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RESEARCH ARTICLE

Is optometry ready for myopia control? Education and other barriers to the treatment of myopia [version 1; peer review: 1 not approved]

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Abstract

Background: With the increasing prevalence of myopia there is growing interest in active myopia control. However, the majority of progressive myopes are still prescribed single vision spectacles. This prospective study aims to elucidate the knowledge and attitudes of optometrists toward myopia control, and thereby identify perceived barriers to the implementation of a risk focussed model of myopia management.

Methods: A series of four focus group discussions were conducted involving optometrists in different settings and career stages.

Results: The key finding to emerge is a clear disconnect between academic optometrists, optometry students and clinicians in practice. Academic faculty considered themselves competent in managing progressive myopia and believed the optometry curriculum provides undergraduates with sufficient clinical skills and knowledge to practise myopia control. Final-year optometry students regarded themselves as knowledgeable about myopia control but lack confidence in their ability to practise myopia control, with only one student indicating they would initiate myopia control therapy. The majority of clinicians do not offer myopia control treatments, other than to communicate lifestyle advice to modify risk of myopia progression. Clinicians alluded to a lack of availability of myopia control interventions and identified a range of barriers relating to their training, clinical practice and public health challenges, financial, technological and other constraints that affect the implementation of such interventions.

Conclusion: It appears optometrists have to yet embrace myopia control as a core element of the clinical eye care service they provide. Education, training, finance, and time restrictions, as well as limited availability of myopia control therapies were among the main perceived barriers to myopia control. This study revealed a distinct need for alignment between optometric training and the public health need for effective myopia control.

Keywords

myopia, myopia management, myopia control, attitudes, barriers, optometry

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report

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Any reports and responses or comments on the article can be found at the end of the article.

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Introduction

Myopia is the most common visual disorder in many parts of the world^{1,2}, and is predicted to affect almost 5 billion people worldwide by 2050¹. Children are becoming myopic at a younger age³, with the average degree of myopia also continuing to increase in magnitude over time^{4,5}. As high myopia is a leading cause of irreversible vision impairment and blindness⁶, the increasing levels of myopia arguably represents one of the most important ophthalmic public health threats of our time, and has been recognised as one of the conditions requiring immediate priority by the World Health Organization's Global Initiative for the Elimination of Avoidable Blindness⁷.

While the causes of myopia are both genetic and environmental, the recent global increases in myopia prevalence are thought to primarily reflect changing environmental influences⁸. There is evidence to suggest that children who spend more time outdoors are less likely to be or become myopic⁹, with increased time outdoors demonstrated to reduce myopia onset by 11–34%, but with no consistent effect in slowing progression in eyes that are already myopic⁹. Other factors, such as more time spent in education¹⁰, and prolonged or continuous near work¹¹, appear to increase the risk of myopia development and progression.

There is also a growing body of evidence to support the idea that myopia risk can be managed and myopia progression controlled¹². A range of optical and pharmacological interventions, such as atropine eye drops (at varying concentrations), multifocal contact lenses or orthokeratology, have been demonstrated to slow myopia progression in children and teenagers¹². Low dose atropine is not readily available in Europe, but numerous contact lens options suited to the control of myopia are commercially available.

Despite these advances, the majority of progressive myopes are still prescribed single vision spectacles, especially in countries outside of Asia^{13–15}. There is a scarcity of published literature that examines the possible reasons for the very limited uptake of active myopia management. A search of various databases including MEDLINE, EMBASE, Google Scholar, Scopus, the World Health Organization International Clinical Trials Registry Platform, and ClinicalTrials.gov during the preparatory stages of this study revealed only three research papers and a round table discussion that explored the knowledge and attitudes of eye care professionals toward myopia and its control^{13–16}. Rather than a lack of evidence for efficacy, the barriers appear largely attitudinal; eye-care practitioners consider the information required to implement myopia control techniques to be lacking, as well as reporting concerns about the safety, cost and availability of such measures¹³. Due to their specialist clinical skillset and their community base, optometrists are in a prime position to take the clinical lead on myopia control and prevention. Therefore, identifying the barriers that prevent optometrists from recommending or offering myopia treatment is essential, in order to inform future education needs and develop public health strategies designed to tackle the rising prevalence of myopia and its associated eye health complications. This prospective study was designed to elucidate the current practice, knowledge gaps and attitudes of optometrists in

Ireland toward myopia control, and thereby identify perceived barriers that may limit the transition to a risk-focused model of myopia management in primary care practice.

