision eyeglasses 36 to 60 months prior?

Methods

Study design

This retrospective pilot study focused on patients who received near vision eyeglasses in the Sightsavers-supported eye clinic of Connaught Hospital Ophthalmology Department, Freetown, in 2019, 2020 and 2021. It used two quantitative research methods:

1. A descriptive statistical analysis of the existing patient data.
2. A cross-sectional telephone-based survey of patients.

Study population

Patients who received near vision eyeglasses from the Sightsavers-supported eye clinic at Connaught Hospital Ophthalmology Department in 2019, 2020 and 2021 were eligible to participate in this study.

As records were maintained in paper format, the exact number of registered patients was not recorded. However, clinic staff estimated there were 2,000 registered patients per year, of which 30 per cent would have received near vision eyeglasses, i.e. there were approximately 1,800 eligible patients over the three years.

Sampling and recruitment of study participants

All patient records which met the following criteria were abstracted and digitised:

- Patient of the Ophthalmology Department in 2019, 2020, or 2021.
- Patient record indicates near vision eyeglasses were dispensed.

All patients whose records were digitised were eligible for participation in the telephone survey. Stratified random sampling of this digitised list was used to achieve equal representation of patients from each of the three years. An equal number of patients from 2019, 2020 and 2021 was sought to provide an acceptable margin of error for the analysis. Selected patients were contacted initially by text message to alert them of a forthcoming telephone call. Patients were subsequently contacted by telephone using the contact details recorded in the records and invited to participate in the survey.

Data collection

Two data collectors and a supervisor were recruited to:

1. Input the patient records into an electronic data management system.
2. Conduct the telephone interviews, using a structured survey tool and electronic data management system to input responses.

Data collectors participated in online training about the study objectives, procedures and techniques before commencing data collection. They were also trained on research ethics and informed consent and asked to undertake and pass an online training module to demonstrate competency in this area (agora.unicef.org/course/info.php?id=33813).

Digitisation of patient records

To digitise paper-based patient information, data collectors inputted the records identified as eligible into a purpose-built app in CommCare that captured the patient's name, hospital ID, date of refraction, age, sex, and phone number. Accuracy was assured by requiring phone numbers to be entered twice, and ensuring all data was reviewed before submission.

Telephone interviews

Telephone interviews were conducted on a randomly selected subset of the registered patients into the CommCare app, using a structured survey tool (see Appendix A). The survey included questions on:

1. Experience with near vision eyeglasses
2. Actual subsequent near vision eyeglasses uptake.
3. Background demographics.

Section 1

Experience with near vision eyeglasses — included questions about the patient's near vision history, experience with near vision eyeglasses, and their opinions and attitudes towards their near vision eyeglasses.

Section 2

Actual subsequent near vision eyeglasses uptake — included questions about the near vision eyeglasses provided in the period 2019 to 2021, subsequent near vision eyeglasses, satisfaction, and amounts paid for near vision eyeglasses.

Section 3

Background demographics — included questions around the individual's educational background, and relative wealth, through socio-economic indicator questions about food and income sufficiency.

The survey tool was pre-tested by the data collectors. Based on their feedback, several adjustments were made, including removing some questions to shorten the survey's overall length, changing some wording to more locally understandable terms, and fixing some illogical skips. The tool attached in Appendix A is the final, revised version.

A number of registered patients were randomly selected and provided to the data collectors for the telephone interview, with the aim of completing 600 interviews. In the first instance, details of 600 individuals were provided, but when the rate of successful calls became clearer, another 300, and then finally another 600, were provided, resulting in 1,500 individuals in total.

The data collectors first sent a text message to the patient on the recorded phone number, informing them that they would receive a call the next day at a certain time. The call was then made at that time and, if the individual answered, they were read the information and underwent the consent process (see Appendix B) before undertaking the survey. If the individual did not answer the phone or did not wish to speak, then their response was recorded in an Excel spreadsheet and they were called again later, if deemed appropriate. Up to three attempts were made to reach each individual before they were marked as lost.

Data management

The CommCare digital platform was used to create data input forms for both the digitisation of paper-based patient records and the follow-up telephone survey. Data collectors entered responses into an app deployed on a tablet or smartphone, which synced automatically to the secure cloud server when connected to the internet.

Limited datasets have been downloaded from the secure cloud server in .csv format and saved on a secure server on the Sightsavers system — where only members of the research team with responsibility for data management, quality assurance and analysis have access.

Data analysis

The data from the telephone survey was statistically analysed using Stata version 18. The analysis focused primarily on descriptive statistics, using percentages to describe the percentage of patients still using the near vision eyeglasses after distribution (RQ1), patterns of replacement (RQ2), and wearability and durability of the near vision eyeglasses (RQ3).

Differences in responses to key questions were analysed in respect to key demographic variables using a chi-squared test to explore the likelihood that their relationship was significant, or more likely to have occurred by chance. We explored the independent effect of all variables on those key questions by combining them in a logistic regression model. For both chi-squared and logistic regression models, we assumed that p-values of 0.05 (1/20) or less, indicated that the observed relationship was significant, whereas a p-value greater than 0.05 indicated it was more likely to have occurred by chance. Individuals aged under 35 years were excluded from the analysis as their near vision was likely to be caused by hyperopia rather than presbyopia.

In anticipation of a future study in more locations, this pilot was designed to help assess the feasibility of conducting this research (RQ4):

1. The accuracy of the information stored in patient records (names, telephone numbers, prescriptions).
2. The proportion of patients with presbyopia.
3. The proportion of patients who can be successfully followed up using the same telephone number.
4. The proportion of patients who are willing to participate in the telephone survey.
5. The duration of the interview.

Ethics and informed consent

This study was approved by the Sierra Leone Ethics and Scientific Review Committee at the Ministry of Health and Sanitation (SLESRC No: 032/01/2025).

Original patient records had been completed and maintained by clinic staff on the basis of standard medical records consent. Participants were not asked for consent for their records to be digitised. Participants contacted on the telephone were read an information sheet (Appendix B) that included information about how their data would be used, and their right to withdraw at any time.

Written consent was not possible on the telephone; instead, the data collector checked and recorded that formal, informed, verbal consent was provided, through asking four separate questions:

1. Details of the research have been explained to my satisfaction.
2. I understand that I may not directly benefit from taking part in this research.
3. I understand that I am free to decline to answer questions.
4. I consent to participate in this study.

