

Lived experiences and perception of visuomotor impairment in older adults following first- and second-eye cataract surgery

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Abstract

Purpose. Significant variation persists in the eligibility and provision of cataract surgery across the UK and beyond. Quantitative research suggests that reduced vision can increase risk of falls, lead to driving-related accidents, and reduce quality of life, but results are somewhat inconclusive as methodological differences (e.g. lab-based vs real-world vs questionnaires) lead to varied findings, and the nuanced details afforded by qualitative analyses are missed. Here, we explored the lived experiences of individuals who had received cataract surgery or were waiting to receive it, with an emphasis on investigating motor skill and quality of life outcomes or expectations.

Methods. Semi-structured topics were introduced to cover subjective changes to visuomotor behaviour and the impact of these factors on quality of life. Participants' experiences with cataract surgery were also explored. Participants took part over four focus groups. Three groups had received second-eye surgery, and one group was awaiting surgery. Data were analysed using exploratory thematic analysis.

Results. Lived experience with cataracts and surgery was explored through four themes: 1) Adaptation to visual changes, 2) Motor adaptation and activities, 3) Lifestyle maintenance and resilience, and 4) Interactions with healthcare. Participants reported challenges with select motor activities prior to surgery, particularly with nighttime driving and participation in social sports. Social participation and driving confidence improved after surgery. Desire for independence was identified as a motivator for surgery, and many adapted to adverse circumstances while awaiting treatment. Participants were generally content with their healthcare experience, although inconsistent information and accessibility were reported as issues.

Conclusion. This research highlights the importance of visuomotor ability for maintaining independence and supports previous research on the benefits of cataract surgery on quality of life and motor outcomes. Findings emphasise the need for consistent information across healthcare providers during pre-and post-operative care, specifically as it pertains to driving ability and risk of complications.

Key points

- Individuals with cataracts may experience difficulties with daily motor skills, such as driving, cooking, and taking part in sports, which may lead to issues with social participation.
- Participants identified gains in personal confidence, independence, and motor skills (e.g., sports, knitting, writing) following cataract surgery.
- Emphasis should be placed on reducing wait times between first- and second-eye cataract surgery within healthcare systems to limit risk to quality of life.

1 Introduction

Ageing populations and increased life expectancy have led to a rise in rates of age-related visual complications such as cataracts. Cataracts form due to a clouding of the crystalline lens of the eye, causing significant deficits in visual function due to thickening of the lens as it develops [1]. Bilateral cataract surgery is usually performed on one eye at a time with a gap of weeks or months and is the most common elective surgery performed every year in the UK with an estimated annual cost of £64.8 million to the NHS [2]. Currently, there is no level of visual dysfunction that must be met for Clinical Commissioning Groups (CCG's) to provide cataract surgery [3] and provision of surgery is highly dependent on the opinion of the healthcare providers. This may lead to individuals experiencing long wait times for initial surgery (until arbitrary thresholds are met), or between surgeries on either eye, and contribute to significant regional variation in the provision of surgery in terms of both timing and visual dysfunction thresholds within the NHS [4].

Motor skills are critical for everyday life and can be significantly impacted by visual impairments [5,6], particularly in older age. Everyday actions such as aligning a front door key with a lock or reaching to pick up an object from the floor, require fine motor control, precise visuomotor coordination, and are essential for independent living. Impaired vision reduces movement efficiency and accuracy, shown in tasks involving water pouring, needle threading, and peg placement [6–8]. Visual impairment also affects gross motor function and leads to increases in fall rates [9], motor accidents [10] and general mobility [11]. Several studies have found positive post-operative changes to gross motor skill performance following surgery, including significant reductions in falls [12] and vehicle crashes [13]. A systematic review on the impact of second-eye surgery on objective and subjective measures of motor performance found that provision of second-eye surgery had positive effects on mobility outcomes, particularly a reduction in falls and accidents, but had little impact on self-reported measures of fall rate [14]. This dissociation between objective measures of motor function and subjective feelings may indicate that objective assessment of motor function cannot fully capture the lived experience of functional vision changes.