Methods

A series of focus group discussions involving optometrists in different settings and career stages were conducted between October 2018 and November 2018 in Dublin, Ireland. Irish community optometrists, along with final year optometry students and optometry faculty at Technological University Dublin (TU Dublin) were contacted through the study investigator and invited to participate in the study. One focus group involved academic optometry faculty (n=6) at TU Dublin, one involved final-year students (n=11) approaching completion of the undergraduate optometry programme at TU Dublin and two focus group discussions involved optometrists (n=12) working in optometry practices across Ireland. TU Dublin was chosen because it is the only third level institution to offer an undergraduate optometry course in the Republic of Ireland. During recruitment, it was made clear that no particular previous myopia control experience was required. No new issues were emerging during the second focus group with optometrists in practice, indicating that saturation of ideas had been achieved¹⁷.

Key topics and pre-specified questions explored in the focus group discussions were informed by a review of the literature (see *Extended data*)¹⁸. Topic areas included participants knowledge of and attitude toward myopia and myopia control, myopia control education and training, and perceived barriers to myopia control practice. At the beginning of each session, registered optometrist participants were asked the year they qualified as an optometrist, their current job title and whether they had completed any postgraduate education in myopia management. The researcher (SMC, a qualified optometrist) made efforts to ensure that all participants had equal opportunities to engage in each focus group discussion. Focus group discussions were audio recorded, transcribed and coded according to key topics in preparation for analysis. Following transcription, recorded information was deleted and the data set was read to provide the researcher with a general overview of the discussion group outcomes. Subsequent analysis was used to identify patterns in the data which were coded into categories and labelled in a manner to capture the general meaning of the patterns identified. The collated data was then analysed thematically¹⁹. Participants were informed of the nature of the study prior to obtaining verbal informed consent using audio recording. Ethical approval was obtained from the Research Ethics Committee at TU Dublin (reference 16–45) and all information was managed solely by the researcher to ensure confidentiality of responses. The consolidated criteria for reporting qualitative studies (COREQ) checklist for this study is deposited in TU Dublin's ARROW repository²⁰.

Results

The clinical experience of the practice-based optometrists, nine of whom were trained in Ireland and three in the United Kingdom, ranged from 1 to 11 years (mean= 5 ± 3 years). Two of these optometrists worked in independent practice and the remaining 10 optometrists worked in multiples or franchises.

Academic participants were all trained in Ireland and were more experienced overall, ranging from 10 to 33 years since graduation (mean= 21 ± 11 years). Final year students were at completion of their fourth and final year of undergraduate training at TU Dublin and were due to leave the university environment to enter optometric supervised practice placement in the month following participation in the focus group discussion. Only one of the 29 participants, an academic from the optometry faculty, had previously completed any postgraduate training specific to myopia control. The duration of each focus group was approximately one hour. Focus groups were conducted in quiet classrooms with only the participants and researcher present for the discussion.

Knowledge and attitudes toward myopia and myopia control

Participants in all focus groups were aware of the increasing prevalence of myopia worldwide. Concern about the vision threatening and public health implications associated with myopia was noticeably higher among academic participants compared to clinic based and student participants. Academic faculty and optometry students were knowledgeable in relation to environmental risk factors for myopia, and considered increased time spent outdoors important in reducing the risk of onset of myopia. In contrast, the general consensus among clinic based optometrists was that there is insufficient evidence relating to the benefits of outdoor activity in delaying myopia onset, with increased screen time frequently mentioned as the biggest environmental risk factor for myopia.

The overwhelming attitude from optometrists based in clinical practice was that their knowledge is too limited to offer myopia control treatment. One recent optometry graduate working in a multiple practice stated *“I don’t know anything about myopia control or myopia control contact lenses. I was never taught how to fit them,”* with another optometrist contributing *“the control of myopia is beyond our scope of practice”*.

Contrarily, academics felt failure to discuss myopia control or refer a progressive myope for myopia control treatment was verging on negligent and should be discouraged, with agreement around the opinion of one academic who commented *“you can’t deny treatment on the basis of your own limitation[s]”*, and another adding *“if the optometrist does not offer referral for myopia control, that is negligence”*.