Participants who did not respond yes to all four questions, and thus provide consent, were noted as such, with the interview terminated and the individual not contacted again.

Results

Digitisation of paper records

1,919 patient records that met the inclusion criteria were digitised, approximately 90 per cent of all records. The digitisation exercise was terminated before reaching 100 per cent completion as enough was estimated to be completed to conduct the telephone survey, and to ensure enough time remained to complete the survey within study timelines. The majority of those left undigitised did not have telephone numbers recorded, but the exact number was not counted.

Overall, 55.8 per cent of the records digitised were those of female patients, the average age was 50 years, and 5.5 per cent did not have a telephone number recorded (this is an underestimate of the total number missing a phone, as many records were not inputted due to the lack of phone number).

A random sample of 1,500 records was provided to the data collectors, of which 1,460 had at least one call attempted. Of these, a slight majority (54.6 per cent) were unable to be reached, primarily due to connection issues (indicated by a phone company message), the phone ringing but not being answered, the number being disconnected, and incorrect numbers (indicated by another individual answering the phone).

Among the calls where the intended individual was reached, the majority consented to participate (41.5 per cent of the total call attempts) (see table 1 below). 2.7 per cent stated that, despite the records, they had not received near vision eyeglasses, and a small proportion, 1.2 per cent, refused to consent to participate. Reasons given for refusals included being too busy, not being interested, and currently being in hospital.

Table 1: Description of outcomes of calls

			%
Individuals called		1460	100
Phone answered, spoke to the correct individual	Consented to participate	606	41.5
	Did not receive near vision eyeglasses	40	2.7
	Refused to consent	17	1.2
Unable to reach the correct individual	Subscriber could not be reached (connection issue)	398	27.3
	Rang, but no answer	169	11.6
	Phone number disconnected	157	10.8
	Incorrect number	70	4.8
Missing data		3	0.2

Telephone survey participants

Among the 606 individuals who consented to participate in the telephone survey, 24 were aged under 35 years and excluded from the analysis as their near vision glasses were likely to be caused by hyperopia rather than presbyopia.

Among the remaining 582 participants, 57.9 per cent were female, and the mean age was 56 (see table 2 below). A large majority of participants had completed senior secondary schooling or higher, with over 40 per cent also having at least one university degree. The socio-economic indicators suggest that the sample is relatively wealthy, with very few individuals indicating that their households have less than enough food or income to sustain themselves.

Table 2: Characteristics of participants consenting to participate in the survey

			%
Total		582	100
Gender	Male	245	42.1
	Female	337	57.9
Age group	35-39 years	8	1.4
	40-49	149	25.6
	50-59	185	31.8
	60-69	120	20.6
	70-79	46	7.9
	80+	19	3.3
	Refuse to answer	55	9.5
Education level (highest completed grade)	Primary	19	3.3
	Junior SS	28	4.8
	Senior SS	138	23.7
	Vocational/tech/ nursing/ teacher	97	16.7
	Higher (first degree)	165	28.4
	Tertiary (post-graduate)	68	11.7
	Koranic	5	0.9
	Other/don't know/ refuse to answer	62	10.7
Socio-economic status			
When you think about the food in your household would you say you have:	Less than adequate food for the needs of your household	6	1.0
	Just adequate food for the needs of your household	534	91.8
	More than adequate food for the needs of your household	29	5.0

	Refuse to answer	13	2.2
When you think about the income in your household would you say it is:	Not enough to cover our needs, we must borrow	0	0
	Not enough to cover our needs, we use savings	14	2.4
	Just enough to cover our needs	249	60.0
	Enough to cover our needs, we are able to save a little	192	33.0
	Enough to cover our needs, we are building savings	13	2.2
	Refuse to answer	14	2.4

RQ1: Do patients who received near vision eyeglasses via our project still use them 36 to 60 months after distribution?

Overall, 85.6 per cent of respondents (498/582) were using near vision eyeglasses (see table 3). More than one-third of participants (34.9 per cent) were still using the near vision eyeglasses they received from the Sightsavers-supported eye clinic of Connaught Hospital between the previous three and five years, and 50.7 per cent were using a replacement pair.

Current near vision eyeglasses use did not differ by the participant's age, gender, or socio-economic status. Individuals with lower levels of education were more likely to still be using the near vision glasses — however, when all the variables were considered together, this relationship disappeared, explained by the age and gender differences by education.

Table 3: Description of responses to the question “Thinking of the near vision eyeglasses you received from Sightsavers/Connaught, do you still use them?”

		Wears near vision eyeglasses		Does not wear near vision eyeglasses	Difference Chi sq (p-value)
		Yes, the same pair (%)	No, but have replaced them (%)	No, don't wear near vision glasses anymore (%)	
Total		203 (34.9)	295 (50.7)	84 (14.4)	
Gender	Male	80 (32.7)	127 (51.8)	38 (15.5)	1.0519 (=0.59)
	Female	123 (36.5)	168 (49.9)	46 (13.7)	
Age group	35-39 years	2 (25.0)	5 (62.5)	1 (12.5)	10.4793 (p=0.57)

	40-49	44 (29.5)	81 (54.4)	24 (16.1)	
	50-59	65 (35.1)	91 (49.2)	29 (15.7)	
	60-69	45 (37.5)	55 (45.8)	20 (16.7)	
	70-79	16 (34.8)	24 (52.2)	6 (13.0)	
	80+	9 (47.4)	8 (42.1)	2 (10.5)	
	Refuse to answer	22 (40.0)	31 (56.4)	2 (3.6)	
Education level - highest grade completed	Primary	10 (52.6)	6 (31.6)	3 (15.8)	37.4223 (p=0.005)
	JSS	12 (42.9)	8 (28.6)	8 (28.6)	
	SSS	50 (36.2)	68 (49.3)	20 (14.5)	
	Vocational/tech/ nursing/ teacher	37 (38.1)	43 (44.3)	17 (17.5)	
	Higher (first degree)	45 (27.3)	103 (62.4)	17 (10.3)	
	Tertiary (post-graduate)	18 (26.5)	42 (61.8)	8 (11.8)	
	Koranic	3 (60.0)	1 (20.0)	1 (20.0)	
	Others	18 (56.3)	9 (28.1)	5 (15.6)	
	Don't know	0	3 (100.0)	0	
	Refuse to answer	10 (37.0)	12 (44.4)	5 (18.5)	
When you think about the food in your household would you say you have:	Less than adequate food for the needs of your household	4 (66.7)	1 (16.7)	1 (16.7)	8.2695 (p=0.219)
	Just adequate food for the needs of your household	187 (35.0)	269 (50.4)	78 (14.6)	
	More than adequate food for the needs of your household	7 (24.1)	20 (69.0)	2 (6.9)	