It is likely that declines in gross and fine motor functions may be associated with reduced quality of life due to their critical involvement in daily living. Previous research shows that reduced visual function has been associated with diminished quality of life [2] and can increase risk of anxiety [15] and depression [16–18]. This may be intensified by extended wait periods for accessing care during which individuals continue to experience vision-related limitations that can restrict daily activities and reduce independence [19]. The impact of visual impairment on quality of life has frequently been assessed using health-related quality of life measures. A comparative study with visually impaired and visually healthy cohorts found that visually impaired groups scored significantly worse on dimensions of a quality of life questionnaire, including mobility, self-care, daily activities, pain and discomfort, and anxiety/depression [20]. Moreover, Gray et al. [21] demonstrated that successful cataract surgery was associated with improvements on questionnaires measuring social and emotional well-being and perceived physical health. However, reliance on questionnaire methods may increase risk of bias due to discrepancies in framing and interpretation of questions. For example, questionnaires focusing on participation in activities of daily living may ask an individual if they can carry out a particular task, but

not how difficult they find it, thus removing a critical level of nuance in analysis [22]. Additionally, questionnaires often rely on closed-ended or Likert scale responses which may not capture the full extent of an individuals' experience.

An alternative approach to understanding people's experiences of visuomotor impairment following first- and second-eye cataract surgery and the impact on quality of life is through semi-structured interviews. This methodology allows for the assessment of quality of life through exploration of individual experiences, providing insight into issues such as perceived difficulty completing daily tasks that may not otherwise be addressed through questionnaire-style assessments or lab-based tasks. Blancafort-Alias et al. [23] compared patient experiences performing activities of daily living from pre- to post-cataract surgery with different lens types through semi-structured interviews. Results showed that prior to surgery participants struggled to efficiently complete a range of daily tasks, but surgery led to positive performance changes. Restored visual ability was linked to general improvements in quality of life, suggesting that improved visual function may increase one's ability to take part in daily life activities and in turn lead to more general benefits.

This study is supported by Webber et al. [24], who used a focus group methodology to assess lifestyle adaptation following both first- and second-eye cataract surgery. Adaptation in the context of quality of life following cataract surgery describes how individuals alter their behaviour or lifestyle to accommodate changes to their visual function. Focus group methodology provides a significant advantage over semi-structured interviews, as participation in group-level discussions facilitate interactions between participants that generate new ideas and allow participants to draw inter-individual comparisons that can produce complex social and emotional insights [25]. Webber et al. found that participants were generally satisfied with surgery outcomes, but those who experienced longer wait times between first- and second-eye surgeries were subject to more significant adaptation problems such as difficulties with driving, balance, and requiring new prescriptions during the interim period [24]. This study provides evidence that longer waiting times may increase the risk of negative quality of life changes. However, Webber et al. did not investigate perceived changes to fine motor skills, as focus was placed on visual adaptation following surgery rather than changes to visuomotor skill. This study therefore does not clarify how altered motor ability may relate to visual impairments and reduced quality of life.

Prior research therefore highlights the need for exploratory qualitative methodologies, such as focus groups, capable of investigating how individuals perceive and adapt to the motor consequences of cataracts following first- and second-eye surgery. Without incorporating individual perspectives, important dimensions of quality of life outcomes, such as perceived motor difficulty, may be overlooked. By using a semi-structured focus group methodology, the present study allows for a deeper understanding of the social, emotional and motor consequences of cataract surgery on the first- and second-eye as well as individuals current experiences living with cataracts. Individuals awaiting treatment were included in the present research in order to understand how post-surgical expectations on quality of life compare to the lived experiences of those who have received surgery. Therefore, we

aimed to assess the subjective lived experiences relating to motor function and quality of life of older individuals who have undergone both first- and second-eye surgery, as well as individuals with a present diagnosis of cataracts who were awaiting treatment.

2 Methods

2.1 Design

This exploratory study employed a focus group design with a semi-structured interview format, analysed with thematic analysis. Care was taken to understand the position of the researcher in the context of the design. We consider the researchers as 'outsiders' to the participant sample, all being of younger age without history of visual impairment. In adopting this position, researchers can maintain distance that allows them to explore the topic area in depth, addressing valuable areas of investigation that may be overlooked by insiders. Researchers held pre-existing knowledge on ageing, cataracts, provision of cataracts surgery and how this may relate to motor function and quality of life. Understanding and interpretation of the participants' experiences was therefore influenced by prior theoretical knowledge, and meaning derived from the data accordingly.

2.2 Participants

9 participants (8 female, mean age $\pm$ SD = 80.11 $\pm$ 8.49) were recruited through the University of Leeds' School of Psychology Successful Aging Panel and through word of mouth. Two recruitment emails were sent, for online and in-person focus groups respectively. Distribution of participants in online and in-person focus groups was determined by participant availability and personal preference. Seven participants had undergone cataract surgery on both eyes and two had received a diagnosis for cataracts and were awaiting first-eye surgery. For participants who had undergone cataract surgery, time between surgeries ranged from one month to 60 months (mean = 13.14, SD = 21.29), and time since last surgery ranged from six months to 240 months (mean = 56.29, SD = 82.78). Participant information by focus group is provided in Table 1. Eligibility criteria required that participants were at least 60 years of age or older and either have a current diagnosis of cataracts or have undergone cataracts surgery in either one or both eyes.