Academics highlighted that increasing awareness of the importance of myopia control among the profession is necessary in order to exercise a culture of best practice, and suggested this should be driven by postgraduate education, widespread community education and optometrists with a focus on patient-centred care mentoring in clinical practice settings. One academic optometrist commented on the importance of parental education to influence a change in clinical practice behaviour, *“If parents are putting pressure on optometrists about myopia control, then that would make it happen”*

A recurrent theme throughout the discussions was an eagerness among participants to learn about how to incorporate

myopia control therapies into clinical practice. Clinic based optometrists and students felt they would benefit from a set of recommended guidelines and workshops on myopia control, along with more information on currently available myopia control interventions.

Myopia control in practice

A major theme to emerge from the focus group discussions was a clear disparity in the approach to myopia control between academic optometrists, final year optometry students and clinicians in practice. Academic faculty felt it was unacceptable to continue to treat progressive myopes with single vision spectacles, and considered themselves competent in managing progressive myopia; either by offering myopia control therapy such as multifocal contact lenses or orthokeratology, or by referral to a practice offering myopia control. Academics believed the optometry curriculum should provide undergraduates with the clinical skills and knowledge to practise myopia control, with consensus around the opinion voiced by one academic optometrist that *“In terms of educating current graduates, yes there is a lot done, the undergraduates should be experts on myopia control, but we don’t do a lot in terms of post graduate education”*

The final-year undergraduate students did not, however, consider themselves experts, but instead expressed an almost universal lack of confidence in their ability to practise myopia control, with only one student indicating they would initiate any form of myopia control therapy for a child exhibiting progressive myopia. Students acknowledged there was substantial emphasis on myopia control theory in the optometry curriculum, but felt the content was not structured or organised, as it was interspersed between various modules. The general consensus from undergraduates was that their exposure to implementing myopia control techniques in their primary care and contact lens training clinics was dependent on their supervisors interest in or ability to practise myopia control, with some students never having undertaken any practical form of myopia control, other than to communicate lifestyle advice to modify risk of myopia progression. One undergraduate student commented *“I know the theory but I have little practical experience. There is a lot of variation between supervisors too, therefore some students get to practice myopia control more than others”*.

Although clinical practice experience in paediatric optometry as well as fitting rigid gas-permeable (RGP) and multifocal soft contact lenses are core components of optometry training, the ability to successfully demonstrate a myopia control contact lens fit is not prioritised as a core competency in the undergraduate training programme at TU Dublin, even though fitting a soft contact lens for myopia control requires the exact same skill as routine single lens or multifocal lens prescribing^{21,22}.

Understanding of techniques used in contact lenses

Clinic based optometrists engaged in very little discussion when asked their management strategy for the control of progressive myopia. Two participants indicated they would give *“The full minus correction as opposed to under minusing”*

and “recalls of shorter periods if you think they are progressing quite fast” but did not offer any myopia control therapies (such as myopia control contact lenses) in their practices. Advice on lifestyle modification to reduce myopia risk was only presented to existing myopes, and was generally only discussed if there was time at the end of the eye examination, an issue highlighted by those optometrists working in large multiple ophthalmic practices. If communicating lifestyle advice, clinicians would typically only recommend reducing screen time. Only a minority of participating clinic based optometrists referred progressing myopes to a clinic that does offer myopia control, with some clinicians unsure of who they should refer to “I’m just referring myopes to their doctor to send them somewhere as I don’t know where to refer them for myopia control”

Perceived barriers to myopia control

Final-year students felt they did not gain enough clinical experience in order to competently practise myopia control. The academic faculty, however, were concerned that the pressures of target and performance driven clinical practice environments, as well as lack of active management in community based practices may prevent newly qualified optometrists engaging in myopia control practice once qualified. When probed about integrating additional myopia control clinics into the current undergraduate optometry programme, academic faculty reported the curriculum is at full capacity with one lecturer reporting “There are no more hours to give. The course is so packed and there is nothing we can cut out.”

Insufficient education and training was also highlighted as a major barrier to myopia control practice among clinical practice based optometrists, along with a lack of availability of myopia control interventions and limited access to instrumentation such as a corneal topographer or optical biometer. Academic faculty proposed a myopia focused postgraduate programme, along with continuing education and training (CET) and continuing professional development (CPD), to be a viable means by which optometrists can update their knowledge and behaviours and improve clinical performance. Clinic based optometrists reported they had not participated in any myopia focused CET to date, even though they are aware it is available to them, as they felt they needed more skills-based education, such as workshops.

