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Original Article

Unveiling Disparities: Exploring Differential Attainment in Postgraduate Training Within Clinical Oncology

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Abstract

Aims: Differential attainment (DA) in post graduate medical training is a recognised challenge and refers to unexplained variation across groups when split by several protected characteristics. The Royal College of Radiology is committed to fostering diversity, inclusivity, and equality with the goal of narrowing existing gaps and improving training outcomes.
Materials and Methods: This was a mixed methods study aiming to understand the causes of DA with view to helping the RCR develop strategies to address this. A cross-sectional survey was completed by 140 clinical oncology trainees in September 2022. Trainees and trainers (17 and 6 respectively) from across England, Scotland, Wales and Northern Ireland, took part in focus group and interviews from August to December 2022. Quantitative and qualitative data merged and interpreted.
Result: Results showed international medical graduates and trainees from ethnic minority backgrounds were more likely to encounter challenges. The qualitative findings were used to identify three themes through which these problems could be framed. The trainee as a "space invader," the hidden curriculum of clinical oncology training and the process of navigating and tacking the training journey.
Conclusion: Differential attainment is the product of a complex interplay between the trainee, trainer, and the training environment. Therefore, interventions must be tailored to different people and contexts. At a national level, the RCR can adopt general policies to promote this such as mentorship programmes, protected time for supervision and cultural competency training. Efficacy of proposed interventions for trial and their impact on DA should be evaluated to drive evidence-based changes.
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Key words: Clinical oncology; curriculum; differential attainment; international medical graduates; postgraduate medical education

Introduction

International medical graduates (IMGs) experience inequalities in recruitment to postgraduate training, progression through training, and entry into consultant positions compared to UK medical school graduates (UKGs) [1,2]. Similarly, IMGs and UKGs from ethnic minority backgrounds have poorer outcomes compared to White doctors

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and are less likely to be appointed to specialty training posts [3–5]. Lower pass rates are demonstrated by IMGs in the Fellowship of the Royal College of Radiologists (FRCR) examination, with clinical oncology (CO) FRCR examination data from 2018–2022 showing the same trend [6,7]. This phenomenon, described as differential attainment (DA), has had increasing prominence since a judicial review of the Membership of the Royal College of General Practitioners (MRCGP) examination and the General Medical Council (GMC) in 2014 [8,9].

Earlier studies focused on quantitative analysis of exam data but found examiner bias or discrimination alone were unlikely to explain DA [10–13]. More recent studies have combined quantitative and qualitative approaches to ask why and how DA occurs [14–16]. Much of the discourse has focused on raising awareness with a paucity of research into which interventions could effectively reduce DA in practice [17,18]. Whilst the GMC and UK Royal Colleges have commissioned work to tackle DA, efforts have been fragmented across regions and specialties [19,20].

Puwar used the concept of “space invaders,” (not being the natural occupant of a space, not belonging and disrupting the natural order) to explore how women and people from ethnic minorities experience discrimination and inequalities [21]. “Space invaders” has been adopted as a conceptual lens to analyse the lived experiences of trainees in UK CO post-graduate training.

This is the first study to explore this phenomenon in CO training. It aims to investigate DA in CO, improve our understanding of invisible exclusionary mechanisms within postgraduate CO training and explore the dynamics between trainees and spaces they inhabit to inform future interventions to address DA within CO.

Methodology

Study Design

We adopted a mixed-method research approach to provide a holistic understanding of DA. An online questionnaire was sent out to all (n = 505) CO trainees in the UK at the time of study. Respondents were subsequently invited to take part in focus groups and interviews for triangulation of the data.

Study Participants

Participants were doctors in CO training from across England, Scotland, Wales, and Northern Ireland who were registered with the RCR. Our sampling framework also included doctors involved in supervising trainees, from here on referred to as trainers. For the purposes of interviews, purposive sampling techniques were used to obtain a cohort, which captured different regions of training or work, levels of training, years of experience as a trainer, where primary medical qualification was obtained and ethnicity. SAS doctors, representing a cohort with varying levels of professional experience, were included in the qualitative segment of this study. Many of them serve as middle grades within clinical oncology (CO), with comparable training needs to the specialist registrars they work alongside. Target number for focus groups and interviews required a balance between meaningful representation and resource constraints.

Data Collection

A working group created a 28-question survey. The survey was designed not to be time-intensive for participants and prior to dissemination, it was piloted internally to ensure content validity and relevance. The survey was launched in September 2022, a reminder email sent after two weeks and closed after five weeks in October 2022.

