

# **EyeInclude: A qualitative feasibility study utilising staff-student partnership to create a diverse and inclusive postgraduate taught ophthalmology curriculum**

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## **Introduction**

Health inequalities are unfair and avoidable differences in health outcomes between different sociodemographic groups of people are caused by systematic differences across the multifactorial determinants of health. These include individual behaviours, quality and accessibility of health services, and wider determinants such as housing, environment, education, and income. Health inequalities are pervasive such that people of ethnic minorities and low socio-economic status report higher levels of physician and healthcare system distrust than white counterparts and have higher hospital non-attendance and loss to follow-up (Armstrong et al, 2007).

Inequalities in Ophthalmology exist throughout the patient journey. Women, ethnic minorities, and residents in low-income or rural regions have higher prevalence of visual impairment and blindness (Ulldemolins et al, 2012). In the UK, social deprivation and being a minority ethnicity independently predict late-presentation and non-attendance in patients with referable retinopathy (Denniston et al, 2019; Lawrenson et al, 2021). Moreover, Black

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patients with diabetic eye disease are less likely to receive disease-modifying treatment and experience significantly longer time-to-treatment compared to their white counterparts (Sloan et al, 2004; Kirthi et al, 2021).

The disparity is paralleled in the educational outcomes of clinicians in a phenomenon known as differential attainment, where doctors from ethnic minority backgrounds perform worse in exams and have at least 2.5 times higher odds of failing postgraduate exams than white doctors (Woolf, Potts and McManus, 2011). Within the ophthalmic workforce, women and ethnic minorities are underrepresented, from frontline clinicians to leadership roles in research and education (Xierali, Nivet and Wilson, 2016; Gould, Kulik and Sardeshmukh, 2018). Differential attainment in clinical education limits clinician workforce diversity and can hinder patient trust and outcomes (Rovner and Casten, 2019).

There has been a drive to improve ophthalmic workforce diversity and inequalities in patient outcomes. The 2021 Lancet Global Health Commission on Global Eye Health emphasised the need for inclusiveness and equity in people-centred service design and delivery. The Royal College of Ophthalmologists supported a reverse mentoring scheme to explore the lived experiences of the BAME Ophthalmology trainees, to help understand and overcome the barriers that contribute towards differential attainment (The Royal College of Ophthalmologists, 2021b).

Embedding principles of equality, diversity, and inclusivity in medical education addresses clinical competency in delivering care to sociodemographic subgroups and has the potential to ameliorate disparities that persist between different groups of people (Census 2021, 2022). Moreover, a diversified curriculum, inclusive learning, and a sense of belonging have been postulated to lower differential attainment (Mountford-Zimdars et al, 2015). The UK medical postgraduate training curricula include population health and social determinants of health to raise awareness, yet a diverse pedagogical approach has not been adopted in postgraduate ophthalmic education (General Medical Council, 2019; The Royal College of Ophthalmologists, 2021a).

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We conducted EyeInclude, a staff-student partnership study using co-design and pedagogic consultancy to refocus postgraduate ophthalmic education through the lenses of diversity and inclusion in a Masters Ophthalmic curriculum at a London university. We aimed to address systematic biases with postgraduate ophthalmic education.

### Methods

#### Setting up staff-student partnership

We used the definition “Partnership is a process for developing engaged student learning and effective learning and teaching enhancement. At its heart, partnership is about applying well-evidenced and effective approaches to learning, teaching and assessment with a commitment to open, constructive and continuous dialogue. Partnership involves treating all partners as intelligent and capable members of the academic community” to underpin the EyeInclude staff–student partnership (Chiu et al, 2022). The staff-student partnership model was used to apply well-evidenced and effective approaches to curriculum design with a commitment to open, constructive, and continuous dialogue. The study design was collaboratively conceived. Student partners (EL, FL) conducted focus groups with student cohorts to understand their experiences and expectations, maximising participation from marginalised groups. Staff partners (RM, CH, module leads) led curriculum design including using low-stakes activities (e.g. ice-breakers, art) to encourage critique of current practice. Data collected was collectively analysed by all partners to inform module changes.