	Refuse to answer	5 (38.5)	5 (38.5)	3 (23.1)	
When you think about the income in your household would you say it is:	Not enough to cover our needs, we must borrow	0	0	0	12.8516 (p=0.117)
	Not enough to cover our needs, we use savings	5 (35.7)	6 (42.9)	3 (21.4)	
	Just enough to cover our needs	133 (38.1)	161 (46.1)	55 (15.8)	
	Enough to cover our needs, we are able to save a little	57 (29.7)	112 (58.3)	23 (12.0)	
	Enough to cover our needs, we are building savings	3 (23.1)	10 (76.9)	0	
	Refuse to answer	5 (35.7)	6 (42.9)	3 (21.4)	

Reasons for not using near vision glasses

Among the individuals who no longer wore any near vision eyeglasses (84), 29.8 per cent reported that their near vision eyeglasses were broken in some way; 27.4 per cent lost them; 13.1 per cent reported that the lens was no longer strong enough; and a small proportion either felt they didn't need them anymore or couldn't get used to them (see table 4).

19 per cent of individuals reported 'other' reasons, which included some individuals going completely blind; some individuals having treatment or surgery to restore their vision and no longer needing eyeglasses; and retiring from work.

Table 4: Description of reasons for not using original near vision eyeglasses anymore

		%
They got broken (frames or lens)	25	29.8
They got lost	23	27.4
Other	16	19.0
Lens/power not strong enough anymore	11	13.1
I didn't really need them	7	8.3
I couldn't get used to them	2	2.4

RQ2: Do patients replace near vision eyeglasses and, if so, which services do they use for replacement, and at what cost?

All participants were asked whether they had purchased or received another pair of near vision eyeglasses since the pair they got from the Sightsavers-supported eye clinic of Connaught Hospital (see table 5). Over half had a new pair: 47.9 per cent had purchased a new pair, and 4.6 per cent had received one for free. A large proportion of participants, 47.3 per cent, did not have a new pair although most of these individuals (191; 69.5%) were still using the first pair they received from Sightsavers/Connaught.

Table 5: Description of responses to the question "Have you purchased or received another pair of near vision eyeglasses since you received this pair from Sightsavers/Connaught?"

	Using original pair		No longer using original pair		Total	
		%		%		%
Yes, I purchased	10	3.6	269	96.4	279	47.9
Yes, I received another free pair	1	3.7	26	96.3	27	4.6
No	191	69.5	84	30.6	275	47.3
Refuse to answer	1	100	0	0	1	0.2

Characteristics of individuals receiving new near vision eyeglasses

Replacement practices were not associated with gender, age, or economic status (see table 6). People with lower levels of education or lower levels of income did appear to be less likely to have replaced their near vision eyeglasses. However, when all the variables were considered together, the relationship disappeared, most likely explained by underlying gender and age structures.

Table 6: Description of differences between individuals who had replaced their near vision glasses, and those who had not, including those who had the original pair

		Wears near vision eyeglasses		Does not wear near vision eyeglasses	
		Yes, I have a replacement pair (%)	No, I am still using the original pair (%)	No, I no longer use near vision glasses (%)	Difference Chi sq (p-value)
Total		306 (52.7)	191 (32.9)	84 (14.5)	
Gender	Male	129 (52.9)	77 (31.6)	38 (15.6)	0.5875 (p=0.75)
	Female	177 (52.5)	114 (33.8)	46 (13.7)	
Age group	35-39 years	5 (62.5)	2 (25.0)	1 (12.5)	10.4742 (p=0.57)
	40-49	83 (55.7)	42 (28.2)	24 (16.1)	
	50-59	95 (51.4)	61 (32.0)	29 (15.7)	
	60-69	55 (45.8)	45 (37.5)	20 (16.7)	
	70-79	27 (58.7)	13 (28.3)	6 (13.0)	
	80+	10 (52.6)	7 (36.8)	2 (10.5)	
	Refuse to answer	31 (57.4)	21 (38.9)	2 (3.7)	
Education level - highest grade completed	Primary	6 (31.6)	10 (52.6)	3 (15.8)	37.2010 (p=0.005)
	JSS	9 (32.1)	11 (39.3)	8 (28.6)	
	SSS	71 (51.5)	47 (34.1)	20 (14.5)	
	Vocational/tech/nursing/teacher	47 (48.5)	33 (34.0)	17 (17.5)	

	Higher (first degree)	106 (64.2)	42 (25.5)	17 (10.3)	
	Tertiary (post-graduate)	42 (61.8)	18 (26.5)	8 (11.8)	
	Koranic	1 (20.0)	3 (60.0)	1 (20.0)	
	Others	9 (28.1)	18 (56.3)	5 (15.6)	
	Don't know	3 (100.0)	0	0	
	Refuse to answer	12 (46.2)	9 (34.6)	5 (19.2)	
When you think about the food in your household would you say you have:	Less than adequate food for the needs of your household	1 (16.7)	4 (66.7)	1 (16.7)	8.1667 (p=0.226)
	Just adequate food for the needs of your household	280 (52.5)	175 (32.8)	78 (14.6)	
	More than adequate food for the needs of your household	20 (69.0)	7 (24.1)	2 (6.9)	
	Refuse to answer	5 (38.5)	5 (38.5)	3 (23.1)	
When you think about the income in your household would you say it is:	Not enough to cover our needs, we must borrow	0	0	0	13.0925 (p=0.11)
	Not enough to cover our needs, we use savings	6 (42.9)	5 (35.7)	3 (21.4)	
	Just enough to cover our needs	168 (48.1)	126 (36.1)	55 (15.8)	
	Enough to cover our needs, we are able to save a little	116 (60.7)	52 (27.2)	23 (12.0)	
	Enough to cover our needs, we are building savings	10 (76.9)	3 (23.1)	0	
	Refuse to answer	6 (42.9)	5 (35.7)	3 (21.4)	

Reasons for not replacing near vision eyeglasses

Among the 84 individuals who did not have a new pair, nearly one third (31 per cent) reported not being able to afford a new pair (see table 7). Others reported not using near vision eyeglasses anymore (26.2 per cent), not having money to see a doctor (2.4 per cent) and the distance to purchase near vision eyeglasses being too far (0.7 per cent). Other reasons provided included vision improvement and no longer using near vision glasses, and financial reasons.