Focus groups and interviews were conducted by two researchers (AF, ZIE) with trainees (ST3-ST7), speciality doctors and trainers between August and December 2022 on an online platform. Formal consent was given prior to interviews and group discussion with explicit permission given for the session to be recorded. A semi-structured interview guide was used. Data collection was concluded upon reaching theoretical saturation and achieving a comprehensive depth of understanding.

Data Analysis

The survey data were analysed descriptively (ZIE, AF, MM, SS) and characteristics of the sample described. Qualitative-type responses to open-ended items were classified in categories and content analysed. Interview and focus group transcripts were analysed (MK, AF, ZIE, KO) iteratively and reflexively, and a thematic analysis was conducted. The iterative process was guided by Braun and Clarke [22].

Qualitative and quantitative data were integrated (Figure 1) using the qualitative findings as a framework because it provided richer understanding of the different dimensions of respondents’ experiences [23]. The quantitative data provided supplementary objective details corresponding to the themes identified by the qualitative data [24].

Results

The online survey was completed by 140 trainees (28%) and trainee characteristics are summarised in Table 1.

Amongst all trainees surveyed, 41.6 % believed there was an unexplained variation in attainment between groups of trainees in their training programmes. Lack of awareness of this issue was seen in 22.5% whilst 21.6% adopted a neutral position. However, only 13.8% believed DA did not exist in their training programme.

Trainees and trainers participated in one-to-one interviews and focus groups (Table 2 shows participant characteristics). Focus groups lasted 102 minutes and one-to-one interviews which lasted 59 minutes on average.

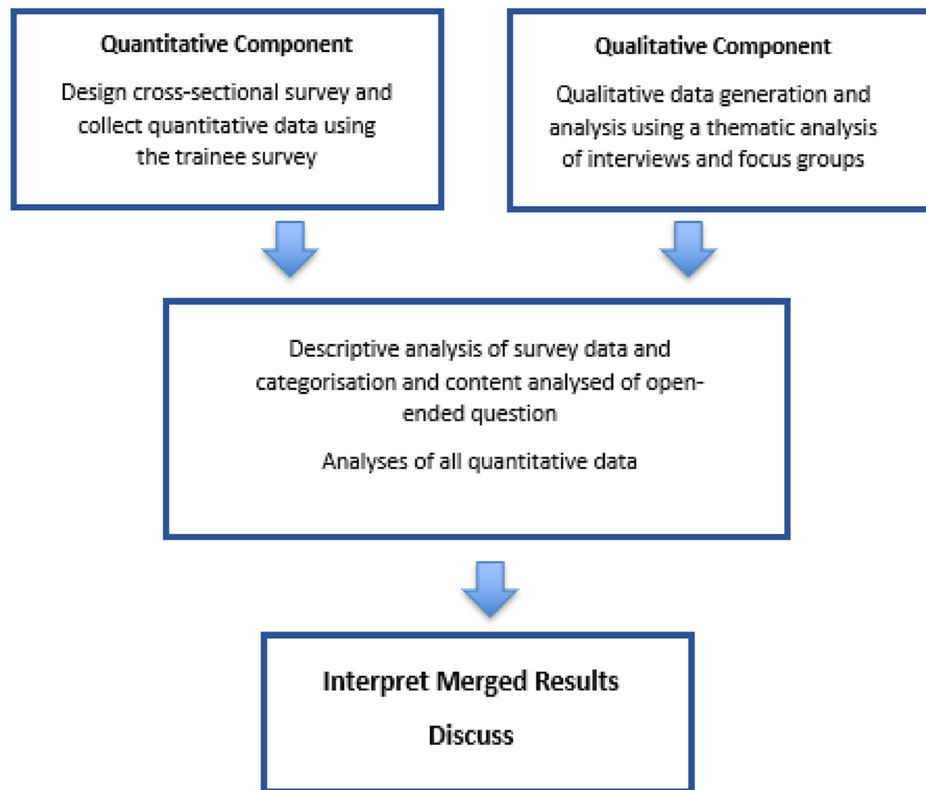

Fig 1. Data analysis.

Rather than measuring direct associations, the meaning of participants' experiences was used to better understand the mechanisms behind DA and how this could be addressed. Following analysis of the interviews, the three major themes below emerged.