Optometrists in all focus groups were concerned about the financial burdens associated with myopia control, and recognised the significantly shorter test times in large multiples as a barrier to advising on and offering myopia control interventions, stating there was little financial incentive to offering myopia control therapy. Academic optometrists felt the lack of subsidiary funding to Irish optometrists who offer an enhanced optometric service such as myopia control could potentially compromise the profitability of their business. Furthermore, practice based optometrists highlighted that many multiples already limit the number of appointment slots available to children, due to implications on chair time and financial targets

“Big multiples typically don’t want us seeing kids, they take up too much chair time.”

In view of this, academic faculty anticipated that a change in clinical practice will emerge as a response to patient demands for access to certain types of care, leading to myopia control becoming a business priority.

Mobile optometrists or optometrists working in multiples where larger clinical and support teams manage a bigger patient list expressed how the continuity of care and follow up of the same individual over time can be problematic, especially in a clinic where there is variability in optometrists ability to practise myopia control. One practice-based optometrist recounted conducting an aftercare on a myopia control patient previously fitted with multifocal contact lenses, reporting “I didn’t know how to do the aftercare as I didn’t know anything about myopia control contact lens fitting. I just rebooked them and hoped they were seen by someone who did” with another optometrist adding “In multiples we all see each other’s patients, so follow up is difficult.”

Overall 18 different barriers were identified by optometrists in academic and clinical practice settings as well as final year undergraduate students. These were grouped into five specific categories including public-health, clinical practice, technological, financial and training related barriers as outlined in [Figure 1](#).

Discussion

The key findings to emerge from this study include (i) a clear disconnect in myopia control knowledge, beliefs and practices between academic optometrists, final year optometry students and clinicians in practice; (ii) the perceived need for extra education, training and guidelines on myopia control and; (iii) the existence of a range of public health issues, clinical practice concerns, financial, technological and other constraints that have limited the translation of myopia control management strategies into routine clinical practice.

The contrasting views expressed by academic and student optometrists involved in the same undergraduate programme are of particular interest. Although it is positive to note that myopia control is emphasised in the optometry curriculum, it is concerning that recent and emerging graduates do not feel prepared to practise myopia control due to a lack of confidence and perceived lack of clinical hands-on training. This is particularly important given that the education and regulatory standards in Ireland are equivalent to that in the UK, with Irish and UK optometrists having a range of permitted competence among the widest in Europe²³. The lack of myopia control engagement among clinicians suggests that this perceived lack of preparedness is restricting the provision of myopia control services that are pivotal to tackling the public health consequences of a continued rise in myopia.

The observation that the optometry curricular content is at full capacity with no available teaching hours remaining raises the issue of how to address this disconnect. Reorganisation and innovation in the optometry programme to include myopia control as a practical core competencies might better prepare



Figure 1. Perceived barriers to the implementation of myopia control interventions, as identified by optometrists in academia and in clinical practice.

students for contemporary practice and to meet current and future eye care needs. It is important to note optometrists already possess the clinical skills required to carry out myopia control (e.g. multifocal contact lens fitting), therefore a complete reformation of the current curriculum is not required. Within academic faculties, the initiation of “train the trainers” type education would equip clinic supervisors with the knowledge and skills to become fully engaged in myopia control in order to optimise student and patient experience. As the academic programme will influence patterns of clinical practice, the

integration of myopia control into optometry programmes is relevant and appropriate, not only in Ireland but internationally given the global nature of the myopia epidemic. Enhancement of ophthalmic training may also assist with the transfer of skills across Europe and other regions²⁴. Measures to ensure a coherent policy to make myopia control competency a compulsory aspect of the European Diploma in Optometry, on which an increasing number of universities are basing their curriculum²⁵, could also be implemented. Optometry education in countries such as the USA, Australia and the UK has responded to the need

for therapeutic skills and services in primary care optometry. Myopia management is perhaps even more central to the traditional role of optometry so it is vital that optometry adapts quickly to the ever increasing need for myopia prevention and control. This change needs to be driven by educational providers at undergraduate and postgraduate level.

