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ORIGINAL ARTICLE

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An investigation of barriers and enablers to community eye care for children in England: A qualitative descriptive study

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Abstract

Purpose: Research suggests that there are challenges in the accessibility of eye care for children in England. This study explores the barriers and enablers to eye examinations for children under 5 years of age from the perspective of community optometrists in England.

Methods: Optometrists working in community settings were invited to participate in virtual focus group discussions using an online platform based on a topic guide. The discussions were audio-recorded, transcribed and thematically analysed. Themes were derived from the focus group data based on the study aim and research question.

Results: Thirty optometrists participated in the focus group discussions. The overarching themes identified as barriers to eye examinations for young children in a community setting were as follows: 'Time and Money', 'Knowledge, Skills and Confidence', 'Awareness and Communication', 'Range of Attitudes' and 'Clinical Setting'. The key themes for enabling eye examinations for young children were as follows: 'Improving behaviour', 'Enhancing training and education', 'Enhancing eye care services', 'Raising awareness', 'Changes in professional bodies' and 'Balancing commercial pressures and health care'.

Conclusion: Time, money, training and equipment are perceived by optometrists as key factors in providing an eye examination for a young child. This study identified a need for improved training and robust governance related to eye examinations for young children. There is a need for change within eye care service delivery such that all children, regardless of age and ability, are examined regularly, and by conducting these examinations, optometrists remain confident.

KEYWORDS
barriers, child, enablers, eye examination, general ophthalmic services, National Health Service, optometry

INTRODUCTION

Visual anomalies or impairment are important factors in education,[1] quality of life,[2] risks of bilateral visual impairment[3,4] and educational attainment.[5] This suggests that untreated visual anomalies such as uncorrected refractive error or amblyopia can impact some children's learning, social development and behaviour.[6] Research based in China has shown that uncorrected hyperopia and myopia are linked to underachievement in educational assessments and poor academic performance, respectively.[7] These findings suggest that children should have unimpeded access to eye examinations with any barriers to accessibility understood and addressed.

Optometrists are the main providers of primary eye care in England. To become a qualified optometrist in the United Kingdom, a range of competencies, including those related to paediatric eye care and binocular vision, must be demonstrated during a pre-registration year.[8] National Health Service (NHS)–funded eye examinations are available to all children under the age of 16.[9] The NHS provides General Ophthalmic Services (GOS) to eligible patients in the United Kingdom, which entitles certain patients to an NHS-funded sight test and an optical voucher to help reduce the cost of spectacles or contact lenses.[9] Optometrists are contracted to 'provide mandatory services … to an eligible person if the request is made for such services' (Regulation 18).[10] These services may be provided in community optometric practices which may be classified as multiples (franchise, joint venture or corporation with nationwide branches) or as independents (sole practitioners, small practices or partnerships).

Research indicates that primary eye care services in England may be difficult for parents of young children to access compared with parents of children aged 5 years and over.[11-14] Previous UK- and US-based studies have shown that factors that limit access relate to communication and children's attention span, the time-consuming nature of the task, a lack of training, parents' lack of understanding and knowledge of eye health and practitioners' concerns about false-positive referrals.[15,16] More recent findings confirm that young children's access to primary eye care services offered by community optometric practices depends on the clinician's ability to communicate with a child, age-appropriate testing equipment, time and professional skills.[11] Developing trust and effective communication are essential in children's eye care as they can have implications for subsequent visits and compliance with any management required.[15] In younger patients, eye examinations may require multiple visits to obtain a reliable diagnosis, with each appointment being inefficient in terms of both duration and overheads.[15] Evidence is currently available on the barriers parents experience when trying to make an appointment[11] for their child, and a 2007 study reported poor access to community optometric care for very young children.[14] There is a need for further exploration to understand why access is poor,[11] and what factors may enable access.

The current study aimed to understand the perspectives of community optometrists in England on examining young children under 5 years of age, including any barriers and enablers to the provision of GOS-funded children's eye examinations in England.

Key Points

- The results suggest that time, money, attitude, awareness and communication are both barriers and enablers to the accessibility of primary eye care services for young children.
- Enhancement of the structure and governance of eye care delivery would help facilitate the provision of eye care for young children in community settings.
- Appropriate financial support that reflects the time taken to perform a child's examination may enhance eye care services for young children and increase their accessibility.

METHODS

The consolidated criteria for reporting qualitative research (COREQ) guidelines were followed when developing, conducting and reporting this study.[17]

Ethical approval for this study was obtained from the City, University of London's School of Health Sciences research ethics committee. All procedures in this study were in accordance with the tenets of the Declaration of Helsinki.[18] A signed declaration of informed consent was obtained from all participants.