Ethical approval

was received on 05/12/2024 by the School of Psychology Research Ethics Committee at the University of Leeds (Approval Number: PSYC-1225). The right to withdraw was made clear to participants. Participants were informed that, due to the nature of a focus group design, data may not be completely withdrawn due to difficulties extracting information from a wider conversation without impeding meaning. Participation was voluntary and no financial compensation was provided.

Table 1
Participant Information

Focus Group	Pseudonym	Age	Sex	Surgery status	Time between surgeries (months)	Time since surgery (months)
1	Alice	67	F	Both	16	5
	Beth	79	F	Both	6	15
	Clara	85	F	Both	60	60
2	Eliza	86	F	Both	5	24
	Doris	76	F	Both	3	240
3	Freya	87	F	Both	1	26
	Gavin	94	M	Both	1	24
4	Holly	74	F	None	N/A	N/A
	Janet	73	F	None	N/A	N/A

note: N/A fields denote where participants have not received surgery on the first- or second- eye.

2.3 Exploratory Thematic Analysis

The aim of the focus groups was to explore participant experiences with visuomotor adaptation and quality of life changes pre- and post- surgery. We use the term adaptation to describe how participant behaviour or lifestyle changes to accommodate the outcome of cataract surgery. Individuals who had not undergone surgery were encouraged to share their experiences living with the condition and their current experiences of accessing treatment. This method allowed the researcher to facilitate a discussion between participants to gain an in-depth understanding of personal and social perspectives relating to cataracts [26]. Data were collected via small semi-structured focus groups which allowed participants to express their views and experiences with cataracts and cataract surgery in a conversational environment. Open-ended questions in semi-structured interview formats can be particularly valuable amongst older participant groups as they reduce risk of misinterpretation or superficiality in responses [27]. The process of the semi-structured interviews involved investigating experiences with surgery, motor skills, and quality of life (Table 2). Subjective feelings of motor skill function were specifically assessed through 'Experiences of motor skills pre-surgery' and 'Visual and motor adaptation post-surgery'.

Table 2
Topic Areas and Example Focus Group Questions

Area of Investigation	Example Question
Motivations for cataract surgery	Did you have a particular motivation for getting cataract surgery?
Experiences of motor skills pre-surgery	Did you feel there were activities in your daily life that were affected by your vision?
Experiences of quality of life pre-surgery	How was your independence before surgery?
Visual and motor adaptation post-surgery	Did you experience a change between your first- and second-eye surgery?
Experiences with the healthcare process	Did you feel that you received enough information from your healthcare provider?
Meaningful changes post-surgery	What do you feel has been the most meaningful change after your surgery?

Additional prepared questions or further prompting were used following scheduled topic questions at the discretion of the researcher if more information was required. As this study was exploratory, it is important that participants were given space to address information they deemed relevant that may not have been covered by the researcher's questioning schedule. Phrasing of questions differed according to cataract status: 'Before your surgery...' versus 'Currently...' for surgery and non-surgery groups respectively.

2.4 Procedure

Four focus groups were held, with three involving post-surgery interviews and one with individuals currently diagnosed and awaiting surgery. Two of these sessions took place online on Microsoft Teams with audio enabled due to participant preference or travel restrictions, and two took place in person in the School of Psychology at the University of Leeds. Each session included two to three participants and took approximately an hour. The sessions were moderated by two undergraduate researchers (EC and FW). Additional observers (SS and/or NW) were present during most sessions. During all sessions, audio was recorded and transcribed using the Microsoft Teams auto-transcription feature. Transcripts were retained and checked for clarity against original audio recordings manually by the researchers. Non-verbal communication, such as laughter, emphasis, and gestures were added to transcription to support interpretation of the text. Identifiable information was removed, and participant names were pseudonymized. Transcripts were analysed using guidance from Braun & Clarke [28].

2.5. Analysis

Thematic analysis was employed to analyse data from the four focus groups. Analysis was approached according to a biopsychosocial theory of ageing, where motor function and quality of life are understood to influence experience with cataracts due to interactions between psychological, biological and social

factors [29]. Latent themes were identified to understand the experience of older adults surrounding cataracts and surgery as interpreted by the researcher. Transcripts were coded independently by two researchers (EC and FW) to capture underlying ideas, and discrepancies in coding were discussed and resolved. Transcripts were imported into NVivo [30] to organise codes across all four transcripts. Initial themes were decided based on recurring themes throughout the transcripts and potential theme names were identified. Themes were then reviewed and refined against codes and transcripts to ensure that the current themes were a true reflection of the participants’ experiences. This process was iterative, with themes and sub-themes continuously revised. Some themes were expanded, refined, or discarded depending on clarity, relevance, and the context of the research question. Once major themes were identified, subthemes were identified based on relevant recurring aspects of major themes.