It is worth noting that 11 individuals reported still using the Sightsavers glasses, despite earlier reporting that they no longer used them; a discrepancy in their responses which was not addressed at the time of data collection.

Table 7: Description of reasons why individuals had not obtained new near vision eyeglasses

		%
I can't afford a new pair	26	31.0
I am not using near vision eyeglasses much	22	26.2
Other	17	20.2
I am still using the Sightsavers glasses	11	13.1
I don't have the money to see a doctor	7	8.3
I must travel far to buy	1	1.2

Replacement near vision eyeglasses

Among the 306 individuals who had replaced their near vision eyeglasses, 81.1 per cent (248) had only one additional pair, 16.7 per cent (51) had two additional pairs, and 2.3 per cent (7) had more than two additional pairs. The rest of this section refers to the first pair of new near vision eyeglasses purchased by the individual.

Over two-thirds (67.3 per cent) purchased their near vision eyeglasses in a hospital or health facility, 13.4 per cent purchased them from street vendors, 10.1 per cent from an optical shop and 3.3 per cent from community health workers (see table 8). The major 'other' source was gifts from family members, especially those based overseas. Others mentioned private hospitals (including the 'Chinese hospital'), and one mentioned a supply from their office.

Table 8: Description of locations where the first new pair of near vision eyeglasses was purchased

		%
Hospital or health facility	206	67.3
Street vendors	41	13.4
Optical shop	31	10.1
Others	18	5.9
Community health workers	10	3.3

Among the 306 individuals who had a second pair, a small proportion got them for free (7.2%, 22) — a slight discrepancy with the 27 who declared they were given a pair for free (see table 9). 16.7 per cent paid 250 Leones (approximately 11 US dollars) or less; 35.9 per cent paid between 250 and 1,000 Leones (approximately 44 US dollars), and 23.9 per cent paid more than 1,000 leones.

Table 9: Description of the cost of new near vision eyeglasses (Leones)

		%
Free	22	7.2
1-250 Leones	51	16.7
251-1,000 Leones	110	35.9
1,000+ leones	73	23.9
Don't know/refuse to answer	50	16.3

Four out of five (78.8 per cent) of individuals had their eyes tested before purchasing the next pair. 70.6 per cent got the same strength lenses, 6.9 per cent got stronger lenses, and 19.3 per cent got weaker lenses (see table 10). Only 3.3 per cent reported being unsure about the change in prescription.

Table 10: Description of information about eye tests and changes in strength of lenses

			%
Eye test before new near vision eyeglasses	Yes	241	78.8
	No	64	20.9
	Refuse to answer	1	0.3
New lenses strength	Same as before	216	70.6
	Weaker	59	19.3
	Stronger	21	6.9
	Don't know/refused to answer	10	3.3

For the majority of individuals (61.4 per cent), comfort was the major factor in their choice, followed by cost (23.9 per cent), durability (5.9 per cent) and convenience (5.2 per cent) (see table 11). For a small number of individuals, brand, style, and 'other' reasons were deciding factors.

Table 11: Description of factors influencing the choice of new near vision eyeglasses

		%
Comfort	188	61.4
Cost/price	73	23.9
Durability	18	5.9
Available in a convenient location	16	5.2
Brand	5	1.6
Style	3	1.0
Other	3	1.0

Plans for future purchases

Participants were also asked about their plans for buying near vision eyeglasses in the future (see table 12). The majority would be willing to pay some amount for their near vision eyeglasses, with five per cent expecting them for free, and 20.1 per cent not knowing how much they would pay. Most (40.8 per cent) would be willing to pay between 251 and 1,000 Leones (11 to 44 US dollars), 21.3 per cent would pay less than 250 Leones (11 US dollars), and 11.1 per cent would pay 1,000 Leones (44 US dollars) or more.

Most individuals would prefer to go to a hospital or health centre for both an eye test (94.5 per cent) and to buy new near vision eyeglasses. A small number of individuals also mentioned street vendors and optical shops as sources of tests and near vision eyeglasses, but no one mentioned pharmacies or community health workers for either service.

Table 12: Description of individuals' plans for future near vision eyeglasses purchases

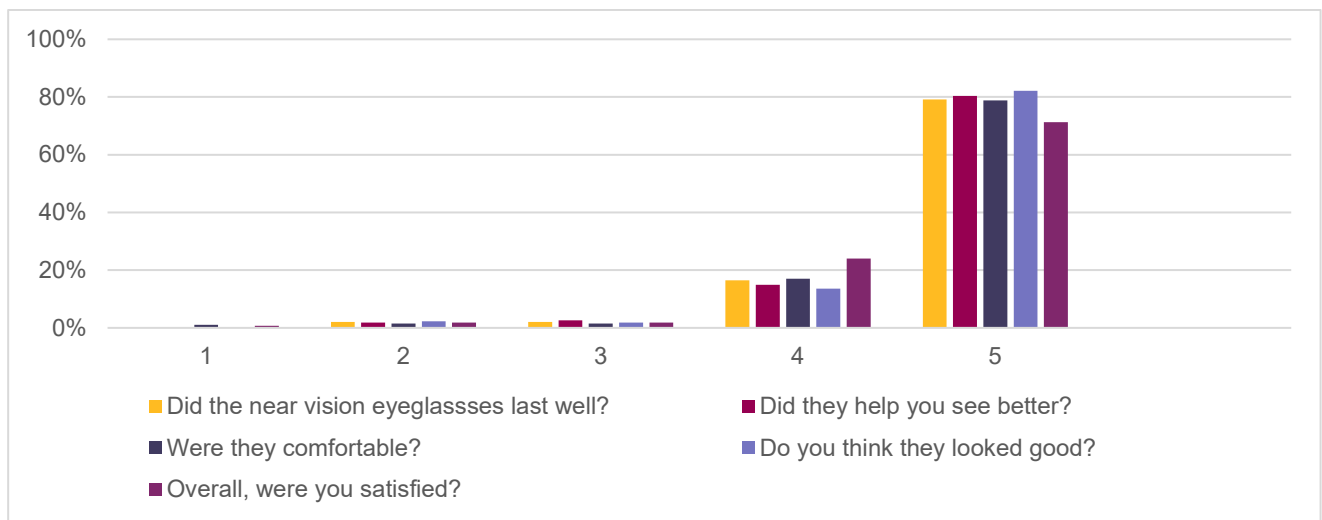
			%
How much would you be willing to pay? (497 respondents)	Nothing	25	5.0
	1-250 Leones	106	21.3
	251-1,000 Leones	203	40.8
	1,000+ Leones	55	11.1
	Don't know	100	20.1
	Refuse to answer	8	1.6
Where would you go to get your eyes checked?	Hospital or health facility	550	94.5
	Street vendors	11	1.9
	Optical shop	21	3.6
Where would you buy your new near vision eyeglasses?	Hospital or health facility	558	95.9
	Street vendors	7	1.2
	Optical shop	17	2.9
How far would you be willing to travel?	Less than 30 mins	120	20.6
	30 mins – 1 hour	228	39.2
	1 to 2 hours	206	35.4
	More than 2 hours	26	4.5
	Refuse to answer	2	0.3