Space Invaders

Even though UK CO trainee demographics has changed over the past decade, not all trainees felt "a sense of belonging," and some saw themselves as "space invaders" who did not fit in with the status quo.

- *"We are in a world that is currently judged. …. . You know, how some people have the old school standards of what they feel an oncologist represents" (Black, Male, UKG, Trainee).*

IMGs described difficulties integrating into a new training environment and health system. Many expressed challenges with English (which was not their first language) and a foreign accent made them a target of discrimination. In addition, cultural differences influenced communication styles which led to further barriers.

- *"It was the way I speak, the way I talk, what I wear. It's about all that. The problem is not in your clinical acumen" (South Asian, Female, IMG, Trainee).*
- *"Like many Europeans, we speak up, we are direct and it's not like we are rude. It's our way of being, and that's never been understood" (White, Female, IMG, Trainee).*

Trainees who had taken up less than full time training (LTFT) positions in a bid for better work-life balance felt left out and described missing out on opportunities because they were perceived as not being present. Trainers acknowledged in some instances this was the case.

- *If you don't have any children, you don't have any significant commitments outside work. So, staying behind a bit extra or working full time because you don't have other commitments …. Sometimes consultants perceived that as you are harder working and probably put a bit more effort" (Black, Female, UKG, Trainee).*
- *Offers of projects and stuff tend to go to the people that are perceived as being, people who follow through, people who are motivated and do take the initiative. And I think sometimes for multiple reasons, the less than full time trainees don't fall into that category as much (White, Female, Trainer).*

Trainees reported being excluded or shunned by their peers and supervisors if they did not possess certain intrinsic qualities or personality types. They described the ability to fit in and being "part of the club" was crucial to progression.

Table 1
Trainee characteristics

Trainee characteristics	(n) %
Sex	
Male	51 (36.4)
Female	87 (62.2)
Non-binary	1 (0.7)
Prefer not to say	1 (0.7)
Age	
25–34 years	72 (51.4)
35–44 years	63 (45)
45–54 years	4 (2.9)
Prefer not to say	1 (0.7)
Ethnicity	
White	67 (47.8)
Asian or Asian British	47 (33.6)
Mixed	7 (5)
Black or Black British	6 (4.3)
Not recorded	4 (2.9
Other	9 (6.4)
Level of training	
ST3	24 (17.1)
ST4	31 (22.1)
ST5	24 (17.1)
ST6	28 (20)
ST7	33 (23.7)
Work Pattern	
Full time	91 (68.4)
Less than full time	42 (31.6)
Primary Medical Qualification	
UK-trained medical graduate	99 (74.4)
EEA-trained international medical graduate (IMG)	5 (3.8)
Non-EEA-trained international medical graduate (IMG)	29 (21.8)

Table 2
Interview participant characteristics

Interview participant characteristics	N (%)
Sex	
Male	9 (39.1)
Female	14 (60.9)
Work status	
Clinical oncology trainees	13 (56.5)
Speciality doctors	4 (17.4)
Trainers	6 (26.1)
Ethnicity	
White	9 (39.1)
Asian or Asian British	7 (30.4)
Black or Black British	4 (17.4)
Arab	3 (13.04)

- *"Navigating and working within the NHS is a lot easier if you are more 'likeable'" (Black, Female, UKG, Trainee)*

Trainees with learning difficulties expressed a lack of effort made to accommodate their additional needs at work and did not feel they could be open about this.

- *"I worry about having to type in meetings because my spelling is not great. And people point out like, Oh wait, you spelt Capecitabine wrong and then wait for me to sit there and correct it, which under pressure I might not be able to do as well with an entire meeting watching me type" (Asian, Female, UKG, Trainee)*

There was a perceived difference towards the learning needs of doctors not in official training posts (Specialist, Associate specialist, and Specialty doctors – SAS) and those who held a national training number. SAS doctors reported this was compounded by a poorly defined role and lack of recognition by their colleagues.

- *"(when) you're in a non-training job, everyone around you is like 'oh yeah, but I'm a trainee, I'm a trainee' and, you know that you need to get into training, which you can't do with the bare minimum" (South Asian, Female, IMG, Trainee)*
- *"We were given rotations in different specialities, but sometimes we were used. I would say misused"*

These space invaders, especially IMGs, described a feeling of constantly having to prove themselves. This often translated into many having to work harder than their counterparts.