3 Results

The exploratory thematic analysis identified four themes and eight subthemes, summarized in Table 3. As this study was exploratory, we had no prior assumptions of the themes that would be produced during data analysis.

Table 3
Summary of Themes Extracted Through Exploratory Thematic Analysis

Theme	Subthemes
Adaptation to Visual Changes	1.1 Amazement
	1.2 Confidence
Motor Adaptation and Activities	2.1 Driving
	2.2 Meaningful Activities
Lifestyle Maintenance and Resilience	3.1 Social Support
	3.2 Adapting to Difficulties
Interactions with Healthcare	4.1 Inconsistency of Information
	4.2 Accessibility

Adaptation to Visual Changes. This theme describes the experience of participants’ visual adaptation post-first- and second-eye surgery using two sub-themes: ‘Amazement’ and ‘Confidence’.

1.1 Amazement

Participants often expressed amazement at the instant change that surgery made to their visual experience. Heightened brightness was one of the most reported changes following surgery. Participants often described being surprised by the vividness of their surroundings and the clarity of

visual details that had previously gone unnoticed. Improvements to personal confidence often accompanied these changes.

“...as soon as I took the pad off of the first one... I couldn’t believe the brightness of everything.” Clara, FG1

“I kept looking out of the window for days and seeing this lovely bright view across the fields.” Beth, FG1

While this was a positive experience for many, one participant struggled to adapt to the significant change in brightness.

“I just find everything bright. Even now, I’m having a few problems going to stores with LED lighting and I really need to go with sunglasses.” Eliza, FG2

Participants also reported that the sharpness of their vision improved after cataracts surgery, allowing them to see with heightened clarity.

“...You know, you do suddenly think – ooh crikey, you know, didn’t see that before.” Alice, FG1

In addition to brightness and clarity, some discussed how their colour vision improved following surgery. They reported that post-surgery, they were able to recognize that their previous colour vision was poor.

“I remember looking out of the attic window...and it was like, colours that I’d never seen before.” Doris, FG2

Those awaiting surgery looked forward to experiencing these changes, specifically excitement towards the experience of sharper and brighter vision, similar to positive outcomes reported by friends and family.

“People I know who’ve had it done commented on how they can see colours better and how they can see sharper edges, so... I’m absolutely desperate to be able to clearly do my crossword in the newspaper and be able to see the clues and see the grid...” Janet, FG4

1.2 Confidence

The second sub-theme, ‘*Confidence*’, describes participants’ renewed personal and social confidence and confidence in their visual function. Personal confidence specifically pertains to an individual’s reduced reliance on glasses or corrective lenses, either from an aesthetic or practical perspective. Some participants found freedom in a decreased need for corrective lenses, allowing them to take part in everyday life with confidence.

“To be free of glasses, oh it was amazing.” Doris, FG2

One participant remarked that after many years of having to wear thick lenses due to short-sightedness, she no longer needed to wear them post-surgery. She found that not needing to wear glasses greatly

increased her self-confidence after years of poor self-image that originated when she began wearing glasses as a child.

“And we actually decided to get married shortly after... I can remember I sent an invite to the consultant who’d done my eyes and said, ‘I can get married without my glasses on’, which is wonderful”. Doris, FG2

Participants also emphasized that they had more confidence in their visual function in general due to the material of the lens being less likely to deteriorate than their natural vision.

“My eyesight is good and it’s going to stay good, because these lenses aren’t going to deteriorate – they’re plastic”. Freya, FG3

Motor Adaptation and Activities. This theme describes participants’ experiences with motor tasks and activities of daily living. It also details how individuals may have adapted their motor behaviour to accommodate changes to their vision. When asked what they felt the most negative consequence of their cataracts prior to surgery, the most impactful change was their inability to drive. Participants also noticed positive changes in their ability to take part in social activities, such as golf or pétanque, or individual activities such as sewing and reading.

2.1 Driving

For many, driving is a critical activity that supports an individuals’ ability to take part in social activities and live independently. This sub-theme describes the changes that living with cataracts made to participants’ driving experience, and how this impacted their independence. Many participants found that over time, confidence in their driving ability diminished.

“...I wasn’t really safe to drive. Quite suddenly. So, I was very glad to get the surgery.” Freya, FG3

They expressed concerns about their safety and comfort when driving, raising issues regarding how much they could see. The time of day or weather patterns also influenced driving ability and confidence, particularly in the rain or dark.