Study design

Focus groups were used as a more flexible and cost-effective way of exploring attitudes, experiences and perspectives than semi-structured interviews.[19] Questionnaires were not used due to the anticipated low response rate due to 'survey fatigue',[20] with studies in optometry reporting response rates of 7.8%[21] and 16.2%.[22] A potential downside to focus groups is that one individual may control the focus group discussion while the remaining group members remain silent (making it challenging to infer whether a specific viewpoint is an individual or group opinion) and may influence group dynamics. Due to this limitation, a modified nominal group technique was adopted, with a facilitator present. The nominal group technique is a qualitative data collection method in which a group generates and prioritises issues using a structure that gives everyone an equal voice.[23] This approach was used while following a topic guide which was developed to enable an in-depth discussion focused on the relevant barriers and enablers. The steps involved in the nominal group technique aimed to ensure that participants had time to brainstorm their ideas and discuss and rank the importance of the factors discussed. The topic guide was based on previous findings on the accessibility of eye care for young children, the researchers' professional experience and feedback gained from pilot work. The latter included drafts and refinements of the topic guide, trial independent coding and use of an online platform. The finalised topic guide structure allowed the facilitator flexibility to cover topics in an order most suited to the participants in the group and to allow responses to be fully explored. The questions were

open-ended, promoting detailed responses and requiring minimal input from the facilitator.

The focus groups were conducted online via Microsoft Teams Version 1.3 (Microsoft.com).[24] Participants were encouraged to use a quiet environment where they felt comfortable and would not be disturbed. The researcher (SW) did not contribute to the discussion but was available online during each focus group to record the discussion and provide help if the participants required technical support.

The facilitator (SJW) had experience in facilitating focus groups and communicating group tasks and was external to the research team, with no background in optometry or other eye care areas. No relationship was established between the facilitator and participants prior to study commencement.

Participant selection

Purposive sampling was used to include registered optometrists working in community settings in England. Community optometric practices included independent and multiple practices.[25] Additional sampling methods were used, such as snowballing and contacting the Local Optical Committee to advertise the study via email. This multifaceted approach helped to minimise selection bias and ensured that practitioners with varied experiences were included. Sampling and data collection continued until data saturation was reached, with three successive focus groups yielding no additional information.[26,27]

Prospective participants were contacted via email and provided with an information sheet explaining the aims of the study and a consent form. Consenting participants were provided with information on the focus group discussion format and content. Before the focus group discussion commenced, all participants completed a demographic questionnaire describing their experience of examining young children.

Data collection

Microsoft Teams software was used in conjunction with a Dictaphone to allow audio recording. Each focus group was conducted at a pre-arranged date and time convenient to all participants and the facilitator. All participants were informed when the audio recording began. The recordings were stored in a password-protected folder accessed only by the principal researcher.

During the focus group discussions, field notes about body language were not taken as most participants felt more comfortable with their video cameras off, and video interruptions caused by internet connection problems disrupted any video interpretation.

Data analysis

An inductive approach was used initially, followed by a deductive approach. During analysis, it was presumed that community optometrists' perspectives reflected a combination of various factors such as previous experience in practice, background, beliefs, culture and values.[28]

The recordings were transcribed using Microsoft Speech Services (Microsoft.com), and transcripts were reviewed by SW for accuracy and completeness. In addition to audio recording, data were collected via email from one participant who emailed the researcher the day after a focus group discussion regarding a barrier that came to mind later, and which was copied into the transcript. Data were imported into NVivo 12 software (qsrinternational.com) for management and analysis. To maintain anonymity, participants' names and workplaces were not included.

Thematic analysis[29,30] was used to identify themes and patterns in the data. The transcripts were re-read, and themes were defined according to the research question. All transcripts were coded independently by two researchers (SW and CS) to increase validity. Any discrepancies were discussed to reach a consensus.

RESULTS

A total of five focus group discussions were conducted between November 2020 and January 2021. The duration of focus groups ranged from 83 to 90 min. In total, the participants included 30 community optometrists (each group consisting of five to seven participants) with a range of experience examining young children (Table 1). Table 2 shows the different types of community practices in which the participants worked.

TABLE 1 The frequency of eye examinations conducted on children aged <1 year, 1–2 years, 2–4 years and 5 years or over by participating optometrists.

	Frequency of eye examinations conducted on young children, *n* (%)				
Age of child	At least once per day	At least once per week	At least once per month	At least once per year	Never
<12 months	2 (6.67)	1 (3.33)	1 (3.33)	15 (50.00)	11 (36.67)
12–24 months	1 (3.33)	2 (6.67)	5 (16.67)	13 (43.33)	9 (30.00)
2–4 years	4 (13.33)	7 (23.33)	11 (36.67)	7 (23.33)	1 (3.33)
≥5 years	19 (63.33)	10 (33.33)	1 (3.33)	0	0

Barriers to eye examinations

The barriers identified by this sample of community optometrists are presented in Table 3, followed by further explanation. All comments extracted from the transcripts can be found in Supporting information.

Time and money

Participants reported that the GOS eye examination fee does not adequately cover the time and expense required when examining young children who may require cycloplegic refraction or a relatively short recall period. In addition, participants felt that the NHS is unlikely to increase the GOS fees for young children's eye examinations.

Sample quotes:

> One GOS fee…double the amount of chair time or triple amount of chair time if you take the cyclo time into effect…

> While free eye exams are offered… the NHS is saying if you are able to give free eye tests, why should we put up our NHS sight test fee ….

Participants indicated that practices (particularly multiples) tend to restrict appointment times for young children, creating extra pressure on the optometrists and discouraging additional appointments for cycloplegic refraction. This suggests that optometrists do not have control over the appointment type and duration, making it more difficult for them to provide the service they should be providing.