- *"Moving from a different country and a different culture, you are trying to kind of prove yourself to be as good as them" (Arab, Female, IMG, Trainee).*
- *"I always say that I had to work thrice as hard even to get noticed" (South Asian, Female, IMG, Trainee).*

In addition, IMGs described existing systemic and unconscious biases against them made them feel less valued and shaped their training negatively. They also described feeling unprotected by the training programme and being easier targets for bullying. However, unfair treatment was accepted by many out of fear of challenging the status quo.

- *"Like a lot of times, I'm just like, OK, but I'm here. I don't want to ruffle too many feathers sometimes. You're just grateful that you're in a better position as compared to what you would be back home" (South Asian, Female, IMG, Trainee).*

There was some awareness amongst trainers that IMGs faced unique challenges. However, trainers reported they struggled to fully understand the reasons why some IMGs failed to progress and how to help in these situations.

- *"I think the ones who really struggle are the ones who come into a training job from overseas. So, you know people who've got no experience of the NHS and they're doing a new specialty" (White, Female, Trainer).*
- *"I think it's difficult because if we don't know why, you know, it's quite difficult to help if we don't actually*

understand why there's that discrepancy" (South Asian, Female, Trainer).

Similarly, trainers did not feel empowered to optimally support trainees who felt like space invaders. Competing clinical and non-clinical interests meant they had little time to build relationships. Trainers described minimal training in bridging cultural gaps and addressing these sensitive issues.

- "It's *quite hard when you've got six months only to get to know someone and to know how best to train them and what they respond well to" (White, Male, Trainer).*
- "(I am) *anxious about having these sorts of conversations because you know, you would never want to offend somebody or make them feel that you're trying to make them feel bad" (White, Female, Trainer).*

Hidden Curriculum

Whilst the formal curriculum focused on clinical skills and knowledge, there were also an unarticulated set of learning objectives trainees were expected to achieve. These included attitudes and behaviours which made up the day-to-day practice of CO in the UK.

All trainees described a silent expectation to be high achievers, fulfilling a dual role as clinicians and academics who undertook research, teaching, or audits. Those who failed in any aspect of this role felt themselves to be judged harshly.

- *"We really glorify, you know, having been that person that has everything and manages to balance every single cup" (Black, Female, UKG, Trainee).*
- *"They assume. Yeah, fountain of knowledge. And you know everything. But if you've not gained that knowledge, then you find yourself being deficient" (Black, Male, UKG, Trainee).*

IMGs also faced the unique challenges of adapting to life in a new country and learning the rules and norms of life in the UK. IMGs believed that their ability to understand British culture could help them to better assimilate into their teams whilst some also felt this impacted on performance in practical exams. Hence, the hidden curriculum encouraged trainees to embrace a sense of Britishness that was much more difficult for IMGs to learn.

- *"The importance of going to those after work drinks and even though probably in other places, it's not important at all because work is work. Things like that (can) make a massive difference in people's perception of you at work" (Black, Female, UKG, Trainee).*
- *"Obviously the exam is in that particular cultural setting, and if someone was not used to that, I would say it's a handicap" (South Asian, Female, UKG, Trainee).*

The hidden curriculum also shaped trainees' expectations of what it meant to be in training. One UKG highlighted that whilst she recognised that her training would be a balance of service provision and training, one of her IMG counterparts did not.

- *"(They had an) expectation that it was almost going to be 100% training and not really appreciating the service element of it … you need to expect service provision as part of your job, it is not all about training …" (White, Female, UKG, Trainee).*

Similarly, UK Graduates recognised that one of the cornerstones of the hidden curriculum in oncology was to get ahead by being competitive. Trainers responded well to this pro-active approach:

- *"There's a couple of trainees who have been very quick to get in touch with me to say they're considering doing PhDs … that's very easy to support them when they're motivated" (White, Male, Trainer).*

Trainers reported a need for trainees to understand that all learning opportunities were not formal or didactic.

- *"There is a perception that if your trainer is not sitting with you and telling you stuff (there is no) training …. Everything has to be workplace-based assessment, and everything has to be supervised and you can't do a clinic on your own … I'm not sure it's helpful in all cases all the time" (White, Female, Trainer).*

Navigating

Many challenges were shared by all CO trainees; however "space invaders" faced additional hurdles in navigating training successfully. To survive they developed strategies and skills to facilitate this process.

IMGs felt that the challenges of an unfamiliar health system meant, that they had to discern their learning needs rapidly and reliably. Cultural rather than clinical factors were often the major factor at play.

