

RESEARCH ARTICLE

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The impact of a student-led anti-racism programme on medical students' perceptions and awareness of racial bias in medicine and confidence to advocate against racism

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ABSTRACT

Introduction: Systemic racism impacts personal and community health; however, education regarding its role in perpetuating healthcare inequity remains limited in medical curricula. This study implemented and evaluated the impact of a student-led anti-racism programme on medical students' perceptions of racial bias in medicine, awareness of, and confidence to advocate against racism in medicine.

Method: A total of 543 early stage medical students were invited to participate in the programme. Participants were assigned readings and videos exploring racial injustice in medicine and attended a virtual small-group discussion facilitated by faculty and students. Online surveys were used to collect pre- and post-programme data using Likert scales for response items. Open-ended questions were independently reviewed by three authors using reflexive thematic analysis.

Results: Sixty-three early-stage medical students enrolled in the programme, of which 42 completed the pre-programme survey. There was a 76% ($n = 32$) response rate for the post-programme survey. The majority of students (60%, $n = 25$) had no previous education about racism in medicine. From pre- to post-programme, there was a significant change in students' perceived definition of race from genetic, biological, geographical, and cultural factors to socio-political factors ($P < 0.0001$). Significant increases in almost all factors assessing student awareness of racism and confidence to advocate against racism were observed. Student-identified barriers to discussing racism included lack of education and lived experience, fear of starting conflict and offending others. All survey respondents would recommend this programme to peers and 69% ($n = 32$) engaged in further topical self-directed education.

Conclusion: This simple and reproducible programme improved awareness and confidence to advocate against racism in medicine and resulted in a change in opinion regarding race-based medical practice. These findings are in line with best practice towards addressing racial bias in medicine, decolonizing medical curricula and strengthening anti-racism teaching of future physicians.

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Introduction

Systemic racism is defined as a 'system of structures, policies, practices, and norms that construct opportunities and assigns values based on one's phenotype' and is recognized as one of the strongest forces impacting the health of individuals across their lifespan [1,2]. The resulting race-related disparities in health outcomes are well recognized historically [3,4] and have been highlighted more recently by the SARS-CoV-2 (COVID-19) pandemic [3]. Yet, despite the considerable evidence indicating that race is not a reliable proxy for genetic differences [5–7], disproportionate rates of poorer health outcomes have previously been misattributed to innate racial differences instead of the long-standing impacts

of institutionalised racism [8–10]. Within the Irish context, health inequalities exist based on racial and ethnic differences, despite the progress made overall in recent years. For example, in Ireland mothers who were born in Africa have a higher perinatal mortality rate compared to Irish-born mothers. 'Black', 'Asian' or 'Eastern-European' patients accounted for a higher proportion of COVID-19-related deaths in those over 65 years old in Ireland, and health disparities are stark for the minority Irish Traveller group [11,12].

By misinterpreting race as a biological category that naturally produces health disparities due to genetic differences, the medical community has pursued and embedded practices, such as race-based medicine, which falsely purport inherent biological

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differences based on race and misdirects care pathways [6]. It has recently been shown that differences in cardiovascular risk that were previously attributed to race can entirely be accounted for by socioeconomic, lifestyle and clinical risk factors [13]. Race-correction is used in diagnostic algorithms and clinical practice guidelines where embedded race-based risk stratification often diverts resources away from minority groups [5]. For example, evidence indicates that for 'Black' adults, the removal of the existing race adjustment in the estimated glomerular filtration rate from serum creatinine (eGFRcr) calculations increases the diagnostic prevalence of chronic kidney disease, the likelihood of referral to specialist care, and the proportion of individuals eligible for the kidney transplant wait list [14,15].

More recently, efforts to eliminate the use of race as a biological category in clinical research and practice guidelines have grown. Notable policy statements have stemmed from this work and include, but are not limited to, the recommendation from the American Society of Nephrology and National Kidney Foundation to remove race modifiers from equations in the estimate of kidney function [16,17], supported by the publication of unifying guidelines for eGFR [18]. In addition, the American Academy of Pediatrics have published a statement recommending to '...end the practice of using race as a proxy for biological or genetics in all their education events and literature, and ... require [that] race be explicitly characterised as a social construct when describing risk factors for disease ...' [19]. They further included the immediate retirement of clinical practice guidance regarding urinary tract infection which led to discriminatory care for 'Black' children [19]. Finally, the American College of Obstetricians and Gynaecologists has recommended eliminating the use of a different threshold for iron-deficiency anaemia in pregnancy based on race [20]. Policy statements in this area have not been released from European professional bodies or the European Medicines Agency.