Sample quotes:

> Some multiples that I've worked for…… haven't actually given the same amount of time … for example, 25 minutes for an adult [appointment] and when it comes to a child [appointment] …. 20 or sometimes 15 minutes.

> And it has happened to me in the past …. it's actually happened to other colleagues as well, where they say, you haven't seen enough patients to reach your target, or you have a lot of dilations or cyclos …, it's still said to you, as part of your review … having double appointments for children.

Moreover, optometrists may not want to take higher qualifications in paediatric eye care if this is not linked to a pay rise.

Sample quote:

> Are they going to give you a pay rise [after higher education in paediatrics]?

TABLE 2 Practice settings in which participants spend a significant (>50%) proportion of their working week.

Type of practice setting	Frequency of practice settings, *n* (%)
Small multiple (up to 10 practices)	3 (10.00)
Large multiple	13 (43.33)
Independent	14 (46.67)

Range of attitudes

Participants indicated that the attitudes of those involved in providing children's eye care may be barriers. For example, the different pathways in different regions may present a barrier to locums, if they are not prepared to find out about them in advance.

Sample quote:

> I think that's always a challenge because there are so many areas now that have individual schemes for management of all sorts of things… and it must be a real challenge for somebody who's in a locum position, knowing just what they can and can't do.

Some attitudes appeared frequently, but there was disagreement between participants as to whether some practitioners' behaviour was influenced by money and financial rewards. Participants' comments indicated that the business element of community practice means that optometrists are constrained to some extent by commercial pressures resulting in concern about money and being paid enough for their time and that this behaviour varies among practices and cannot be generalised.

Sample quotes:

> But what I found is optoms… are only interested in two things: more money and more time. And that's it.

> I've been in business for 40 years, I can tell you, I've worked in the hospital … in multiples and independents… and you cannot just say that [they are interested in more money and time]. Maybe the people that you worked with within [multiple practice], but certainly not within everybody.

The participants also indicated that the attitudes of practice managers in community settings may hinder the accessibility and quality of young children's eye care.

Sample quotes:

> I agree with the bit about managers basically trying to push you to give a prescription

TABLE 3 Barriers ranked in order from highest to lowest frequency with a brief description of each.

Barriers	Description	Frequency of utterances in transcripts
Time and money	Optometrists do not have control over the time they are given to examine young children. Practice managers may discourage optometrists from carrying out eye examinations on young children, practice policy may prevent eye examinations on young children and may limit the time provided for eye examinations on older children. The amount of funding available for a child's eye examination does not compensate for the time, clinical skills and equipment required.	125
Range of attitudes	Tendency not to examine young children irrespective of contractual terms the practice is obliged to follow; tendency among practice managers to automatically refer young children rather than offer them eye examinations; professional guidance indicates referral of all patients beyond the optometrist's area of expertise. This and a lack of practitioner expertise in paediatric eye care results in young children being referred without being examined.	115
Awareness and communication	A lack of communication between health professionals; health care visitors refer children to their general medical practitioner (GMP) rather than community optometric practices; a perception that children should be seen in the hospital eye services (HES); GMPs refer children straight to the hospital rather than to a community optometrist with higher qualifications in paediatric eye care; parents' lack of awareness of the importance of early eye examinations; adults prioritised over children during a period of restricted eye care (the COVID-19 pandemic).	109
Knowledge, skills and confidence	Insufficient optometric training in paediatric eye care in optometric training and pre-registration. Community optometrists examine few young children, so become deskilled in this area of practice, perpetuating a lack of knowledge, skills and confidence in this area, and reducing the likelihood that they will examine young children.	90
Clinical setting	Lack of age-appropriate equipment in practices to assess a child's visual function. Practice set-ups range in appropriateness for paediatric eye care.	39

> to therefore get a voucher [GOS spectacle voucher].

> we are monitored… if I don't have a conversion rate of 90% then there are questions being asked and I am not going to get that if I see children.

> I absolutely hate it at the end of the day the manager comes up to me and says your CR [Conversion Rate] was this ….

> …it really bugs me when optoms give very, very small prescriptions to young children. Where I don't think it's clinically necessary. But I know there is a lot of pressure to do that because it improves their conversion rates.

Participating optometrists indicated that practice staff booking appointments and managing the clinic do not wish to allocate time for young children's eye examinations, take the view that children should be referred elsewhere for this and are unhappy if optometrists examine young children. Some indicated that community practices tend to set a minimum age below which patients are not offered an eye examination.

Sample quotes:

> But sometimes it is just one too many. I've seen it in too many practices that they turn around and say… let's just refer them straight. Why are you seeing them? You're wasting my time, really….

> It was kind of a company policy, they kind of put out there, we wouldn't be able to see anyone under the age of four in that specific area.

Participants also indicated that professional guidance for optometrists supports practitioners in declining to offer services and not attempting to examine the young child. Participants also expressed a sense that professional bodies allow the number of optometry students to increase while not focusing on issues related to paediatric eye care.

Sample quotes:

> …the way we get around [the contractual obligation to provide ophthalmic services] is the practitioner would say that the GOC said if it is not in your sort of zone where you are comfortable with making a decision you should refer on to someone who is so, there would be no way to say to a practitioner that they must see someone if they weren't comfortable and confident…

> there is a lot of push for sales and reducing testing times and getting more money into the tills and you know getting more people trained up to be optometrists and reducing costs and … increasing student numbers.