RQ3: What are patients' experiences with the wearability and durability of near vision eyeglasses?

Experiences with the original pair of near vision eyeglasses

All 582 participants were asked their opinion about different aspects of the near vision eyeglasses from the Sightsavers-supported eye clinic of Connaught Hospital, using a scale from one to five, with one indicating a very negative response and five indicating a very positive response (see figure 1). Opinions were sought about the near vision eyeglasses' durability, comfort, functionality, looks, and overall opinion. The near vision eyeglasses were well regarded by many participants, with over 95 per cent finding them positive or very positive across all the domains of enquiry.

Figure 1: Graph showing participants' opinions about the new vision eyeglasses from Connaught

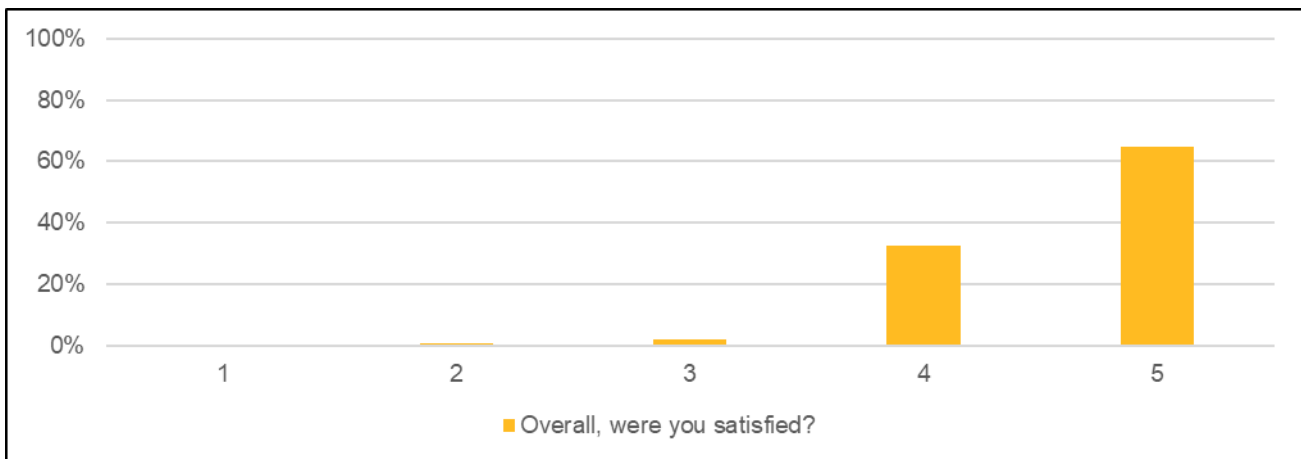


More than half, 57.6 per cent, reported that they felt the near vision eyeglasses positively impacted their ability to work or earn income.

Experiences with replacement near vision eyeglasses

Participants who had purchased or received near vision eyeglasses since the original pair from the Sightsavers-supported eye clinic at Connaught Hospital were also asked about their replacement pair, rating them from not being satisfied at all (1) to being extremely satisfied (5) (see figure 2). Over 95 per cent were either satisfied or very satisfied with the replacement near vision eyeglasses.

Figure 2: Graph showing participants' opinions about the replacement near vision eyeglasses



RQ4: How feasible is it to follow up with patients who received near vision eyeglasses 36 to 60 months prior?

There were a range of challenges in following up patients in this study, the most significant being connection/network issues, followed by incorrect or changing phone numbers. These issues are described below. However, the large pool of eligible patients at the Sightsavers-supported eye clinic of Connaught Hospital meant a large enough sample could successfully be reached to conduct this study within the time and resources available.

a. Assessment of the accuracy of the information stored in patient records (names, telephone numbers, prescriptions)

A range of inaccuracies were identified in the paper-based registration system. A sizeable proportion of patient records did not have a telephone number recorded. Of those digitised, 5.5 per cent (105) did not have a telephone number recorded. This is an underestimate, as data collectors reported that many of the approximately 200 eligible records that were left undigitised due to time constraints were left due to the lack of a telephone number. A missing telephone number was therefore expected for between five and 15 per cent of records.

There was no data to substantiate the number of incorrectly recorded telephone numbers. However, it is assumed that some of the patients were unreachable due to an incorrect (70, 4.8 per cent) or disconnected number (157, 10.8 per cent) possibly due to errors in the paper files.

It was also noted that, among patients with correctly recorded phone details, 2.7 per cent (40) had not received near vision eyeglasses, indicating errors in record keeping. Furthermore, data collectors reported a range of other issues with the data that hindered digitisation:

1. Gaps in documentation (names, ages, eyeglasses details, etc) making digitisation impossible.
2. Incomplete or conflicting IDs between the refraction book and individual patient records.