“The night driving... has a glare effect. And those caused problems.” Gavin, FG3

“Dark. Rush hour. [To Gavin] And driving was such a strain on you.” Freya, FG3

“... I stopped driving at night because I can’t see through all these lights...” Holly, FG4

Decreased driving confidence left some unable to attend events and live independently. This association was clear when discussing the importance of driving on maintaining daily living activities, especially for less mobile individuals and where public transport was not a viable alternative.

‘From where I live in a village to the more or less two or three shops we’ve got is over half a mile... I couldn’t walk that. If I walked it with my pusher, I don’t suppose I’d get back.’ Holly, FG4

However, following surgery, many were pleased that their ability to drive safely and comfortably had returned. For individuals awaiting surgery, some hoped that a cataracts surgery would help with their confidence driving.

“The biggest change [post-surgery] is being able to drive.” Beth, FG1

“...and as soon as she [a friend] had her cataracts done, her confidence and driving on the motorway improved dramatically. I would like to think it would help me the same...” Holly, FG4.

2.2 Meaningful Activities

Some participants spoke about the impact on their ability to take part in daily living activities. Many participants emphasized the importance of staying active. Two participants mentioned golf and pétanque as social activities they regularly take part in, with one participant identifying changes to golf abilities that made it frustrating to play independently.

[Gavin] wanted to be able to see where the ball was landing... because Gavin hates people saying that, having to tell him where it’s gone. He wants to see for himself.” Freya, FG3

However, he remarked that his golfing skills significantly improved post-surgery.

“... my golf was beginning to not be as good as it was, rapidly, but afterwards [the surgery] at least the long game was so much better.” Gavin, FG3

Other participants remarked that they had similar experiences when taking part in personal activities, such as watching TV, knitting, and reading. One participant suggested that it was not her physical abilities making the tasks difficult, but her inability to see the level of detail required for the task.

“I don’t have a problem other than when I’m threading a needle, it’s like I can’t see it. It’s not that I can’t do it, it’s just that I can’t see it.” Janet, FG4

Participants awaiting surgery expressed fear of being unable to retain their independence if their vision continues to deteriorate. They were particularly worried about not being able to take part in activities they enjoy, such as reading groups and social sports.

“I think I’d hate to have to give up anything because of my eyesight – that’s the one thing that really does scare me to a degree”. Holly, FG4

“If I were to lose my sight, I wouldn’t be able to play pétanque anymore, so yeah, it would be very life limiting for me.” Janet, FG4

Lifestyle Maintenance and Resilience. Lifestyle maintenance and resilience describe cataract surgery as a tool to maintain current lifestyles and remain resilient through the challenges that come with ageing.

3.1 Social Support

As social activities became more challenging due to cataracts, some could not fully enjoy social events, which they found to be distressing.

“I was at the theatre a couple of weeks ago, and I really struggled to see the stage either with or without my glasses on, particularly with my left eye which is one that’s got the worse cataract.” Janet, FG4

When cataract surgery caused complications, one participant explained that the main negative effect of her vision-related health difficulties was how time-consuming the treatment process was, requiring her to sacrifice significant amounts of time for her healthcare. This led her to withdraw from social events and spend less time with friends and family, making her feel as though she was missing out on key aspects of her life.

“That’s what’s impacted my life so much, you know, suddenly not being able to look after my grandson, or not being able to go somewhere, or hanging on for phone calls.” Alice, FG1

3.2 Perseverance and Adapting to Difficulties

It was clear that participants, despite the difficulties they experienced due to reduced vision, were determined to adapt to many of the challenges they experienced.

“I’m a great believer in you can find ways to work around things.” Janet, FG4

Difficulties were perceived as problems to overcome rather than a barrier, enabling them to persevere through adversity instead of becoming disheartened due to the changes in their personal circumstances.

“Because you, in many cases, you have to do it: So, you’re going to do it. But it’s become a more difficult thing than it was. You’re very conscious now of things that you maybe still do, but not as well, and takes longer.” Gavin, FG3

One participant struggled to adjust after her first-eye surgery. With one eye corrected and one uncorrected, she needed to retain her thick-lensed glasses and found reading very painful at times. However, she managed to adapt to this additional difficulty by using a magnifying glass to read while awaiting her second surgery.

“So, I remember having a huge magnifying glass just to mark the children’s work. Because I couldn’t just pick up a pair of reading glasses because one of my eyes was terribly short sighted still. So, I had two totally different eyes and at that stage in between I found that really hard.” Doris, FG2

Consistent with how participants responded to challenges concerning their visual difficulties, participants expressed resilient attitudes towards ageing in general.