This study points to a direct need for practically oriented postgraduate training opportunities. Clinic based optometrists identified inadequate and insufficient education and training as a fundamental justification for their reluctance to practise myopia control. This supports the results from Wolffsohn *et al.*'s survey that revealed, amongst other barriers, a lack of information on myopia control means that the majority of international practitioners still prescribe single-vision correction as the primary mode of management for myopic patients, even in countries where the control of myopia progression has become an important clinical goal¹³. In view of this, the suggestion by participating academics that myopia focused postgraduate education programmes be prioritised seems prudent and would empower clinicians to apply their knowledge and expertise in contact lens fitting, as well as other techniques, into a formal myopia control management routine. However, myopia control focused CET, as well as online myopia management courses and guidelines, have been available to eye care practitioners for a number of years^{26,27}, yet practitioners still consider themselves too uninformed to expand their scope of practice (which, in Ireland, is defined as one's ability to practise according to one's knowledge, skills, competence and experience)²⁸ to include myopia control therapies¹³. Clinic based optometrists felt skill-based practical learning strategies would instigate the most effective change in professional clinical practice which should be recognised by any emergent CPD programmes. This is consistent with many studies that demonstrate a difference between the proposed versus the actual outcome of continuing education, with a lack of clinical behavioural change associated with the didactic nature of online distance learning^{29,30}. Correspondingly, interactive and multiple-strategy interventions have been shown to be highly effective in changing the professional behaviour of clinicians^{30,31}.

The observation by clinic based participants that there is a lack of substantial evidence to advocate outdoor activity is of particular concern. Interventions to increase time spent outdoors are well documented and have proven to be effective in terms of reducing the risk of myopia development⁹, with the additional benefits of minimal cost involved, low possibility of adverse effects and other positive health outcomes. The provision of advice on myopia prevention strategies is subjective and depends heavily on the knowledge and attitude of the optometrist toward myopia and its control. As frontline providers of eyecare, optometrists have a responsibility to educate at-risk patients on prophylactic measures to prevent the onset of myopia in the first instance, in addition to communicating lifestyle advice and discussing possible interventions, including their limitations, to existing myopes and parents.

The financial barriers identified corroborate and extend previous findings that highlight clinicians are concerned that myopia

control is expensive, timely, and occupies valuable chair time¹³. The academic faculty's suggestion that increased demand for myopia control would provoke a change in clinical practice is aligned with a motive previously described by Lomas³², who recognised that patients represent a group of consumers who now enquire about treatment options, and have more choice than ever in selecting an optometrist or an optometric practice³³⁻³⁵. Health care consumerism thus advocates patients' involvement in their own healthcare decisions³³, and is identified as a central requirement in health system reform^{36,37}. In the same manner, increased demand for myopia control treatment in a competitive market should motivate practitioners to address their perceived barriers to myopia control and offer a range of services to meet patient needs.

Academic faculty further recognised that demand for myopia control therapy will depend on patient and parental education on myopia and its control. This is an important aspect that needs to be addressed through appropriate public health policy given that parents have limited understanding of the causes and risk factors associated with myopia³⁸. Consequently, any strategy aiming to control myopia progression must target parents as well as practitioners, in order to address the myopia knowledge gap that currently exists amongst all stakeholders.

Conclusion

Although these focus groups cannot be assumed to be entirely reflective of clinical optometry practice, our findings demonstrate a marked lack of willingness to engage in the practice of myopia control among final year students and clinical optometrists. Education, training, finance, and time restrictions, as well as limited availability of myopia control therapies were among the main barriers identified by participants. In terms of the current undergraduate optometry programme, we found a distinct misalignment between educators expectations and students confidence in practising myopia control. In order to develop a coherent profession-wide response to myopia, our findings indicate a need for better structured undergraduate education as well as enhanced postgraduate education that compliments the available online training through a hands-on practical approach. As myopia is a global epidemic and optometrists are the primary eyecare profession tasked with addressing myopia in many countries, the importance of the role of optometrists in advocating for and providing myopia control is relevant not only in Ireland, but internationally.

Data availability

Underlying data

Full de-identified transcripts available upon request from the corresponding author, SMC (saoirse.mccrann@dit.ie). The data are not publicly available due to their containing information that could compromise the privacy of research participants. Access will be granted to researchers that are planning similar future studies.

Extended data

Figshare: Pre specified questions; Is optometry ready for myopia control? Education and other barriers to the treatment of myopia. <https://doi.org/10.6084/m9.figshare.10260347.v1>¹⁸.

Reporting guidelines

Figshare: COREQ checklist for 'Is optometry ready for myopia control? Education and other barriers to the treatment of myopia'. <https://doi.org/10.6084/m9.figshare.10266638.v1>³⁹.