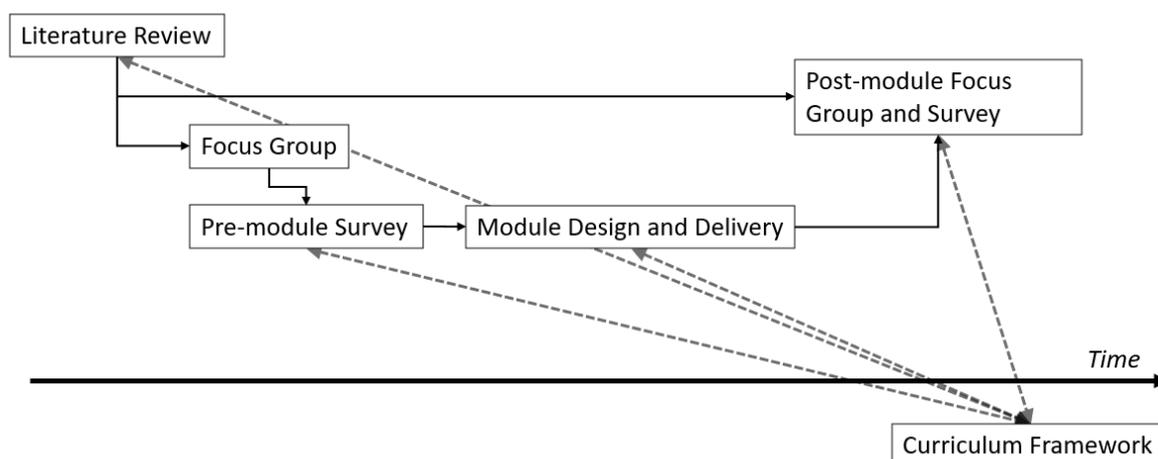
The study aimed to:

1. Embed diversity and inclusion in postgraduate ophthalmic curriculum through staff-student partnership.
2. Establish shared values with respect to diversity and inclusion and to encourage students to embody these values in practice.
3. Build a supportive learning environment for all students.
4. Understand the impact of these changes on students.

## Study Design

The study adopted a mixed-methods design consisting of qualitative semi-structured focus groups and paired surveys. Scoping focus groups were conducted through the divergent-convergent design process to generate module changes (Table 1). Paired pre- and post-module surveys were conducted to evaluate impact. Surveys and semi-structured questions for the focus group discussions were developed using the UCL Curriculum Inclusivity Health Check and Imperial belongingness scale (Imperial College London, no date; University College London, no date). The curriculum changes were implemented into a postgraduate subspeciality Glaucoma module in January 2022. Data was collected between December 2021 and April 2022. The study follows Standards for Reporting Qualitative Research guidelines.

Figure 1: Timeline of EyeInclude project



## EyeInclude module changes

Changes in module content and delivery from staff and student feedback were implemented into the curriculum and evaluated within the same cohort (Table 1).

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Table 1. Student and staff recommendations for changes to module delivery and content from thematic analysis of a scoping focus group. \*Insights from a previous qualitative research project on fostering belongingness amongst Masters' students (EyeBelong).

Delivery	Content
<ul style="list-style-type: none"><li>• Predominantly synchronous learning</li><li>• Low-stakes activities (ice breakers/artwork)</li><li>• Establishing ground rules for engagement</li><li>• Learning needs assessment</li><li>• Collaborative small group workshops</li><li>• Creative group assignment with peer feedback (patient decision aids)*</li><li>• Coffee with module leads to facilitate real-time informal feedback*</li><li>• Module leads facilitation<ul style="list-style-type: none"><li>- Throughout lectures</li><li>- Post-lecture Q&amp;A sessions</li><li>- Presence at end of day for informal discussions</li></ul></li></ul>	<ul style="list-style-type: none"><li>• Decolonised reading list</li><li>• Health inequalities lecture to start module</li><li>• Lecturer briefing on discussing health inequalities relevant to their talks.</li><li>• Diverse case studies</li></ul>

The module leads actively listened to the student feedback and recommendations gathered by the student partners and ensured all feedback was acted upon. This included requesting lecturers to incorporate student recommendations into their talks.