> But there is no push for the things that really matter.
>
> …Because it is our governing body that doesn't care. It is our union that really doesn't push these things forward.

Awareness and communication

Participants highlighted that parents of young children are unaware of where their child's eyes can be examined. Participants also commented on a lack of communication among optometrists, between them and other health or eye care professionals (General Medical Practitioners) and a lack of awareness among school teachers regarding the impact of vision on a child's learning and development.

Sample quotes:

> I think there's a confusion between whether they go to the doctor or whether they come to their optometrist.
>
> …not every parent is aware that they can come to the opticians…lot of misinformation, incorrect information and lack of communication.
>
> Parents believe that school screening that they get in primary school is a valid eye test…
>
> optometry is seen as retail…a lot of customers think we earn commission.
>
> And the professionals are not really helping that much. We don't communicate with each other.
>
> …I was in a high street practice and we did see children, but there's very little communication between us and the orthoptist and you hardly really got any feedback in terms of the child or refer them on and we would never see them again…
>
> I think there's also another potential issue in talking …within the hospital departments… there isn't…a lot of joined-up thinking…the orthoptist is saying this…and the ophthalmologist is saying something different.
>
> It still amazes me how many teachers do not see the link between vision and a child's learning ability.

Comments also indicated that the communication between optometrists is a barrier which can prevent children from being seen easily within their local community practice.

Sample quote:

> …we don't actually work in cohesion with other practitioners…
>
> It goes back to referring to other optometrists. There is an awful lot you can do. You know sometimes just picking up the phone and saying look I know you see a few more kids than I do…

The 2019 pandemic (COVID-19) impacted eye care services for young children, and school closure resulted in many children not receiving vision screening services, thereby delaying the detection of ocular conditions.[31] Moreover, the professional guidance for eye examinations during the pandemic limited availability of eye care services. One participant indicated that as a result of the professional guidance at the time, offering urgent care to young children may not have been a high priority compared with other ocular conditions present in the rest of the population.

Sample quotes:

> … Last year, they may have been missed because of COVID, their school screening… so they're going to be six or seven, when they're picked up if they then catch up on the backlog, that's two years in seeing worse, if that child had been told to go and see an optician independent of school screening before they went to school that [would have been] picked up in my opinion ….
>
> We went College [of Optometrists] red guidance (red phase) it was emergency care only …no child really needs an emergency refraction you could argue and now that we are in amber phase how much do we prioritise….

It was noted that communication between non-clinical staff (such as receptionists) and parents of young children and with optometrists may result in children being denied or deterred from eye examination services.

Sample quotes:

> …it's from the reception, they're referred into the hospital…which I think is a real shame…
>
> I think it is so important because it is one of those things when one child is turned away because they are too young word gets around the school that children cannot be seen at that age. So, it deters other people getting their eye examinations when they are 3 or 4….

> I've had a few where schools will send a letter home saying the child's failed at school eye test and parents who've tried to book in and in some cases they have double booked pre-empting that there may be a cyclo that's required. And managers who turn around who just said that's a waste of an appointment and have cancelled that altogether.

Knowledge, skills and confidence

Participants highlighted that paediatric optometry teaching at university and during the pre-registration year provided insufficient training and experience to prepare them for this aspect of practice. Consequently, optometrists do not feel confident examining young children.

Sample quotes:

> …I personally don't feel we had enough training at university or even during pre-reg, to see a lot of children who are under the age of five.

> Oh, I agree you're taught by people who have not done it. For people lecturing… talk about it theoretically, they'll tell you all about visual development, but not how to welcome a child into the room and make them smile and play with them. So that's one barrier, the university.

Not all participants agreed with this, and there was some indication that paediatric optometry education differs between universities, resulting in variation between optometrists.

Sample quote:

> I think I've had perhaps a different experience to other people. Because when I went to [university] we used to do Wednesday afternoon and Saturday morning children's clinics … we had referrals come in, from the local community, from the local hospitals. And, it was a case of like, this is how you examine children, and these are children who you are going to examine.

The participants felt that certain examination techniques are not used frequently by optometrists, which makes them less inclined to examine young children using equipment they have not used for some time. Practitioners are less inclined to examine young children based on their exposure while working in practice. Therefore, if newly trained practitioners are not exposed to examining young children in their practice, they will lose proficiency in certain skills. In addition, the quality of referrals to the HES was perceived as very poor.

Sample quotes:

> If I have been qualified for 20 years and have only used my retinoscope for 10 years, I probably won't be doing it, and that is what a lot of the people in my practice are like. They don't have the confidence to test that young as they have not done it for 20 years.

> the quality of referrals that [a hospital practitioner] was getting from the community was pitiable … You know, he'd get somebody going, oh, only gets fixed 6/60. And then he'd actually sit down and do the VA and you know get 6/12 each eye or something. And I do think that's something that is a big problem because it makes us look ridiculous to consultants and hospital optometrists … doesn't do the profession any good.

In addition, optometrists identified a lack of confidence as a barrier, and this is related to the lack of experience they have in examining young children and their knowledge of up-to-date published findings on normal values in young children.