- *"I think it's not fair (for) people who come from a different system … to expect them to just merge into the system … in terms of you know understanding and … the difference in language, the culture and so they need more time and more support" (South Asian, female, IMG SAS).*
- *"(greatest challenge was) getting used to the training process, keeping up with the e-portfolio and then finding things to do outside such as projects" (South Asian, female, IMG trainee).*

Space invaders described needing to be more resilient and resourceful, constantly having to adapt, learning to be more "likeable" and coming up with useful and practical solutions to the unique problems they faced.

- *"(One of the things that helps is) improving your approach to things … learning who to go to for help, speaking toother people, finding other ways of doing*

the same thing and just being resourceful and finding out what's available in terms of support *for you" (South Asian, Male, IMG, Trainee).*

SAS doctors described how convoluted it was to navigate the process of gaining certification via the Certificate of Eligibility for Specialist Registration (CESR) route.

- *"(The) first thing about for career progression regarding international medical graduates … we don't have that structured pathways say that trainees have … I haven't collected any evidence (for CESR) because I have no clue what to do about it'" (South Asian Female IMG, SAS).*

Access to peer support either from other space invaders who have successfully navigated training or other colleagues was reported to be vital.

- *"Just knowing that someone else is in the same situation and they are managing gives you that impetus to … Deal with it" (South Asian male, IMG, trainee).*

In addition, trainers who were understanding, had a hands-on approach and took the time to understand trainees' unique challenges had a significant impact on trainees' experiences and their ability to successfully navigate training.

- *"It helps when there are other trainees who are helpful, but when it comes from higher up. That's for me when it's been the most beneficial … And I felt that, you know, I was given opportunities" (Middle Eastern female, IMG, trainee).*

Discussion

Our results echo many of the findings of previous studies which have elaborated the causes of differential attainment. We believe the three models described can help us to better understand the unique challenges within CO training.

The concept of space invaders was proposed by Puwar [25] to describe how some groups of people feel they don't belong or are invading the space of the 'normal' group of people in a given setting. In our study, IMGs, LTFT trainees and trainees with disabilities consistently described a sense of exclusion due to perceived biases and discriminatory systems leading to missed opportunities and difficulties during their training [26–28]. Wagner's theory of "communities of practice" could explain how this sense of exclusion hinders a trainee's progress through training. It has been proposed that effective learning in an organization happens when there is "legitimate peripheral participation" [29]. As individuals join a community, they learn at the periphery, moving towards the centre of the community as they acquire competencies [29]. Thus, the training experience and outcomes are not shaped purely by the acquisition of knowledge and skills. The context as well as the relationships of the trainees with others in the community drives learning through a process of social participation.

A further challenge to IMGs and doctors from minority groups is understanding the hidden curriculum. It has been argued that most learning in the clinical workplace falls outside of the formal curriculum, which explicitly outlines what a trainee is expected to learn. The term 'hidden curriculum' is used to describe the habits, traits, and norms which trainees are also expected to acquire or adhere to, even though they remain implicit [30–32]. These must be inferred from colleagues and supervisors, team dynamics, organisational structures, and processes [33]. Unlike the formal curriculum, the hidden curriculum undergoes no rigorous scrutiny by professional bodies and little data are collected about it. The hidden curriculum can be particularly difficult for some trainees (non-White, disabled, IMGs) because firstly, it is implicit and secondly, it assumes a White, male, middle class socialisation [34]. Consequently, those trainees who do not fit into this category or who fail to understand what is expected of them are left at a disadvantage. In addition the hidden curriculum influences engagement with learning opportunities; decisions made about future careers and can impact identity as an oncologist [35]. There is ongoing interest in how trainers use this type of curriculum, alignment of the hidden curriculum with the formal curriculum and how a hidden curriculum might operate for faculty [36–38].

Amit and Knowles metaphor for tacking, which has been developed for their work on migration, can also be used to understand the journey of trainees in our study [39]. Trainees described constantly adapting to the training environment, or in the case of IMGs, a new culture and society. As a result, CO training can be viewed a series of choices across time [39], in response to changing circumstances. To successfully progress through training and into consultant posts, trainees must understand the hidden curriculum whilst drawing upon support from colleagues and systems within the workplace environment. The absence of these supportive factors partly explains why some space invaders find it more difficult to navigate training. Encouragingly, IMGs draw insights and strengths from their own backgrounds, socialization and cultural milieu could bring strong advantages. Moreover, this may also explain why trainees themselves may not always be able to challenge the inequities of training programme; as with the migrants in Amit and Knowles work, trainees are often trying to "improvise in response to new information or changed circumstances, to get by, rather than to radically challenge the structures through which they are navigating" [39]. For SAS working as middle grades, there is a need to provide enhanced support navigating postgraduate career advancement and facilitating return to training if desired, after acquiring relevant competencies.