3. Reuse of patient IDs on an annual basis, making the transition from paper to digital formats more difficult.

b. Estimation of the proportion of patients with presbyopia

Digitisation of records focused only on those who were recorded as having received near vision eyeglasses from the Sightsavers-supported eye clinic of Connaught Hospital between 2019 and 2021. As a result, no estimation of the proportion of patients with presbyopia can be provided. Data collectors suggested that over 8,000 patient records were recorded in 2019 alone, although resource and time constraints hindered the study in digitising and analysing these.

c. Evaluation of the proportion of patients who were successfully followed up using the same telephone number.

As described in table 1, 45.4 per cent of individuals were reached using the telephone number stored in the registration record. It is important to note that this figure is among individuals who had telephone numbers recorded. There were a sizeable proportion of registration records that did not include any telephone number or other contact details.

A random sample of 1,500 records was provided to the data collectors, of which 1,460 had at least one call attempted. Of these, a slight majority (54.6 per cent) were unable to be reached, primarily due to connection issues (indicated by a phone company message), the phone ringing but not being answered, the number being disconnected, and incorrect numbers (indicated by another individual answering the phone).

Among the calls where the intended individual was reached, the majority consented to participate (41.5 per cent of the total call attempts), 2.7 per cent stated that — despite the records — they had not received near vision eyeglasses, and a small proportion, 1.2 per cent, refused to consent to participate. Reasons given for refusals included being too busy, not being interested, and currently being in hospital.

d. Evaluations of the proportion of patients who are willing to participate in the telephone survey

Among the 663 individuals who were reached on the telephone (see table 1), 606 (91.4 per cent) consented to participate, 40 (6 per cent) were ineligible to participate as they had never received near vision eyeglasses (despite the records), and 17 (2.6 per cent) refused to consent to participate.

e. Evaluation of the duration of the interview

The majority of telephone calls took between two and five minutes. A small proportion took around ten minutes, as the participants asked for clarifications or questions about the study.

Digitising patient records started on February 27th and was completed on March 21st. Three individuals spent a total of 45 working days to digitise 1,919 records, an average of 43 records per person, per day. The telephone survey phone calls started on April 1st and finished on April 30th. Two individuals took 42 working days to make 606 successful calls, an average of 14 successful calls per person per day.

Discussion

Sustainability of near vision eyeglasses provision

Overall, 85.6 per cent of participants were found to be using near vision glasses three to five years after receiving their first pair. More than one third (34.9 per cent; 203) of individuals are still using the original pair, and 50.7 per cent (295) were using replacements, and this did not appear to differ by gender, age, education, or socio-economic status.

Among those no longer using the near vision eyeglasses, three out of 10 (29.8 per cent) reported that their near vision eyeglasses were broken in some way; a similar proportion (27.4 per cent) lost them; 13.1 per cent reported that the lens was no longer strong enough; and a small proportion either felt they didn't need them anymore or couldn't get used to them.

Despite these challenges, over 95 per cent had positive or very positive impressions of the near vision eyeglasses in terms of their durability, functionality, comfort, attractiveness, and overall opinion.

Patterns of uptake of a second pair

Over half of our participants had acquired at least one additional pair of near vision eyeglasses since their original pair, and this did not appear to differ by gender, age, education or socio-economic status. 279 (47.9 per cent) had purchased a new pair, and 27 (4.6 per cent) had received one for free.

Among those who did not have a replacement pair (275; 47.3 per cent), more than two-thirds (191; 69.5 per cent) were still using the original pair from the Sightsavers-supported eye clinic at Connaught Hospital.

Among those individuals who did get a replacement pair, over two-thirds (67.3 per cent; 206) got them from a hospital or health facility. The private sector was also an important source of near vision eyeglasses, with a combined 23.5 per cent (72) getting their second pair from either street vendors or an optical shop.

While a small proportion (7.2 per cent; 22) received their second pair of near vision eyeglasses for free, most (110; 35.9 per cent) paid between 251 and 1,000 Leones (approximately 11 to 44 US dollars). The vast majority (78.8 per cent) had an eye test before buying a second pair, with the majority reporting that their prescription did not change (70.6 per cent).

Study limitations

The following limitations need to be considered when interpreting the results of this study:

Incomplete and inconsistent clinic records

The study relied on paper-based registration records from Connaught Eye Clinic, which were not designed for research purposes. Many records were missing key information — such as phone numbers, patient identifiers, or prescription details. This limited the pool of eligible participants and may have introduced bias, as individuals with complete and accurate records may differ systematically from those whose records were excluded. The records are also limited in terms of details regarding diagnoses and prescriptions, rendering detailed analysis of individual differences difficult.

Unrepresentative sample

Patients who sought and were dispensed near vision eyeglasses from the Sightsavers-supported eye clinic of Connaught Hospital may be different from patients who get their near vision eyeglasses from other sources, such as private clinics or those with unmet needs. Results may, therefore, not be generalisable to everyone with presbyopia in Freetown. The data suggests that our sample may be better educated than average: only 10.7 per cent of telephone survey participants had never completed any level of formal schooling compared to 43.3 per cent nationally in 2018 [5].

Sampling bias due to reliance on telephone follow-up

The follow-up methodology depended on participants retaining the same phone number and having access to a functioning mobile network. Individuals in more socio-economically stable situations were more likely to be reached, potentially skewing the sample toward better-off patients. This limits the generalisability of the findings to all presbyopes or eyeglass users, particularly those living in rural or more transient settings where phone ownership and access are more variable.

Implications for future research

Feasibility of conducting this study elsewhere in Sierra Leone

Several issues were encountered in reaching study participants, some of which were linked to incorrect or incomplete paper-based records, and some of which were linked to mobile phone service coverage and patterns of retaining phone numbers. Despite this, the large pool of eligible records meant a sufficient number of individuals were reached with the telephone survey to answer the study questions.

When deciding whether to repeat this study elsewhere in Sierra Leone, considerations include whether:

1. The circumstances around patient records, mobile phone service coverage and patterns of use and replacement are similar, and thus the feasibility is similar.
2. Whether the findings are likely to be sufficiently different to warrant further exploration.

Regarding point one, records obtained from clinics in Bo, Kenema, and Makeni, indicate a significant availability of patient records. An estimated total of approximately 785 patients per year exists in the other rural regions. Access to refraction services, which are crucial for the diagnosis of vision impairments, tends to be more constrained in rural areas as opposed to urban centres in Sierra Leone. Urban areas typically possess better-equipped healthcare facilities, a higher concentration of trained professionals, and enhanced availability of optical services.