Sample quote:

> I think it's just a domino effect…you don't see enough children, you don't really gain as much experience, you also don't have a lot of… data to really compare your results to, so what are the normal values, normal values for children are going to change depending on their developmental stages…

> I think also the skills and the confidence when you don't see as many children at that age…

Clinical setting

Some participants indicated a lack of age-appropriate equipment in practice, limiting their ability to conduct tests on very young children.

Sample quotes:

> …but also, don't think we have the equipment, not just for stereopsis. But for VA as well. If a child is not at the age to be able to communicate in terms of speaking, to do preferential looking … you just don't have that equipment.

> …I mean, in my drawer, I literally just have an Ishihara and the stereo fly test, I don't really have much else. So that's definitely a limitation for me.

> … sometimes you can't even get the child to see the letters on the chart without putting

TABLE 4 Enablers in order of frequency with a brief description of each.

Enabler	Brief description of enabler	Frequency of theme in transcripts
Improving behaviour	More positive attitudes among clinicians (optometrists) and practices (practice managers) towards delivering paediatric eye care and offering services to children of all ages.	105
Enhanced training and education	Increased exposure to paediatric eye testing for optometrists. Knowledge among optometrists of how to adapt existing optometric equipment to facilitate eye examinations for younger children.	56
Raise awareness	Parents should become more aware that children of all ages can access eye care. Optometrists should be more aware of colleagues in their area with paediatric eye care expertise.	55
Enhancing eye care services	Referral from optometrists to paediatric specialist optometrists within the community. Eye care schemes to enhance paediatric services. Increased funding for optometrists examining young children. Availability of age-appropriate equipment in practice.	51
Guidance and action from professional bodies	Further guidance from professional bodies to support clinicians in providing paediatric eye care.	15
Balancing commercial pressures and health care	An appreciation from practice managers of patients who do not provide significant income.	14

them on a booster seat or on the parents' lap. So, I think it's just the way that [community practices] are designed, where they're not really child friendly for really young children… it's just the equipment and how the room is set up.

… parents themselves do not see the practice in terms of being very child friendly. They are not going to essentially engage with the practitioner… say I am a parent of a 4-year-old, and can I bring them along with me to get my own eyes examined, but all I am seeing is glasses on sale for me or all of this equipment….

The practice set up…practices are geared either towards the commercial side or the clinical side.

A participant indicated that children may be more comfortable in community settings than in hospitals.

Sample quote:

Hospitals are very alien to children and very scary places…keep hospital for the pathology.

Participants also indicated that young children may be offered different services in an independent practice compared with a multiple practice and that children may have no option other than the HES. The participants indicated that in some areas in the community, there are independent practices with optometrists who specialise in seeing young children and, therefore, allow access to these patients, and there are areas where these additional services are not available in a community multiple setting.

Sample quotes:

Actually, there seems to be a big difference between what happens in the private [independent] sector and what happens in the multiple sector.

I think we just got the hospital at the moment. Maybe some community or maybe some private optometrists [optometrist working in an independent practice] …but I don't think we have like a designated place where people can just go for paediatric eye tests other than the hospital.

I think that if you're in an affluent area I think parents are a lot more happy to pay for private appointments for longer duration appointments effectively like a consultant fee in areas as that is what they normally do with normal private health care. If they have an issue, they would go straight to the person who can deal with it, and I think in certain areas a lot more people are willing to just pay to get the service…than be referred.

Enablers to access

A total of six enablers were identified, of which the four most frequently expressed were as follows: 'Improving behaviour', 'Enhanced training and education', Raise awareness' and 'Enhancing eye care services'. Enablers are summarised in Table 4, with further details given below.

Improving behaviour

Participants suggested that optometrists' perceptions of their role in health care for children should be changed to improve the accessibility of community eye care for young children.

Sample quotes:

> But sometimes, I think there … does need to be some sort of … effort from optoms to try to make sure they see these patients.

> And at the end of the day we are…health care providers… if you can sort it out, then sort it out, especially binocular vision issues… if we just had a look, took a little more training, a little bit more time, yes it does take time out of the clinics, but you know you want the child to develop well, you don't want them to have issues because you were too lazy or because your store is busy to see a child. I feel we have that responsibility and I think we should really abide by it.

Participants indicated that some optometric practices accommodate children of all ages and commented on the importance of adapting the practice and testing room layout to make children feel more comfortable.

Sample quotes:

> … we never turn them away. We never say they're too young, …would see anybody whether they were a three-week-old baby up to almost… whatever age really, we never turned anyone away.

> So, if you can make access to eye care a nice, friendly, happy event, and then that's definitely a positive for both … the families, as well as the child….

Enhanced education and training

It was noted that insufficient exposure to paediatric patients and lack of self-confidence in conducting paediatric eye examinations results in a vicious cycle whereby optometrists' willingness to examine young children is reduced. Participants indicated that optometric education and training should be regularly reviewed to improve this situation and proposed that it should be modified to enhance learning and experience of eye examinations for children under 5 years of age. They also indicated that practice managers should be educated about the importance of children's eye care. The discussions indicated that non-clinical staff and practice managers lack an understanding of the importance of examining young children and place more importance on the commercial targets of the practice. Education could change this behaviour and potentially improve the accessibility of eye care for young children.