The role of educational institutions in propagating race-based bias in curricula has also been highlighted in the USA [21] and in Europe leading to calls for a 'seismic paradigm shift ... in which an anti-racist perspective informs all healthcare education, research, and practice' [22]. Yet, some cohorts of the medical community still dispute the meaning of race and subsequent use of race in medicine [5,23] and this shift away from race-based-medicine has, thus far, been quite limited in medical curricula. Medical students are exposed to curricula that frequently reinforce racial biases through defining race as an independent risk factor for disease, discussing health disparities in the absence of socio-political context, and directing students to associate race

with specific disease conditions [21,24]. As medical students progress through their training, they become increasingly aware of how race influences management decisions with little power to challenge the underlying racialised assumptions [24].

As the medical community reckons with the pervasive existence and impacts of structural racism in medicine, it must adopt strategies to denounce race-based practices in training, research and policy. While undergraduate medical education offers an avenue to address these issues, initiatives aimed at integrating anti-racism education into the undergraduate medical curriculum remain limited [25], especially in Ireland where race related discourse is often tied in with broader Equity, Diversity, and Inclusion work. RCSI School of Medicine incorporates teaching about the social determinants of health and race integrated throughout the medical curriculum. It is explicitly taught in the first year as part of Public Health and Epidemiology, and integrated into case discussions and lectures throughout the course. To date, efforts to address racism and inequity in medicine have focused mainly on unconscious bias and cultural competency training [26–28], which often fail to deeply interrogate and combat the individual and community-based consequences of racism on health equity, or change attitudes or behaviour [29,30]. Some medical schools in the USA have brought concepts of structural competency or situational training into their curricula [31–35], but these do not focus specifically on racism and its effects in medicine.

Dismantling racism in medicine is complex and requires transformative, institution-wide approaches to name, understand and discuss racist practices in clinical education, care and research [36]. More recently, medical students in the USA have moved to centre anti-racism in their studies through lectures and discussion groups in order to challenge race-based medicine both within and outside of the official curriculum [37–39]. Similar efforts within the European context remain limited; however, there are active discussions in fora such as the Association for Medical Education in Europe [40] and higher education platforms in the United Kingdom such as WONKHE [41,42]. In support of this movement, and as part of a broader commitment to progress race equality at the RCSI University of Medicine and Health Sciences, we implemented and evaluated, to our knowledge, the first anti-racism reading programme for early stage (year 1–3) medical students within Ireland. The objectives of this associated research study were to: (i) describe the development and implementation of a student-led anti-racism reading education programme in an Irish medical school; (ii) identify how the initiative impacted medical students' perceptions of racial bias

in medicine, as well as their awareness of and confidence to advocate against racism in medicine; and (iii) describe student evaluation for future programme improvement.

Methods

Programme description

RCSI University of Medicine and Health Sciences is an Irish university with a diverse student community comprised of 60% international students representing over 90 countries. The programme was adapted with permission from a similar student-led initiative developed by the University of Washington School of Medicine [39]. Senior medical students amended and implemented this Anti-Racism in Medicine Reading and Discussion programme at RCSI University of Medicine and Health Sciences.

Early-stage medical students were invited to participate, and were assigned readings and videos discussing the effects of the history of, and current use of racial categorization in medicine [6,24,43–45]. Consistent with the University of Washington School of Medicine programme, the primary resource utilized in the present programme was ‘Fatal Invention, How Science, Politics, and Big Business Re-Create Race in the Twenty-first Century’ by Prof. Dorothy Roberts [6]. This was supplemented with an excerpt from a strategic plan from the Irish government, two viewpoint articles from *The Lancet* and *The Journal of the American Medical Association* on the theme of racism in medicine, and a TED talk on the topic of social justice [6,24,43–45]. These modifications were implemented to further explore contemporary shifts in discourse regarding race-based medicine, as well as to provide a more global context and Irish-specific perspectives on the impacts of race-based medicine. The RCSI library hosted the downloadable resources online. The students had approximately one month to complete the recommended resources. Subsequently, each student attended a 90 minute virtual small group discussion session co-led by faculty and student facilitators. Participants then completed programme evaluation surveys. To our knowledge, no validated survey tools exist that examine perceptions of race as a social rather than biological construct in the setting of a medical institution, a central outcome of the present study; thus, the survey questions were adapted from the original University of Washington programme design to facilitate pre- and post- programme evaluation of students’ understanding of race and factors influencing health inequalities as well as students’ awareness and confidence to advocate against racism in medicine. Questions further captured student feedback about barriers and facilitators

to programme participation. The objectives of the programme focused on strengthening students’:

- (1) Ability to identify race as a social/political construct and not a biological risk factor for disease;
- (2) Awareness of how race is used and misused in medical education, scientific research, and clinical care;
- (3) Understanding of the role of racism in contributing to health inequities.