### Participant recruitment

All students enrolled on a taught MSc Ophthalmology programme were invited to participate. The participants were self-selected.

### Ethical statement and funding

The EyeInclude project is funded by the UCL ChangeMakers grant. The study is compliant with General Data Protection Regulations. All data collected was anonymised. All

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participants were informed of data governance within the study and consented to maintaining the confidentiality of the content of focus group discussions.

### Data collection

#### Focus groups

Focus groups were facilitated by student partners and module leads using a semi-structured interview script in-person or via a videotelephony platform (Zoom). Participants were briefed on the purpose and ground rules for engagement and discussion to create a safe conversational space. Concurrent to the interviews, participants were provided the option of contributing anonymously via a cloud-based real-time collaborative web platform (Padlet). The post-module focus group was conducted in person in a roundtable setting.

#### Surveys

Student surveys were distributed via the programme Moodle page. Survey questions were scored on a Likert Scale (1-5) with the option for 'Not applicable' (see supplementary material).

#### Data analysis

Encrypted audio data was automatically transcribed verbatim (Zoom) and combined with Padlet data by two assessors independently (EL and JL). Discrepancies were resolved by consensus. Thematic analysis was undertaken on NVivo V.12.0, using Braun and Clarke's Six-phase framework. All assessors read transcripts individually to familiarize themselves with the data and generate initial codes (EL, JL, CH, RM). Following consensus discussion, an initial coding framework was confirmed and used to code 3 transcripts (EL). The results were then reviewed collectively to generate a final coding framework used in all data. Changes in pre- and post-survey results were analysed on Excel and presented as summary statistics.

### Results

A total of 15 students were enrolled on the Glaucoma Module of the MSc Ophthalmology. Response rate 87% (n=13) for survey; 87% (n=13) for pre-module focus group; 100% (n=15) for immediate post-module focus group. Student demographics are summarised in Table 2.

Total number of module participants		n = 15
Age	Median age	24
	Minimum age	21
	Maximum age	48
Gender	Female	54%
	Male	46%
Ethnicity	Asian ( <i>incl. Chinese</i> )	77%
	White	15%
	Afro-Caribbean	8%
Fees status	Home	54%
	International	46%
Level of study	Undergraduate	46%
	Postgraduate	54%

Table 2: Demographics of students enrolled onto MSc Ophthalmology glaucoma module

### Pre-module focus group

Thematic analysis of the discussion revealed students' understanding of diversity and inclusion in curricula and the perceived relevance to themselves. Themes of student support, curriculum content, and cultural awareness emerged.

### Student support

The students expressed interest in an inclusive and diverse curriculum which they perceived to generate a supportive learning environment. When asked what they thought diversity means in the context of postgraduate education and curriculum students reported:

*"Involvement of people that come from various backgrounds, ages and ethnicity"*

*"Diversity matters, to help us feel supported, we learn more efficiently, allowing more headspace to study than to deal with feelings of exclusion"*

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*“A curriculum that considers student professional and ethnic backgrounds and stage in career, tailoring to different learning needs and knowledge gaps”*

### Curriculum Content

Suggestions were made for the development of a diverse and inclusive curriculum. These included the use of a diverse range of resources and research sources, contextualisation of course materials to have a more global relevance, recognition of any limitations in the demographic representation of research studies, and avoidance of stereotypes within course content:

*“Flagging relevant differences will be practical and useful, particularly in differentiating physiological phenotypes vs abnormality”*

*“Representative case studies should be reflective of ethnic and socioeconomic backgrounds of patient populations”*

*“In upcoming modules, I have expectations especially for medical retina. For example, in diabetes, where diversity is more relevant to presentation, management and prognosis in South Asians”*

### Cultural Awareness

The students would like the module to increase their confidence in treating diverse groups of patients:

*“Ideally when completed, I would like to feel confident treating patients of various ethnic backgrounds”*