Sample quotes:

> I think if we can get them seeing more kids … maybe in a course or something so the newly qualified will feel comfortable seeing kids.

> I think it would be a fantastic idea if there was an ongoing CPD [continuing professional development] where you do have to see a certain number of children that are below the age of five….

> It also comes down to management, they need to be educated. If you're not seeing [young children] or don't have the time or if it's not viable commercially, it becomes a bit of a vicious circle as well.

In addition to the above suggestion that age-appropriate tests are needed, it was noted that extensive equipment is not needed for paediatric eye examinations, and that imagination and creative thinking are needed to adapt existing resources.

Sample quotes:

> … you don't need a lot of equipment to test children. It's actually you need less than you do for an adult because you're not looking for glaucoma you do not need to do their visual fields you can make your own you know matching charts, whatever charts are on the wall you can even write the letters on a card and get them to point and you point…just needs a little bit of an imagination, so I think I don't really accept [lack of equipment] … You need a ret, … you need to be good… Every optometrist should have a ret and should know how to use it.

> And again, you can only get that by someone saying like get off the chair, come this can be done think outside the box… once you're qualified, you've still got a long way to learn….

Raise awareness

Participants indicated that by raising awareness that there is no minimum age for children's eye examinations, access to primary eye care services for young children may be improved.

Sample quotes:

> …the awareness needs to spread that there is not a minimum age to come in for a sight test….

> … I would like to see is that the eyes are thought of in the same ways, as teeth, you know, parents will themselves go and see the dentist on a regular basis, and they take their kids to the dentist on a regular basis, because that's what you do….

> So I think it's just educating the parents that they can bring them in at any age. And so I think educating the parents is the main thing.

> …it's more educating the parents, you know, and trying to encourage, you know, get that in before they go to school.

Participants recognised the importance of optometrists being aware of other community practitioners in their area with specialist qualifications or experience, to facilitate appropriate referral outside the hospital service.

Sample quotes:

> I think that actually sounds like a great idea in terms of you know having that kind of link to other practices… it is not something I have ever experienced before where I have been able to refer to another optom or even know about the local areas that I have worked in if there is a specialist. I think it is definitely something to look into where I am at the moment you know to see if there is anyone that specialises in it.

> It would be nice if we have a bit more of a sort of a relationship with other optoms within the area we can talk to them and involve them and ask as well.

Enhancing eye care services

The participants articulated a need for better communication between optometrists and for the use of inter-optometrist referral when appropriate to improve young children's access to community eye care and ensure that parents have access to these services.

Sample quotes:

> But then the reception should be referring people on to someone who is…. [able to examine children's eyes].

> …at the end of the day, we want to help the patient. And if we could assign them to someone who can give them the help they need, then why not? So maybe we do need to have better inter-relationships with colleagues in the area.

Ideas were proposed to help improve and increase the awareness and uptake of young children's eye examinations in community settings. Participants suggested that the child's development record (Red Book), given to parents after the birth of their child, could include a checklist with an eye test schedule to be completed during the child's early years. This would, in turn, raise awareness of the importance of early eye examinations and increase the uptake of these. Participants also proposed a separate GOS pathway for children that allows for the additional time and resources required to examine young children.

Sample quotes:

> … we were saying the parents don't know as well…each child when they are born, they are given a red book system saying they need to get their immunisations they need to get this check done…would it not be a good idea maybe we had that process with when a child first attends preschool, they are given at 3 years old or 4 years old when they first attend their nursery. They are given this checklist of things [eye test] that the parent needs to have done, and they need to present to the school…

> …we take those children that are under 5 years old or under 7 years old out of the GOS and put them into a special kind of service where they only get seen by specialist paediatric optometrists who can do all these tests and spend the time with them alongside an orthoptist in a practice…where they take care of all of that and push them back out to primary practice once they hit 6 or 7.

Participants indicated that the current GOS fees for a paediatric eye examination are inadequate due to the additional time and resources required. Adjusting the GOS sight test fee for children would allow optometrists, practice owners and managers to allow sufficient time to examine young children without the added worry of the additional chair time not being adequately remunerated. Some participants felt that practices need to be better equipped with age-appropriate tests [vision charts] instead of them having to adapt their eye examination using resources available to them, which may not always be possible in the case of very young children. Improved funding would enable practices and practitioners to have this equipment to hand.

Sample quotes:

> … I think a contractual change in what you can do under the General Ophthalmic Services would lead to an increase in finance, and that would solve your equipment problem….
>
> If you buy a pack of Cardiff Acuity cards, they last a life time…I could go and get my Cardiff cards, my Kays [Kay Pictures]. I've got everything…if you haven't got them how can you check or have an idea of acuity.
>
> …we need to get remunerated properly.
>
> We need to invest in the equipment… all the optometrists that work with us …. I think we should see them [young children] in the community. Great thing if we did.

An audit system was suggested to check that practices have the necessary equipment to perform an eye examination on a young child.

Sample quotes:

> What is the general feeling about a kind of audit of the actual equipment that ought to be part of a practice?
>
> But I think you raise a good point, I think questions should be asked to the practice owners as well, look, I cannot see anybody without these tests.

Guidance and action from professional bodies

Participants identified a need for further guidance from professional bodies to clarify optometrists' responsibilities when an eye examination for a child younger than 5 years is requested and to help ensure provision of eye examinations at an early age.