Extended data and completed reporting guidelines are available under the terms of the [Creative Commons Attribution 4.0 International license](#) (CC-BY 4.0).

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Julie-Anne Little 

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Introduction:

Myopia is a refractive error – describing it as a ‘visual disorder’ makes it sound like a disease.

Can you be more specific at the end of second paragraph: ‘appear to’ sounds vague with regard to prolonged near work and it would be useful to elucidate between differences in what could drive myopia development compared to progression, as you have described with time outdoors.

What about myopia control progressive addition spectacle lenses? They are not mentioned as an approach, and while I know that their benefit in myopia retardation is less effective than antimuscarinic agents and contact lenses, it is worth mentioning, and it would then make more sense why you refer to ‘single vision’ spectacles later as the conventional approach.

The authors need to describe more fully what ‘slow myopia progression’ with myopia control is successful looks like, i.e. how much myopia could be avoided?

Myopia control is still an emerging practice, and is not a treatment that is yet offered by the NHS in the UK. The authors should acknowledge this, and cite the guidance produced by Professional bodies (i.e. the College of Optometrists, the Association of Optometrists). I know this is a rapidly changing area, and that aforementioned professional guidance is possibly a little conservative (even since it was written 2-3 years ago), but to me it is concerning that an academic optometrist in the focus group stated that a person would be negligent if not offering myopia control, and yet current regulatory standards for optometrists would not reflect that. The authors need to provide further context as to what extent myopia control is practiced by optometrists in Ireland.

What does “limit the transition to a risk-focussed model” at end of introduction mean?

Methods:

How did recruitment of community optometrists occur? How did you mitigate the bias in this sample? i.e.

that they participated in the study because they were interested in and positive about myopia control. This probable bias is highlighted in the fact that a major theme that emerges was an interest in myopia control therapies in clinical practice. I do not think your sample was representative of the optometric profession in Ireland, and thus a weakness in answering your study aim.

I assume you had a first focus group with n=6 and the second occurred at a later date?

What was the protocol for the focus group discussion? How was discussion initiated and prompted? How was the effect of the researcher being perceived as an academic optometrist controlled for in the focus groups with a) students (who may then have been reluctant to admit their lack of understanding of the topic to their lecturer) and b) community optometrists (who may have been intimidated to admit their lack of knowledge to a fellow professional)?

Results:

'Practice-based' and 'clinic based' is used in the results, but community optometrists used earlier. Be consistent in naming optometric groups.

Focus group were relatively new to professionals of 1-11 year range: again, does this limit drawing conclusions about myopia management to the profession as a whole?

Surely a barrier that should be discussed is the availability of myopia control therapies/lenses. In the introduction, the authors note that there are numerous available therapies – but then availability is highlighted as a clinical practice barrier in the Figure. However, this is not discussed in the text. Are optometrists unaware of what to order? Are they not available/distributed in Ireland?

Overall I am not persuaded that the authors have answered their research question with the methodology employed. They sought to “elucidate the current practice, knowledge gaps and attitudes of optometrists in Ireland toward myopia control, and thereby identify perceived barriers that may limit the transition to a risk-focussed model of myopia management in primary care practice”.

The lack of information in the way in which community optometrists in Ireland were recruited (and the small sample size) means that this work does not probably capture the current practice and knowledge gaps for the optometry profession in Ireland and likely is a biased sample. This is underlined in the relatively small number of years of experience of the focus group members, and the clear bias of interest in myopia control suggests that these optometrists are not necessarily typical of the optometric workforce.

There is interesting work here, but the authors need to make significant revision to their manuscript, fully describing their recruitment and focus group methodology and acknowledge the limitation of their study design to address their research question.

Is the work clearly and accurately presented and does it cite the current literature?

Yes

Is the study design appropriate and is the work technically sound?

Partly

Are sufficient details of methods and analysis provided to allow replication by others?

No

If applicable, is the statistical analysis and its interpretation appropriate?

Not applicable

Are all the source data underlying the results available to ensure full reproducibility?

No

Are the conclusions drawn adequately supported by the results?

Partly

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Optometry, paediatric vision, cataract, developmental disability.

I confirm that I have read this submission and believe that I have an appropriate level of expertise to state that I do not consider it to be of an acceptable scientific standard, for reasons outlined above.