Mobile phone services are well understood to be less reliable outside of Freetown, with coverage less reliable in rural and remote areas. Patterns of use in rural areas also suggest individuals may change their numbers more frequently. High loss to follow up could therefore be expected in areas outside of Freetown.

With regards to point two, there is no evidence currently available about how near vision eyeglasses use differs between individuals living in rural areas compared to those in urban Freetown. A similar study outside of Freetown would provide important insight into patterns of near vision use and replacement among less wealthy and rural populations. As the majority of the population lives in rural locations, this would be important information for improving coverage of near vision spectacle use nationally. This pilot demonstrates that such a study would be possible. However, the challenges encountered are likely to be amplified in rural communities, and thus we anticipate needing a larger sample of registered patients in order to reach sufficient individuals with a telephone survey.

Other research questions

The implementation and findings of this study bring about a number of related questions that require further research studies to answer. A non-exhaustive list of questions is described here:

1. How do these findings compare to similar studies conducted elsewhere in sub-Saharan Africa, and what interventions have been tested to improve uptake of near vision eyeglasses in the region?

We suggest a systematic review of the literature, including a meta-analysis of existing published data, would be an appropriate methodology to synthesise existing estimates of near vision eyeglasses, use and replacement, and evidence about effective interventions. In the absence of studies from other similar and comparable contexts on the continent, further primary research to generate such data in other suitable locations may be appropriate.

2. What is the unmet need for near vision eyeglasses in different settings in sub-Saharan Africa, and what factors are associated with unmet need?

While understanding use and patterns of replacement among near vision eyeglass users is important, most evidence that exists suggests that coverage of eyeglasses generally is low in many sub-Saharan African locations. The rapid assessment of avoidable blindness (RAAB) conducted in Sierra Leone in 2021 among people aged 50 years and above did not assess near vision eyeglasses need directly, but found that only 7.6 per cent of participants had access to near vision eyeglasses.

3. While the RAAB provided some useful information, its focus on the over 50s and cataract blindness means it is not the most appropriate methodology for assessing near vision refractive error need and eye glass coverage, although the updated RAAB protocol (RAAB7) does include an optional assessment of near vision. A similar approach, akin to a rapid assessment of vision impairment (RAVI) developed and mostly used in India, may be more appropriate [6]. This study was tailored to focus on the over 40s, and primarily explores issues of presbyopia and near vision eyeglasses coverage.

4. What are the social and behavioural drivers of near vision eyeglasses uptake and use in different sub-Saharan African contexts, and how can these be amplified to increase coverage and improve equity?

A combination of qualitative and quantitative research methods can be employed to explore the reasons why individuals are motivated to use near vision eyeglasses, to isolate and amplify those factors, and to test their effectiveness through experimental methods.

5. How can near vision eyeglasses improve workers' productivity and reduce poverty by increasing participants' future earnings?

A combination of primary research methods, including a controlled trial, would allow us to explore a range of potential economic changes attributable to the use of near vision eyeglasses.

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Appendix A: Telephone survey tool

1. Experience with near vision eyeglasses from Sightsavers/Connaught

1.1	Now, we would like to talk about the glasses/spectacles you received in [year] from Sightsavers/eye clinic at Connaught hospital. Were these your first pair of glasses?	a) Yes — skip to 1.3 b) No (had others before) c) Refuse to answer
1.2	If no, about how old, or what age were you when you started wearing glasses?	
1.3	Thinking of the glasses you received from Sightsavers/Connaught do you still use them?	a) Yes — skip to 1.5 b) No c) Refuse to answer
1.4	If you don't still use them, why not?	a) They got broken (frames broken or lens broken). b) They got lost. c) I couldn't get used to them. d) I didn't really need them. e) Lens/power not strong enough anymore (the lens dropped/ no more power/changed prescription). f) I didn't like how they looked. g) They were uncomfortable. h) Other. i) Refuse to answer.
1.5	How much did you pay for the eyeglasses you received from Sightsavers/Connaught in [year] (not including the cost of the registration card)?	a) 0 Leones/free b) 1-250 Leones c) 251-1,000 Leones d) 1,000+ Leones e) Don't know f) Refuse to answer
1.6	What is the main way you use (or used) the glasses? (choose one)	a) Working b) Reading for pleasure or for religious reasons c) Household duties d) Using a phone/mobile money e) Other f) Refuse to answer
1.7	How often did you, or do you usually, use the glasses?	a) Daily b) A few times per week c) Rarely d) Never e) Refuse to answer
1.8	Thinking of the glasses you received from Sightsavers/Connaught, do you think they lasted well?	a) Yes, very well. b) Yes, quite well. c) Neither well nor not well. d) No, not very well. e) No, not well at all.

		Refuse to answer.
1.9	Do you think they help(ed) you see better up close?	Yes, much better. Yes, a little better. Neither better nor not better. No, not a lot better. No, not better at all. Refuse to answer.
1.10	Do you think they are (were) comfortable?	Yes, very comfortable. Yes, a little comfortable. Neither comfortable nor not comfortable. No, a little uncomfortable. No, very uncomfortable. Refuse to answer.
1.11	Do you think they look okay when you are (were) wearing them?	Yes, they look great. Yes, they look okay. Neither good nor bad. No, they don't look okay. No, they don't look good at all. Refuse to answer.
1.12	Overall, how satisfied were you with the glasses you received?	Very satisfied Satisfied Neutral Unsatisfied Very unsatisfied Refuse to answer
1.13	Has wearing these glasses positively impacted your ability to work or earn income?	Yes No Refuse to answer
1.14	If yes, explain.	Yes No — skip to section 2 Not sure Refuse to answer