“You have to make the most of life. It’s not good getting old if you’re going to sit at home and go ‘I can’t do that.’” Janet, FG4

A unique theme emerged within some groups around the ability to distinguish between problems caused by their cataracts and other age-related issues, such as a general decline in mobility and energy levels. For some, this led them to attribute possible social and motor consequences of their visual condition to a result of the ageing process.

“You’ve got to bear in mind, of course, that in this equation, you’ve got to factor in age... so when you lose a certain amount of dexterity, it may be your sight... or it could be just, age.” Gavin, FG3

Interactions with healthcare. This theme details the importance of the healthcare system when accessing treatment for cataracts. Participants engaged with two main themes when considering the impact of healthcare and healthcare providers on their experience with surgery or awaiting treatment: inconsistency of information provided to participants and accessibility of the healthcare system itself.

4.1 Inconsistency of information

Some participants received significant conflicting information regarding their care between healthcare professionals, present from diagnosis and continuing through referrals, surgery, and post-surgical care. This caused confusion and frustration amongst participants and began to adversely impact other aspects of their lives.

“The optician said I needed cataracts done, and when I went to see a surgeon, he said you don’t need them done... They were just contradicting each other, and I’ve got no driving license, and one would say I could drive, one would say I couldn’t drive.” Beth, FG1

Participants who experienced post-operative complications were given inconsistent information when attempting to resolve issues with their visual health.

“Theres an inconsistency of advice you’re given, and I went, I saw five doctors or four doctors and a consultant about the [complications] going on in this eye.” Alice, FG1

4.2 Accessibility

Of particular importance to participants was the ease with which they could access surgery. Overall, participants were content with ease of access to surgery. Most participants reported they were informed of their cataract by an optician before it was a noticeable issue. Many found the experience to be quick and efficient.

“I’m very glad that we’ve got it and that it’s so easy to get and getting easier, because I think there’s an enormous number of cataract surgeries done and for each person it’s a new lease on life.” Freya, FG3

“Suddenly, he said, ‘off you go’ and like a conveyor belt I went out one door and somebody else came in another door – and that’s how it is at this clinic, so one after the other.” Eliza, FG2

Many participants only became aware of their cataract by an optician when mild visual issues arose or during routine appointments.

“Well, I didn’t know. When they told me in twelve months’ time, I’d probably need surgery, I was amazed at that.” Eliza, FG2

Others, however, would have preferred - and likely benefitted - from a more personalized experience with healthcare professionals so that they could attend specifically to their needs. Cataract surgery is not a homogenous solution, and the ease and speed praised by some became an inconvenient lack of accommodation for others. This was particularly true for one participant, who was left feeling frustrated and worried about the rate of her cataract progression when she could not access treatment at a nearby clinic.

“I went to one of these clinics rather than hospitals, and they said to me, ‘Can you lie on that counter?’ And I said, ‘No, I can’t lay flat on there, no way’, so they were unable to do it. I have since been referred to [hospital name] and I’m on the waiting list for however long that actually might be.” Holly, FG4

Participants waiting on cataract surgery found that access to healthcare was limited despite slow-growing and impactful cataracts.

“I’ve been told this for so many years, it’s just like ‘okay, I’ll just wait this out’. But I seem to be surrounded by friends who’ve all just gone recently and had their cataracts done, it’s like ‘Why am I still here?’” Janet, FG4

Frustration from lack of access to support led to one participants’ anxiety around the risk of blindness if unable to access surgery.

“I mean for me, if it dragged on it’s the fear that gets to you. I physically can’t have it, you know, and then the fear of blindness... ‘please do it now please while I’m still fit and able to have it done’”. Holly, FG4

4 Discussion

We used a qualitative approach to explore the impact of cataract surgery on quality of life and motor skill outcomes through a focus group procedure. Overall, attitudes towards cataract surgery were positive, with many participants reporting significant increases to visual quality and quality of life, particularly after first-eye surgery. Experiences with cataracts varied, but post-surgical improvements in vision were generally associated with higher levels of independence, confidence, and social participation. Some participants experienced difficulties with fine motor skills prior to surgery, such as reading and knitting, but also gross motor skills such as playing golf, pétanque, and driving. Following surgery, affected participants reported positive changes to motor behaviour, as well as increased confidence whilst carrying out tasks. For many, improvements to motor ability had a positive impact on their ability to maintain social participation and independence. Taken together, improvements to mobility, social participation and independence allowed individuals to maintain a good quality of life following cataract surgery.