Our data demonstrate a plurality of experiences amongst trainees and trainers, which leads us to conclude tailored approaches at a local and national level would be required for this to be overcome. However, our findings can be used to infer several general principles to address this issue.

Systems and structures within the CO training programme should enable IMGs and trainees from ethnic minority groups are a part of the community of CO practice. Trainers must grasp cultural distinctions, and cultural

competency training could promote sensitivity to cultural differences, acquisition of knowledge of other cultures, and their implications on learning as well as self-reflection [40,41]. In addition, unconscious bias and microaggression training for educational and clinical supervisors could play pivotal roles in development of trainers. Trainers should actively advocate for international medical graduates (IMGs) and trainees from ethnic minority backgrounds [42] Similarly, the importance of role modelling for the professional development of trainees is critical and there needs to be continued effort to increased diversity within senior positions with the RCR to reflect an increasingly diverse specialty.

Moreover, our findings and existing literature suggest strong relationships are key to a trainee's success. Equality entails providing every individual or group with the same resources or opportunities. Equity acknowledges that each person faces unique circumstances and ensures that resources and opportunities are allocated accordingly to achieve equal outcomes for all. Formal mentorship schemes as well as protected supervision time would empower trainers establish meaningful relationships with trainees, enabling them to discern individualized training needs and provide tailored support. Such initiatives are essential for promoting equitable support.

Although the GMC has collated a range of resources of efforts to tackle DA across medical specialities highlighting some of these interventions, there is a paucity of evidence around the effectiveness of specific interventions. Therefore, there is also a need to audit centre performance regarding support available to trainees as well as outcomes based on gender and ethnicity. While beyond the scope of this work, it is imperative to recognize biological diversity, including neurodiversity, as a crucial consideration The precise figures regarding neurodivergent doctors are currently unknown, and the literature is limited [43]. A deeper understanding of the lived experiences of neurodivergent individuals in medicine, its potential contribution to DA and reasonable adjustments required to support neurodivergent trainees is critical.

Conclusion

There has been a recent focus on understanding DA in post-graduate medical education. This study provides valuable insight into the complex interaction between trainees, trainers and their environment leading to DA in CO. Multiple strategies are needed to bridge existing gaps. The findings of this study could inform the development of effective interventions targeting the training environment and individuals involved in supporting training, to promote more equitable outcomes for doctors in training. Continued data collection and analysis are imperative to guide further interventions and effective strategies aimed at addressing this issue.

Author contribution

- Zsuzsanna Iyizoba-Ebozue: conceptualisation, methodology, formal analysis, writing, review and editing, visualisation
- Abiola Fatimilehin: conceptualisation, methodology, formal analysis, writing, review and editing, visualisation
- Mahaz Kayanai: conceptualisation, methodology, formal analysis, writing, review and editing, visualisation
- Asadullah Khan: writing, review and editing, visualisation
- Michael McMahon: writing, review and editing
- Sarah Stewart: writing, review and editing
- Claire Croney: methodology, review and editing
- Kobika Sritharan: methodology, review and editing
- Madeha Khan: methodology, review and editing
- Mariam Obeid: methodology, review and editing
- Ogochukwu Igwebike: methodology, review and editing
- Rubab Batool: methodology, review and editing
- Rubyyat-A-Hakim: methodology, review and editing
- Tasia Aghadiuno: methodology, review and editing
- Vinita Ruparel: methodology, review and editing
- Karen O'Reilly: conceptualisation, methodology, formal analysis, review and editing, supervision

Conflict of Interest

The authors declare the following financial interests/personal relationships that may be considered as potential competing interests: Zsuzsanna Iyizoba-Ebozue reports administrative support was provided by Royal College of Radiologists. Zsuzsanna Iyizoba Ebozue reports a relationship with Royal College of Radiologists that includes: non-financial support. Abiola Fatimilehin reports a relationship with Royal College of Radiologists that includes: non-financial support. ZIE and AF are RCR Fairer Training Fellows If there are other authors, they d63eclare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this article.

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