### Pre- and post-module surveys

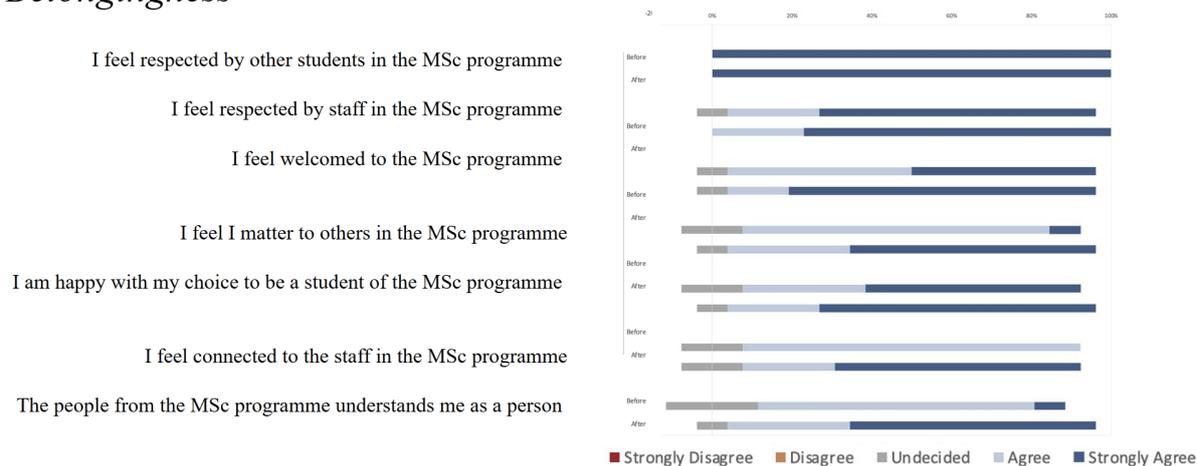
#### Belongingness

After the module, more students *strongly agreed* that they felt connected to the staff

(+62%), mattered to others in the programme (+54%), were understood as people (+54%) and welcomed to the programme (+31%) (Figure 2).

Figure 2. Pre and post module survey of student self-reported belongingness

### *Belongingness*



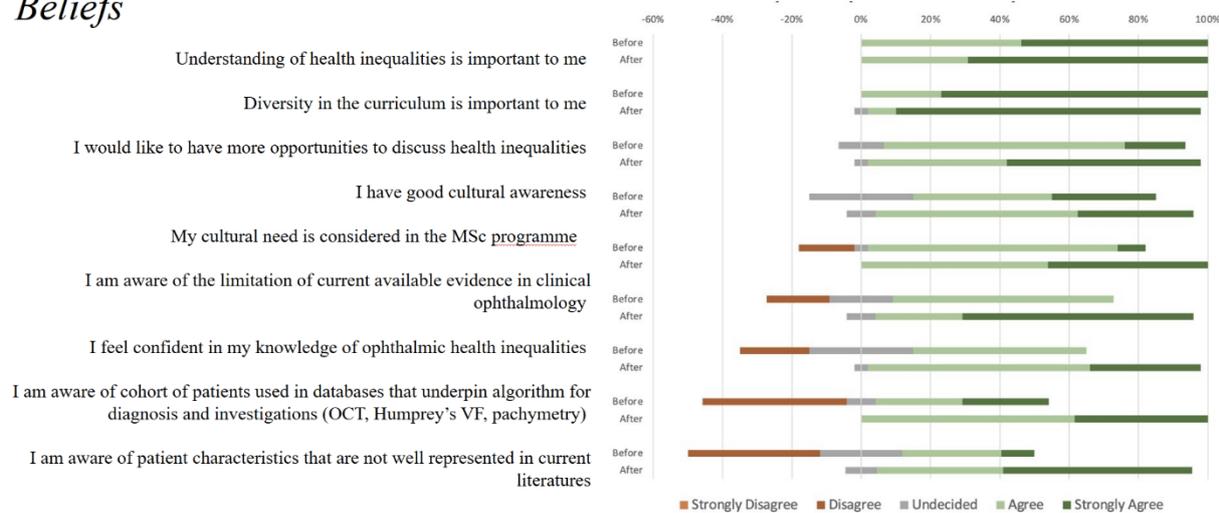
### **Beliefs**

All students agreed or strongly agreed that curriculum diversity is important to them, that they identify with one or more tutors/lecturers as a role model and felt respected by other students pre- and post-module. All agreed or strongly agreed that the module provides opportunities to learn about the diverse perspectives of patients and those relating to clinical practice.