Sample quotes:

> … if …we had some guidelines if the GOC did say you know if someone comes in asking for an appointment for a child under 5, they should get one and not simply say wait until they go to school.
>
> I think it would be useful if the College did something because you can get your paediatric certificate but then who is going to know you have a paediatric certificate… nobody… the College could actually almost have a map who has what extra certificate and then we would be promoting these are places that people could go to who are specialist and interested in children. …We need our professional bodies to do something as well.
>
> Yeah, I think education is really important the parents and the schools as well I think our professional bodies could step up a huge amount and easily say before every child starts school, they need height, weight, ears and, eyes ….

Despite the barriers described above, the participants demonstrated a clear understanding of the importance of eye examinations for young children.

> I have had a child who had papilledema she was taken to hospital and had a brain tumour and the next day had it removed. So, you know, and that would have not been picked up at visual screening at school.
>
> I have had children that have come in and have had terrible reading at those ages and cannot read and haven't been able to read and turn out to be a plus 6 and plus 7 [hyperope] and all of a sudden, they have shot up in their class and they are reaching towards some of the smartest children in their class. Then you think to yourself hold on, this could have been easily sorted out a few years ago, but now they are 6 or 7 … even some of them were reaching 10 because no one thought to look at them and probably get that sorted out.
>
> But it is important for me personally I got my first pair of glasses when I was 5 my mum always said I was really happy afterwards and I agree with what [other participant] said you give them glasses they come back a year later, and the parents say they are doing so much better. It is an amazing thing, an amazing thing to be able to do.

Balance commercial pressures and health care

The participants highlighted the impact of commercial pressures within a community setting, noting that eye care for young children does not generate adequate income, and practices that impose financial targets may deter their optometrists from examining children. Ideally, a balance is needed between the commercial pressures and health care provided to patients, with both being equally valued. However, this was not the general consensus among all participants indicating that a need for a balance between the two is needed.

Sample quotes:

> …the fact that we are very much retail based is the issue and the fact we are not healthcare based ironically, I actually do believe that the systems in for example America and Canada [eye care] is the way we should be going.

> …I actually don't agree. I completely understand that it [community eye care] is very much retail-driven, but in the same way, for example, for dentists, I know it is slightly different as it is a service, but do you still pay for products… I think optometry can work alongside retail because of the fact that, for example, majority of people [patient optometrists examine] you are recommending glasses … they are more likely to buy the product from the store because of the fact there is a trusted [professional] opinion.

> … I think we need to sort of focus more on quality [of an eye examination] versus quantity [number of eye examinations], although that is very contradicting in terms of [what happens in] community practice.

DISCUSSION

To our knowledge, this is the first qualitative study exploring the perspectives of community optometrists on the provision of eye examinations for young children. A major concern reported by participants was the time allowed for optometrists to examine young children and the funding available to facilitate children's eye examinations in community settings. Another major concern was optometrists' confidence in examining young children. The attitude and behaviour of practice managers who frequently impose time constraints for children's eye examinations and a focus on financial targets often results in young children not being offered eye examinations but instead being referred into the Hospital Eye Service.

Previous work suggests that there are many misconceptions among parents regarding young children's eye care,[32] with some parents unaware of how to access an eye examination for their child, and others apprehensive about taking their child for an eye examination in case they need spectacles. Research suggests that demographics such as ethnicity, parental income and eye care knowledge have the potential to limit children's access to eye care.[32] This highlights a need to raise awareness among parents, carers, schools and health care professionals on the importance of eye care in young children, how and where this can be accessed. The present findings indicate that the participating optometrists consider more work is needed to build awareness on a national level.

The use of diagnostic drops could be seen as a barrier to examining young children, since it is an invasive and sometimes traumatic procedure,[33] often being problematic and declined by parents.[15] The use of diagnostic drugs also results in direct and indirect practice costs, the latter including the additional examination time required.[34,35] However, some practitioners are confident in instilling cycloplegic drops and are not discouraged by their possible side effects or the duration of the procedure.[13] The present findings indicate that optometrists in community settings do not always have the equipment and facilities needed to examine children under 5 years of age. In addition, the findings suggest that optometric education and training should be reviewed to allow for increased paediatric experience for undergraduate and pre-registration optometrists. Additionally, the skills and confidence of the newly qualified and those who have been qualified for a number of years but do not feel confident in examining children need to be reviewed with opportunities created for shadowing optometrists who regularly see young children, to increase clinicians' skills and confidence.

In 2015, the College of Optometrists introduced the Professional Certificate and Professional Higher Certificate in paediatric eye care, which help optometrists to 'adapt their routine to meet the specific needs of younger patients'.[36] This postgraduate training was compiled in collaboration with a panel of experts from hospital and community settings,[36] and may have increased skills and confidence among a subset of optometrists who would have taken up this further qualification. The results of the present work highlight a need for additional exposure during optometric training and for paediatric eye care to be incorporated into their CPD requirements.