The first theme, “Adaptation to Visual Changes”, found that participants were generally happy with the outcomes of their surgery, citing higher levels of confidence and independence post-surgery despite the complications and issues they may have faced throughout the process. It was clear that for many participants there was an immediate amazement at visual changes following surgery, often reported as changes to brightness, clarity, and colour hue. This was noted to occur particularly following first-eye surgery but was maintained following surgery on the second eye. Webber et al. [24] reported that similar sentiments were expressed following cataract surgery, with participants indicating surprise at the brightness of colours. In our focus groups, amazement at visual changes was closely tied to higher levels of confidence in vision, as many participants who were not previously aware of the extent of their vision loss. Greater brightness, colour vision, and clarity were thus attributed to restored visual stability.

Perception of changes to functional motor behaviour is a core theme of the present research and is represented through a combination of social and emotional experiences across both ‘Motor Adaptation and Difficulties’ and ‘Lifestyle Maintenance and Resilience’ themes. Within the theme “Motor Adaptation and Difficulties”, participants described issues with activities such as driving, sports, reading, and sewing. Inability to perform these tasks to their usual standard led to lower confidence levels and social restrictions. This is supported by Blancafort-Alias et al., who found that participants waiting to receive surgery reported insecurity when performing meaningful tasks, such as reading labels or using a computer. However, post-surgery, many were able to return to social activities [23]. Meuleners et al. [31] reported similar findings, where physical activity levels increased after both first- and second-eye surgery. Reported difficulties driving in the present research are also consistent with previous studies that find higher levels of subjective and objective driving difficulty in individuals with cataracts [14, 32, 33]. However, issues with driving, balance, and walking may not be identified by some objective measures of motor impairment as degraded motor abilities do not always result in falls or accidents. We identified driving difficulties in all participants, but none reported a history of traffic accidents, highlighting the importance of conversational research approaches when considering driving risks and personal attitudes towards driving when vision is impaired. During group sessions, participants were introduced to concepts of gross and fine motor function. However, issues may have arisen in interpretation. Participants often mentioned motor difficulties during conversation, but many denied experiencing motor issues when directly questioned. This further emphasizes the importance of conversational and exploratory methods, as critical information pertaining to quality of life may be lost or misinterpreted in questionnaire-based methods or quantitative research. Additionally, we observed a level of unawareness regarding the presence or severity of their cataracts and their impact on motor function. For many, the impact of their cataracts only became clear following surgery and was responsible for a degree of amazement at the brightness of vision. It is likely that, due to the progressive development of cataracts and visual adaptation over time, visual (and motor) decline went relatively unnoticed. Consequently, it is difficult to disentangle cataract-related deficits from age-related changes as participants tended to attribute deficits to age, with visual decline perceived as an age-related condition.

In the theme “Interactions with Healthcare”, participants’ experiences with the healthcare system were mixed. Consistent with Webber et al. [24], participants were generally satisfied with the information they received prior to surgery. However, in the present study, whilst some found that access to surgery was straightforward, individuals awaiting surgery reported frustration due to the information they received, or lack thereof. Those who had post-operative complications reported inconsistent information between surgeons, opticians, and other healthcare providers, which resulted in high levels of stress and uncertainty. Participants yet to receive surgery felt that they had a limited understanding of the eligibility criteria and expressed worry about their degrading vision whilst waiting for their surgery.

The final theme, “Lifestyle Maintenance and Resilience”, describes the desire for surgery to facilitate a return to engagement with hobbies, social activities and daily life. Many participants expressed a general acceptance of resilience as a requirement for success in older age and found that maintaining a strong social circle and social activities was critical in achieving this. Participants with friends or family who could drive often reported lower levels of social isolation as inability to drive came only at the expense of their independence but not their social life. For some, perseverance was shown through adaptation strategies between surgeries or during post-surgical complications. We found that this was particularly important following first-eye surgery. One participant found short-distance visual tasks, such as reading, painful, and required assistance from a magnifying glass to counteract the severe refractive error between her eyes. Other participants experienced less severe adaptation yet still reported difficulties when required to change pre-surgery prescriptions after both first- and second-eye surgery. Several studies have identified benefits of second-eye surgery with regards to decreased fall rate [12], increased functional vision [34, 35] and overall quality of life [36, 37]. Evidence from our focus groups, together with findings from related studies, support research indicating that second-eye cataract surgery is a cost-effective intervention for addressing the consequences of age-related cataracts [38, 2]. However, some previous research found no significant difference in quality of life, visual, or motor function between surgeries [39]. It is possible that significant individual differences in visual function and quality of life outcomes may mask further benefits of second-eye surgery. Thus, whilst cataract surgery may not be a ‘quick fix’ solution for all, the overall benefits in quality of life and motor function make a compelling case for provision of surgery on the second eye.