The proportion of respondents who felt that the curriculum considered their cultural needs increased from 8% to 46%. There was a 23% increase in self-reporting of having good cultural awareness. The majority of students (92%) would like more opportunities to discuss health inequalities (Figure 3).

Figure 3. Pre- and post-module survey of student beliefs regarding equality, diversity and inclusion

### Beliefs



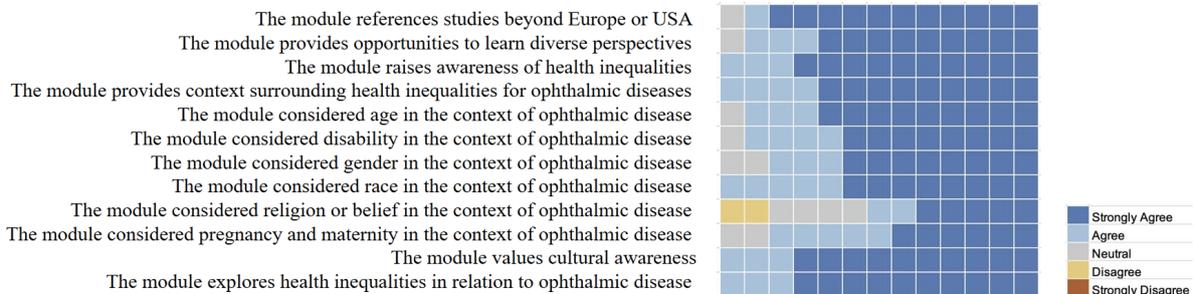
### Knowledge and Content

Students agreed or strongly agreed that the module contextualised ophthalmic health inequalities (100%), raised cultural awareness (100%), and considered age (100%), race (100%), disability (92%), pregnancy/maternity (85%), studies beyond Europe/North America (85%), gender (85%), and religion/belief (54%) in the context of managing ophthalmic patients (Figure 4).

Before the module, 62% disagreed or were undecided on feeling confident in their knowledge of ophthalmic health inequalities. There were increases in students' reported confidence in knowledge of ophthalmic health inequalities (+54%), awareness of patient demographics of databases underpinning investigational algorithms in OCT, Humphrey's VF, and pachymetry (+46%), and patient characteristics poorly represented in literature (+54%). There was a 62% increase in students who strongly agreed to being aware of limitations of evidence in clinical ophthalmology and a 23% decrease of those who disagreed or were undecided (Figure 3).

Figure 4. Student perception of module content after implementation of recommendations