2. Actual subsequent pair uptake

2.1	Have you purchased or received another pair of near vision glasses since you received this pair from Sightsavers/Connaught?	<ul style="list-style-type: none"> a) Yes, I purchased — skip to 2.4 b) Yes, I received another free — skip to 2.4 c) No d) Refuse to answer
2.2	If no, what is the main reason why not? (Read out.)	<ul style="list-style-type: none"> a) I am still using the Sightsavers glasses b) I am not using the glasses much c) The glasses don't help d) I can't afford a new pair e) I don't know where to buy them f) I must travel far to buy them g) I don't have money to see a doctor h) It's just not worth it i) Other: j) Refuse to answer
2.3	For those who are not using the Sightsavers glasses (Q1.3=No) and who have NOT gotten another pair (Q2.1=No): Has poor vision stopped you from doing any tasks independently?	<ul style="list-style-type: none"> a) Yes b) No — skip to 2.13 c) Refuse to answer
2.4	If yes, which ones?	
2.5	If yes, what were the main reasons you decided to get a new pair of glasses?	<ul style="list-style-type: none"> a) Previous glasses broke b) Previous glasses got lost c) Wanted an additional pair d) My vision changed e) I wanted a new style f) The glasses were old g) Other: h) Refuse to answer
2.6	How many new pairs of near vision glasses have you acquired since the ones you got from Sightsavers/Connaught in [year]?	<ul style="list-style-type: none"> a) One additional pair b) Two additional pairs c) Three or more additional pairs d) Refuse to answer
2.7	For the rest of this section, tell us about the first new pair you got.	<ul style="list-style-type: none"> a) Hospital or health facility b) Street vendors

	Where did you get the new glasses?	<ul style="list-style-type: none"> c) Optical shop d) Pharmacies e) Community health workers f) Other: g) Refuse to answer
2.8	How much did you pay?	<ul style="list-style-type: none"> a) 0 – free b) 1-250 c) 251-1,000 d) 1,000+ e) Don't know f) Refuse to answer
2.9	Did you have your eyes tested again before getting the new glasses?	<ul style="list-style-type: none"> a) Yes b) No c) Refuse to answer
2.10	Did you buy the same strength level in the near vision eyeglasses or did you get a different prescription?	<ul style="list-style-type: none"> a) Same strength b) Got stronger glasses c) Got weaker glasses d) Don't know e) Refuse to answer
2.11	What features of the new glasses helped you decide to purchase this particular type? (Read out, select all that apply.)	<ul style="list-style-type: none"> a) Cost or price b) Available in convenient place c) Durability d) Style e) Comfort f) Brand g) Other: h) Refuse to answer
2.12	Overall, how satisfied are you with the new glasses you received? (on a scale of 1-5)?	<ul style="list-style-type: none"> a) Very satisfied (5) b) Satisfied (4) c) Neutral (3) d) Unsatisfied (2) e) Very unsatisfied (1) f) Refuse to answer
2.13	If you were to get replacement eyeglasses, how much would you be willing to pay?	<ul style="list-style-type: none"> a) 0 – free b) 1-250 c) 251-1,000 d) 1,000+ e) Don't know f) Refuse to answer
2.14	If you wanted to have your eyes checked again, where would you go?	<ul style="list-style-type: none"> a) Hospital or health facility b) Street vendors c) Optical shop d) Pharmacies

		<ul style="list-style-type: none"> e) Community health workers f) Other: g) Refuse to answer
2.15	If you wanted to purchase new reading glasses, where could you get them?	<ul style="list-style-type: none"> a) Hospital or health facility b) Street vendors c) Optical shop d) Pharmacies e) Community health workers f) Other: g) Refuse to answer
2.16	How far would you have to travel to do that (purchase reading glasses)? (Read out.)	<ul style="list-style-type: none"> a) Less than 30 minutes b) 30 minutes to an hour c) One to two hours d) More than two hours e) Don't know f) Refuse to answer

3. Background Demographics

We'd like to close with just a little more information about you.

3.1	What is the highest grade you completed in school?	<ul style="list-style-type: none"> a) Pre-primary b) Primary c) JSS d) SSS e) Vocational/ tech/ nursing/ teacher f) Higher (first degree) g) Tertiary (post-graduate) h) Koranic i) Others j) Don't know k) Refuse to answer
3.2	When you think about the food in your household would you say you have:	<ul style="list-style-type: none"> a) Less than adequate food for the needs of your household. b) Just adequate food for the needs of your household. c) More than adequate food for the needs of your household.
3.3	When you think about the income in your household would you say it is:	<ul style="list-style-type: none"> a) Not enough to cover our needs, we must borrow. b) Not enough to cover our needs, we use savings. c) Just enough to cover our needs. d) Enough to cover our needs, we are able to save a little.

		e) Enough to cover our needs, we are building savings.
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Appendix B: Information and consent information read to telephone survey participants

Begin

Hello, my name is [data collector name].

I am calling from Sightsavers, and I am asking you to volunteer to take part in a phone interview about eyeglasses. The aim of the study is to understand how people use near vision eyeglasses so we can improve eyeglass services in the future.

We want to talk to you because our records show that you received near vision eyeglasses from the eye clinic at Connaught Hospital, Freetown, between 2019 and 2022.

We expect the questions will take between 15 and 20 minutes.

If you agree to participate in this study, we will ask you:

Information about the eyeglasses you received between 2019 and 2022, and how you used them.

Information about any subsequent eyeglasses you have had since then.

Information about yourself and your household.

Taking part in the survey is entirely voluntary. If you decide not to participate, there will be no negative outcome for you. If you do agree to participate, you can decline to answer individual questions.

There are no risks to taking part in the survey for you. You will not receive any direct benefits or payments for participating in this study.

If you decide to be in this study, we will ask some personal information, including your name. However, we will not use your name or any identifying information about you when we analyse the data and write our report. The data we do collect will not be traceable to you personally, and we will take the following steps to ensure that your personal information is protected:

We will not share personal information about you with anyone, apart from study staff who are closely concerned with the research.

We will keep all personal information in a secure place on a computer, which may be outside of Sierra Leone.

If you have any further questions about the study, you are free to contact the research team using the following contacts:

Principal investigator: Tiangay Elaine Gondoe, Country Director, Sightsavers, Sierra Leone, 078364441

If you want to ask someone independent anything about this research, please contact:

Eddie Foday, Sierra Leone Ethics and Scientific Review Committee, Ministry of Health, 5th Floor, East Wing, Youyi Building Brookfields, 078366493 efoday@mohs.gov.sl

Consent: I am now going to read four statements. Please answer yes or no to the following [record in app]:

1. Details of the research have been explained to my satisfaction. [Yes/No]
2. I understand that I may not directly benefit from taking part in this research. [Yes/No]
3. I understand that I am free to decline to answer particular questions. [Yes/No]
4. I consent to participate in this research. [Yes/No]

End

We work with partners in low and middle income countries to eliminate avoidable blindness and promote equal opportunities for people with disabilities.

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