Our work extends the literature in three main ways: Firstly, the present study broadens our understanding of how visuomotor decline impacts daily life. We placed particular emphasis on the role of everyday motor skills in the maintenance of quality of life during the management of cataracts in our focus groups due to a lack of previous literature. We found that individuals with cataracts may experience difficulties with daily motor tasks that impair their ability to take part in everyday life. These difficulties, such as fear of driving and insecurity of vision, may not be otherwise reported due to a lack of accidents and other objective measures associated with these deficits. Secondly, by identifying common issues raised by participants during the process of accessing surgery, we can aid the identification of the changes required within the current healthcare model to better support people with cataracts as well as successful ageing more generally. Common challenges amongst participants involved an inability to maintain one’s current lifestyle due to challenges when driving, and poor quality of information when

accessing healthcare. Finally, we found that participants encountered difficulties when dissociating current cataract-related visuomotor abilities from age-related visuomotor decline. Participants often attributed motor decline to age, rather than considering the impact of visual impairment. Previous research has identified changes to motor skill performance with increasing age [40–42], but also when vision is impaired [43]. The confounding influence of these factors may lead to an underreporting of motor impairment in older individuals with cataracts, particularly on questionnaire-style assessments where risk of misinterpretation and bias is high. The present therefore research extends our understanding of current challenges facing older adults with cataracts and how visuomotor impairment may impede quality of life.

This study benefits from perspectives of participants both pre- and post-surgery, as it allows researchers to identify how participant outlooks and experiences change over time. Semi-structured focus groups allow us to gain information that would otherwise be inaccessible, such as information about mental state, long-term experience, and social contributing factors whilst minimizing misunderstandings. The recommended group size for exploratory focus groups is between four to 12 participants to ensure natural group discussion [44], but previous research shows sufficient theoretical saturation at four to five groups. As the present work comprised four groups, and no new codes or meaning were added [45], we believe our group numbers were sufficient. Nevertheless, we may be unable to generalize these results to a larger sample of individuals with cataracts. The reduced sample size was primarily due to practical issues with participant sampling. Despite this, our findings remain in line with previous research and give insight into blind spots in eligibility criteria, healthcare practices and provision of cataract surgery in the UK.

In brief, we have demonstrated a range of lived experiences with cataracts and cataract surgery within the UK healthcare system. Participants reported mixed perceptions of access to healthcare information, as well as variability in the consistency of information provided by healthcare professionals. Participants were satisfied with surgery and found post-surgical changes to have a meaningful impact on their quality of life. Some participants expressed that reductions in motor skills contributed to reduced participation in social activity prior to surgery, whilst others were not aware of any negative impact of reduced motor skills. Notwithstanding, it was evident that motor skills played a significant role in maintaining good quality of life. Future efforts should extend this investigation on the impact of cataracts and cataract surgery on motor function and attempt to distinguish age-related visuomotor changes from changes arising from cataracts. Research should additionally focus on developing comprehensive criteria for determining surgical eligibility and ensuring consistent pre- and post-operative guidance. Our findings indicate that, for some, difficulties persist and new issues arise following first-eye surgery, including the need for prescription changes and challenges with visual adaptation. We therefore argue for increased provision of, and reduced wait times for, second-eye surgeries in the UK. Further research should examine changes in quality of life and motor function between first- and second-eye surgery to further strengthen the case for increased and efficient provision of surgery on the second eye.

Declarations

Ethical Approval

This study was performed in line with the 1964 Declaration of Helsinki and its later amendments. Ethical approval was obtained from the University of Leeds Research Ethics Committee on 05/12/2024 (Approval Number: PSYC-1225).

Consent to participate

Informed consent was obtained from all participants included in the study. Participants were informed that they were free to withdraw from the study at any time or decline to answer questions for any reason.

Consent to publish

Participants were informed that collected data may be used for publication purposes. Informed consent specified that data will be anonymised, pseudonyms would be assigned and identifying names/places will be removed to ensure the identity of participants remains confidential.

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Author Contribution

Conceptualisation - E.C, F.W, R.O.C. Methodology - E.C, F.W, R.O.C. Data Collection - E.C, F.W, N.W, S.S. Formal Analysis - E.C, F.W, R.O.C. Original Draft - N.W. Review and Editing - All authors. Supervision - R.O.C.

Data Availability

Raw data transcripts cannot be made publicly available due to participant privacy constraints and the possibly sensitive nature of focus group discussions. Fully anonymized excerpts relevant to the present research are available within the article.

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