Programme implementation

Student enrolment and programme resources

Medical students in years 1–3 at RCSI were given information about the programme and invited to participate via email. All students who signed up for the programme were invited to participate in the associated research study assessing the impact of the programme through the RCSI Quality Enhancement Office. Anonymous online surveys were completed pre- and post-programme. The pre-survey was completed by students before gaining access to the programme resources [6,24,43–45], while the post-survey was completed after the discussion sessions. This programme was approved by the RCSI Research Ethics Committee (REC202103020).

Discussion groups

Students attended one 90-minute virtual discussion group co-facilitated by one senior medical student and one faculty member to address the learning objectives outlined above. Staff and student facilitators with an interest in health equity were recruited voluntarily. Faculty facilitators had a wide range of experience including biochemistry, health psychology, clinical microbiology, clinical practice, physiology and medical education. Staff and student facilitators were required to complete the reading prior to the sessions. Their roles as facilitators were to encourage dialogue within the group relating to the pre-specified questions for the session. The groups ranged from 8–10 participants. Ground rules adapted from *The Agreements for MultiCultural Interactions* by East Bay Meditation Centre and University of Washington resources were outlined at the beginning of the discussion [46,47]. Three discussion questions adapted from the University of Washington programme were posed in the online discussion groups and each prompt was discussed for 25 minutes.

Programme impact evaluation

A mixed method approach was used to evaluate the programme impact. The anonymous online surveys evaluating programme impact utilised Likert scales to

assess agreement with a number of statements (Disagree – 1, somewhat disagree – 2, neither agree nor disagree – 3, somewhat agree – 4 and agree – 5). Data were analysed using Prism version 8.4.3 (GraphPad, San Diego, CA). Likert scale data for response items was analysed using the Mann-Whitney test. Frequency data relating to perceived factors contributing to health inequities and race were analysed using the Chi-square test. Open-ended questions were independently reviewed by three authors using reflexive thematic analysis [48], and consensus regarding the main themes was reached following discussion.

Results

Evaluation of the impact of the programme; quantitative analysis

In all, 543 early stage medical students were invited to participate in the programme. Of these, 63 voluntarily enrolled in the reading programme. Forty-two students completed the pre-survey, 39 students attended the discussion sessions and 32 students completed the post survey representing a 76% ($n = 32$) response rate for participants. The majority of students (60%, $n = 25$) had no previous exposure to education about racism in medicine.

Defining race and factors influencing health inequities

From pre- to post- programme, there was a significant change in students' perceived definition of race from genetic, biological, geographical, and cultural factors to socio-political factors (Figure 1(a); $P < 0.0001$). When considering factors that contribute to inequity in the clinic, the pre-survey identified that the majority of our students were aware that political and social factors

contributed prior to the programme (95% and 93%, respectively). Non-significant reductions in students' association between cultural factors, behavioural factors and genetics contributing to health inequities were observed (Figure 1(b)).

To explore awareness of racism and racial injustice, confidence to advocate against racism and deeper learning in relation to race-based medical practice we utilised the set of statements presented in Table 1.

Awareness and confidence to advocate against racism

Overall, self-reported scores from pre- to post-programme showed significant increases in awareness of racism for all statements in this category (Table 1). Median scores for all statements relating to 'confidence to advocate against racism' increased. The data indicate that the vast majority of students agreed or strongly agreed with all statements relating to the awareness of racism and their confidence to advocate against racism after participation in the programme (95% CI of 4–5 for all statements, Table 1).

Agreement with race-based medical practice

To assess the level of agreement with the use of race in medical practice, various statements regarding the use of race in diagnostic procedures and prescribing practices were used (Table 1). A significant reduction in agreement with using race in medical practice across all statements was observed following completion of the programme apart from the statement 'It is standard practice to prescribe medication based on a patient's race.'. The median for this was 'disagree' before the programme and 'strongly disagree' after the programme. Students strongly disagreed with all statements relating to the use of race in medicine, diagnostics and therapeutics following programme participation (Table 1).