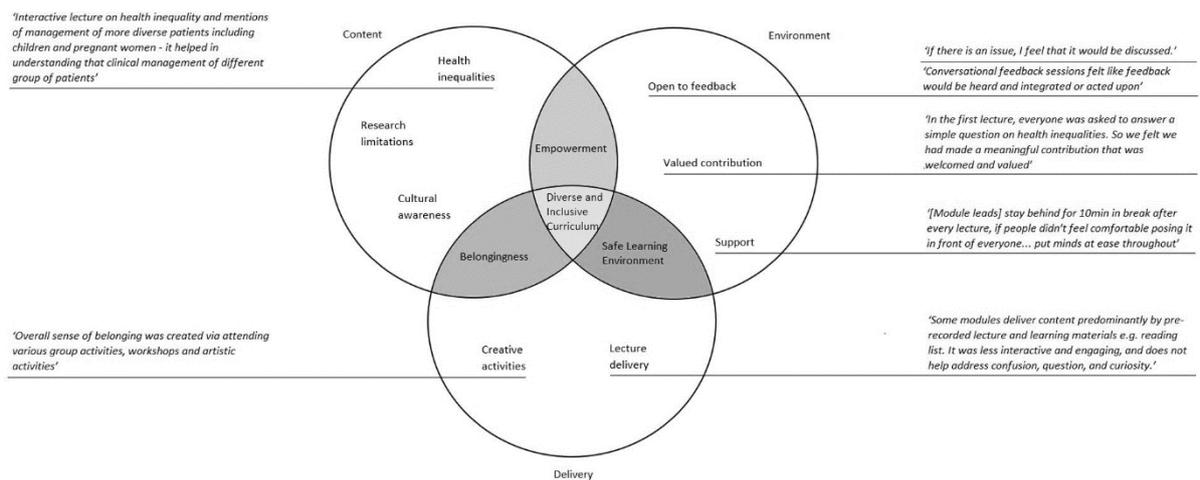
*Content*



**Post-module focus group**

Student perspectives on the integration of the inclusive and diverse curriculum framework in the glaucoma module were explored and thematically analysed. Emergent themes were empowerment, belongingness, and a safe learning environment (Figure 5).

Figure 5. Post-module focus group analysis themes



**Empowerment**

Students found the glaucoma module empowering. This was predominantly attributed to teaching on health inequalities which enhanced students' understanding of, and ability to, recognise potential biases in clinical practice and research. Students found it particularly

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useful when discussing real-life examples of health inequalities, and discussions about the management of diverse groups of patients, including different ethnicities, pregnant women and children. Critical appraisal of landmark glaucoma trials through a creative assignment allowed students to identify limitations in research studies and become more aware of imbalances in sample populations and how this could lead to unconscious bias in clinical practice. Students suggested that cultural awareness should be a component of a diverse curriculum, as it builds confidence in caring for a diverse group of patients:

*“Interactive lecture on health inequality and discussions of management of more diverse patients including different ethnicities, children and pregnant women - it helped in understanding the clinical management of different groups of patients”*

### Belongingness

Students commented on the important role of ice-breakers and creative activities in building rapport and trust between peers and module leads. The creative and collaborative group project also fostered a sense of belongingness and enabled students to get to know each other better. Workshops also helped students connect with one another, as well as socially construct knowledge:

*“Overall sense of belonging was created via attending various group activities, workshops and artistic activities”*

*“[Module leads] took care to get to know each of us individually as people”*

### Safe learning environment

Module leads were integral to creating a safe learning environment and helped students feel comfortable sharing opinions and asking questions. Regular opportunities were provided for students to ask questions and share feedback in real-time during the module. This helped the students feel that the module leads wanted them to get the most out of the module and have an excellent understanding of the new concepts that were being taught.

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Students felt that any feedback they gave would be taken seriously and that their contributions throughout the module were valued.

### Valued contribution

Students found the lecturers friendly, and students felt it reflected the module leads' engagement with them. A non-judgmental atmosphere created a safe learning environment which encouraged active contributions from students:

*"In the first lecture, everyone was asked to answer a simple question on health inequalities. So we felt we had made a meaningful contribution that was welcomed and valued from the start"*

*"More importantly it is how they take simple questions"*

*"Being encouraged to contribute, but at the same time having the perceptions of a non-judgmental atmosphere"*

*"When asking questions, being reassured that they are valid and module leads acknowledging that certain concepts need consolidation"*

### Response to feedback

Students felt respected, valued and that their voice mattered when module leads conducted a learning needs assessment in the beginning of the module, and then checked in periodically to ensure that their learning needs were met and any questions that arose had been answered in full. Periodic feedback sessions with the module leads made students feel that feedback was valued and would be acted upon:

*"If there is an issue, I feel that it would be discussed"*

*"Conversational feedback sessions felt like feedback would be heard and integrated/acted upon"*

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### Support

Presence of module leads throughout the duration of the module (even when there were guest lecturers) was an important factor in creating cohesiveness. The important role of the module lead as a facilitator of learning was highlighted by the students, with the module lead facilitating lectures, group activities, Q&A and feedback sessions. Students appreciated frequent allotted times for Q&A sessions at the end of talks which were facilitated by module leads. Students found the module lead engagement with guest speakers helped to improve the clarity of new concepts. Module leads explained difficult concepts or acronyms during talks of guest speakers using the chat box function:

*"[Module leads] stay behind for 10min in break after every lecture, if people didn't feel comfortable posing it (the question) in front of everyone... put our minds at ease throughout"*

*"Very helpful to have a less public forum to ask questions in case we were worried that the questions may have been embarrassing to ask"*

*"Asking guest lecturers to recap key points and key questions asked by [module leads] reinforced the important content and take-home messages"*

*"[Module leads] ask students regularly and checked if we understood the concepts and topic"*

### Discussion

EyeInclude is a feasibility study for embedding equality, diversity, and inclusivity in curriculum design in a clinical postgraduate Ophthalmology programme. We identified that curriculum 'delivery' was equally as important to our student group as its 'content'. Overall, students found that the curriculum changes implemented were valuable both in the context of their programme experience and for future clinical practice.

Globally, the number of people with visual impairment is projected to increase to 1.8 billion in 2050, and minority patients are disproportionately affected. Black patients with Type 2

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diabetes mellitus have the highest risk of developing sight threatening diabetic retinopathy (Nugawela et al, 2021). Responses to pharmacological and surgical treatment also varies by ethnicity, with lower success rates of initial trabeculectomy with mitomycin C in patients of African descent compared with patients of European descent (Stein et al, 2011). Ethnic minorities are similarly underrepresented in ophthalmic literature, where less than half of studies report race and/or ethnicity, and only a minority describe how it was determined (Moore, 2020). Furthermore, discrimination adversely impacts workforce wellbeing and has repercussions for patient care (Annoh and Mensah, 2021). With the recognition that patient populations are more diverse and complex, healthcare professionals need to understand and represent the patient populations that they treat. Diversifying the clinical curriculum helps to create a clinical workforce pipeline that is equipped to ensure equity in service provision that potentially closes the gap in health outcomes (Burton et al, 2021).

The staff-student partnership was central to creating the curriculum changes and effecting the impact observed by committing to open, constructive, and continuous dialogue (Chiu et al, 2022). This addressed the perception that discussion of race-related issues could impede relationships between trainees and trainers, which is a known barrier to addressing differential attainment in postgraduate medical education (Woolf et al, 2018). Moreover, staff partners were aware that students might not feel comfortable to contribute owing to fears of repercussion. In response, staff established rules of engagement and consciously flattened hierarchies to create a psychologically safe environment where students were encouraged to challenge ideas freely (Könings et al, 2021). Within the study team, student partners were valued as equals for their expertise and insights. Additionally, throughout the project, students were given autonomy over sections of work in a supported and scaffolded approach to achieving empowerment (Chiu et al, 2022). This conscious approach to our partnership enabled the re-design of an academically demanding postgraduate clinical module that was taught and delivered through the lens of diversity and inclusion.

Students valued the curriculum focus on health inequalities and felt *empowered* to address them in clinical practice. The module's introductory lecture introduces concepts of understanding the sources, and impact, of health inequalities, and recognising potential biases in clinical practice and research. Post-module surveys showed that 95% of students

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'agreed' or 'strongly agreed' that their awareness of health inequalities and systemic biases in clinical care and current ophthalmic research had increased, and the post-module focus group showed 'empowerment' as a recurring theme. Students also reported better understanding of their own roles and responsibilities in delivering equitable care to the patients that they would see in their own clinical practice. This increase in knowledge underscores the importance of embedding health inequalities in all medical education. Curriculum refocus may supplement the Office for Health Improvement and Disparities initiative to enable healthcare professionals to continuously address health disparities as part of their everyday practice (Exworthy and Morcillo, 2019; Office for Health Improvement & Disparities, 2022).

The post-module focus group identified *belongingness* and *a safe learning environment* as themes important to module delivery. The messaging that 'all questions are welcome' and no one was made to feel 'less than' when answering or asking questions was also important to creating a safe learning environment. After the module, more students strongly agreed that they felt connected to the staff, that they mattered to others in the programme and were understood as a person. Students expressed that they felt respected, valued and that their voice mattered. It is well established that belongingness is critical to students' academic motivation, success and well-being (Goodenow, 1993; Osterman, 2000), however what is less well understood is how to create this in different learning situations. Furthermore, the module changes were informed by students' opinions and recommendations from the pre-module focus group. Seeing the recommendations delivered gave students confidence that they were being listened to and that their opinions mattered, which paved the way for an activated and safe learning environment.