The results also suggest that GOS contracts for primary eye care in the UK need modification with a separate eye care system, and that pathways are needed for paediatric optometry.[37,38] In 2006, the cost of providing an eye examination in the United Kingdom was found to be more than the GOS fee.[39] Almost two decades later, there has been little movement in this fee, with the sight test still underfunded.[40] The present findings suggest that the funding available to conduct an eye examination on a young child is a barrier to provision of that service. Sufficient financial support that reflects the time taken to perform a child's examination would help enable clinicians to conduct a thorough assessment, enhance eye care services for young children and increase their accessibility.

During the COVID-19 pandemic, the College of Optometrists issued guidance indicating that community optometrists should only remain open to deliver essential or emergency eye care.[41] Capacity in hospital paediatric ophthalmology departments was also severely limited, and referrals into that service were significantly reduced.[42] These changes affected children's eye care, further highlighting a need for community optometrists and practices to make eye care services for young children readily and easily accessible when there is an urgent need.

Key findings from this study are that funding, time, professional skills, attitude, communication and practice

environment all function as both barriers and enablers to the accessibility of primary eye care services for young children. A recent systematic review that explored the barriers and facilitators to optometric eye care in general identified 'time constraints', 'resources and equipment', 'lack of awareness', 'skill proficiency' and 'negative attitudes and beliefs' as barriers and 'time', 'resources and equipment', 'education', 'skill proficiency' and 'understanding the relevancy of eye care' as facilitators.[43] These findings are in agreement with those of the present study and suggest that similar factors affect the delivery of eye care to young children and the wider population. Previous research has shown that the barriers faced by a parent trying to schedule an optometry appointment for their child[11] are similar to those expressed by optometrists such as 'Time and Money', 'Clinical Setting' and 'Knowledge, Skills and Confidence'. However, the present study also found that funding and public awareness impact the delivery of paediatric eye care. In addition to the long-standing established barriers in children's eye care, this study found enablers to some of the current barriers. This research has also indicated that improvement in the attitudes of optical and non-optical members of staff and enhancements to the eye care delivery structure could help facilitate the provision of eye care for young children in community settings. Moreover, a balance between commercial and clinical aspects of community eye care, and further guidance and support from professional bodies could improve accessibility of eye care for young children. The findings suggest a need for action by policymakers to facilitate the removal of barriers and the implementation of enablers. Future research could use the Behaviour Change Wheel (BCW)[44] to address barriers and to develop an approach that aims to ensure young children can access community eye care and that optometrists have the skills and confidence needed to provide that care.

Strengths and limitations

The optometrists included in this research were selected from a range of community settings, locum and resident optometrists and practice directors reflecting a broad range of experience, qualifications and different perspectives. The demographic questionnaire was used to allow the data collected from the focus groups to be put into context with the practitioner's experience and expertise. It is possible that questions on, for example, the frequency of eye examinations conducted on young children, may have introduced bias by priming the participant to respond from a certain perspective.

Inductive and deductive approaches were used to code the data allowing the identification of new rather than predetermined themes. Another strength of this research was using a facilitator with the skills and experience in conducting focus groups, but without prior knowledge of the topic or the profession, thus minimising bias.

Virtual focus groups were conducted rather than face-to-face discussions due to the social distancing rules required at the time of the study. Most participants preferred to keep their video cameras off or had to turn them off due to connection issues, so additional information could not be gleaned from the participant's body language and facial expression.

The importance of barriers and enablers was gauged in this study by the number of utterances consistent with each theme. This approach reflects how much the participants talked about the concern and is likely to indicate the strength of that feeling within the focus group. However, it is not a direct indicator of the perceived importance of each theme and should be interpreted with caution. Further research is needed to confirm the importance of each barrier or enabler or the extent to which it is likely to affect young children's access to eye examinations.

CONCLUSION

In conclusion, this small-scale qualitative study has begun to reveal a rich and complex picture of the numerous barriers and enablers to community eye care services for young children in England. The barriers 'Time and Money', 'Knowledge, Skills and Confidence, 'Awareness and Communication' and'Range of Attitudes' were identified as key to accessibility of primary eye care for children of all ages. Barriers and enablers may exist at the level of the optometrist, support staff, the patient and the parent. To better understand these factors, the perspectives of all groups need to be explored in future work. The barriers and enablers reported here are relevant to community optometrists, professional bodies, educators and policymakers. While barriers identified in this research are modifiable, significant measures are required to address the accessibility of eye care services for young children. A draft evidence-based implementation plan could be developed based on the themes and recommendations identified from these focus group discussions.

AUTHOR CONTRIBUTIONS

Salma Wilson: Conceptualization (equal); data curation (lead); formal analysis (lead); investigation (lead); methodology (equal); writing – original draft (equal); writing – review and editing (equal). **Irene Ctori:** Conceptualization (equal); methodology (equal); supervision (equal); writing – original draft (equal); writing – review and editing (equal). **Rakhee Shah:** Conceptualization (equal); formal analysis (equal); methodology (equal); supervision (equal); writing – original draft (equal); writing – review and editing (equal). **Miriam Louise Conway:** Conceptualization (equal); methodology (equal); supervision (equal); writing – review and editing (equal). **Sophie Jayne Willis:** Data curation (equal); writing – original draft (equal); writing – review and editing (equal).

Catherine May Suttle: Conceptualization (equal); formal analysis (equal); methodology (equal); supervision (equal); writing – original draft (equal); writing – review and editing (equal).

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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