Our curriculum changes further augmented student experience through formal and informal feedback. Formal feedback came in the form of a learning needs assessment conducted before module commencement, which was used to provide tailored teaching. Informal feedback was elicited through coffee with module leads and post-lecture Q&A sessions which were acted upon continuously. Students appreciated conversational feedback sessions, in contrast to more formal feedback forms, as it allowed real-time interaction, discussion and clarification.

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The module also incorporated low-stakes activities which were important in building trust and creating a safe learning environment to foster belongingness. Module leads were present throughout the module and their engagement with guest speakers during their teaching sessions helped improve the clarity of concepts being taught. Explaining difficult concepts and acronyms during guest speaker talks made students feel that the module leads wanted everyone to understand the topics well and helped build further trust. Students appreciated the allotted Q and A time at the end of lectures and the fact that the module leads always stayed back to answer questions that students might not have felt comfortable asking in a group.

The senses of community and belongingness were further developed through interaction with peers in workshops and creative assignments, where students socially constructed knowledge in small groups (Osterman, 2000). The workshops were designed to integrate the different concepts taught and enable consolidation in an informal environment. Creative assignments were carried out in small groups, where each group was assigned a landmark clinical trial and asked to produce and present a patient decision aid. This enabled students to critically appraise research whilst developing their collaboration and science communication skills. Students reported that the group assignment helped them understand their peers better. Moreover, the creative assignment was unassessed (formative) to remove concerns of competition (Imel, 1991) and unequal input from group members when the work is not assessed individually (Gatfield, 1999; Burdett, 2003).

As staff, we recognise the challenges of student partnership as it is time-consuming and requires a seismic change in status quo. Our multi-stakeholder approach sought staff feedback on curriculum changes and required them to reflect on the teaching content, including cases studies and practice guidelines, and to include research which represented diverse groups of people and populations from across the world. Staff felt the changes improved the teaching content as it was more representative of their clinical practice and found it satisfying that the students connected with what was being taught. Staff were conscious throughout the module to ensure that the way they taught did not disadvantage any students and that all students felt that they could equally contribute. Staff found the post-module focus group enlightening, as they had not fully appreciated the importance of

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inclusive delivery to students. Staff were also not aware how important it was for students to understand more about the implications of protected characteristics, such as pregnancy, visual disability, and religious beliefs on clinical practice.

### Limitations

The study had several limitations. Firstly, the sample size was restricted by the small cohort size of the postgraduate programme. The findings thus may have limited generalisability; however, this was in part mitigated by student-led divergent data collection. Secondly, the determinants of health inequalities could not be comprehensively addressed as the project introduced additional learning outcomes without an extension of the module timeframe. Furthermore, the study only evaluated changes in students' self-reported perceptions. It remains unclear whether these translated to changes in their knowledge and behaviour as the study did not address learning assessments. Lastly, the impact of student partnership cannot be systematically assessed as it is not a recognised metric for measuring staff performance or programme success, nor is it directly evaluated in national student feedback surveys such as the UK university National Student Survey (Office for Students, 2023). Future studies with larger cohorts are needed to verify our findings and demonstrate sustained effects. We also acknowledge that using the partnership approach to co-design the curriculum has challenges, including the commitment of time and resources in establishing the changes to be made, implementing recommendations from stakeholders, and revising the curriculum for further improvement and impact.

### Conclusion

Staff-student partnership is key to successfully co-creating and implementing a diverse and inclusive Ophthalmic postgraduate curriculum. The partnership enabled a diverse group of students to contribute to curriculum design and the same student group were able to experience the changes. This work is key to ensuring that modern clinical education accurately reflects the patient populations that students will serve and that future clinicians are competent in recognizing and tackling health inequalities in everyday practice.

### Acknowledgements

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### Conflict of Interest

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