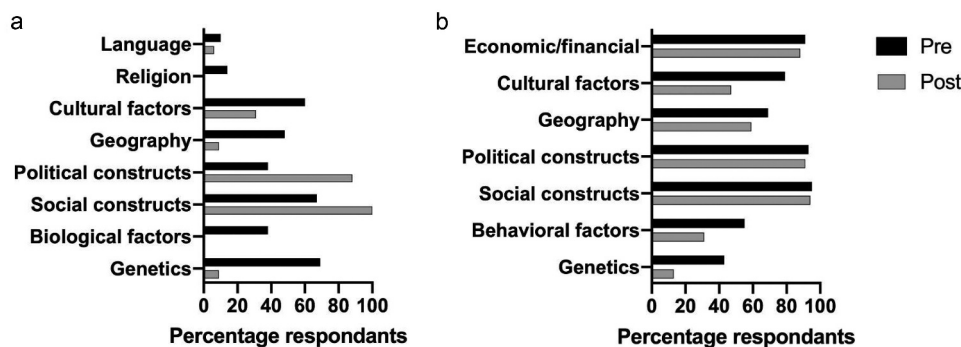


Figure 1. Student perception of race changed from genetic, biological and cultural factors towards social and political constructs. Students were asked to select which factors they considered (a) 'best defines a person's race' and (b) 'contribute to racial inequities that affect health outcomes'. Students were able to select all that apply. Responses were collected pre- and post-intervention (i.e., completion of reading assignments and facilitated discussion session). Pre-survey responses are coloured in black and post-survey responses in grey. Data is presented as the percentage of students that chose each option. Pre and post data were analysed by Chi-squared test using Prism version 8.4.3 (GraphPad, San Diego, CA). Significant changes were seen in the factors selected as 'best defines a person's race' ($P < 0.0001$).

Table 1. Summary of questionnaire item analysis relating to student awareness of racism, confidence to advocate against racism and the use of race in medical practice. Statements were analysed individually and have been grouped according to individual themes. The median values for each statement and the difference is presented representing the change in perceptions after the programme. Individual pre- and post-survey Likert scale data for each statement were further analysed using the Mann-Whitney test. Statistical significance is presented as *P* values for this analysis. Descriptive statistics were calculated using Prism version 8.4.3 (GraphPad, San Diego, CA).

	Question item	Pre		Post		Difference	<i>P</i> value
		Median	95% CI	Median	95% CI		
Awareness of racism	I feel informed about the history of racism in modern society.	4	[2,4]	5	[4,5]	1	<0.0001****
	I feel informed about racism causing healthcare inequalities in medicine.	3.5	[2,4]	5	[5,5]	1.5	<0.0001****
	I feel capable recognizing racism, microaggressions, and discrimination.	4	[4,4]	4.5	[4,5]	0.5	<0.0001****
	I have a good understanding why it is important to talk about racism.	4	[4,4]	5	[5,5]	1	<0.0001****
Confidence to advocate against racism	I understand how racism and discrimination can affect others.	4	[4,4]	5	[5,5]	1	<0.0001****
	I feel comfortable talking about race with my friends and family.	4	[4,4]	5	[5,5]	1	<0.0001****
	I feel comfortable talking about race in circles outside my friends and family.	3	[2,4]	5	[4,5]	2	<0.0001****
	I feel capable of calling out racist behaviour that I witness/ experience in my day to day life.	4	[3,4]	4	[4,5]	0	<0.0001****
Statements relating to the use of race in medicine	I feel comfortable questioning racist teachings in a school setting.	3	[3,4]	4	[4,5]	1	<0.0001****
	Race is a biological factor that determines differences in physiological processes, such as lung and kidney function.	2	[2,3]	1	[1,1]	-1	<0.0001****
	Race is a biological factor that determines susceptibility to disease.	3	[2,4]	1	[1,1]	-2	<0.0001****
	It is always good medical practice to classify patients according to race in order to estimate risk factors relating to specific diseases.	3	[2,4]	1	[1,1]	-2	<0.0001****
	It is always good medical practice to categorise patients according to their race for diagnostic purposes.	2	[2,3]	1	[1,1]	-1	<0.0001****
	It is standard practice to prescribe medication based on a patient's race.	2	[2,2]	1	[1,2]	-1	0.1213ns

Evaluation of the impact of the programme; qualitative analysis

Reason(s) for participating in the programme

Students' motivation for participating in the programme was categorised into three themes (Table 2); (i) education ($n = 36$), (ii) advocacy ($n = 11$), and (iii) seeking a safe space to discuss and learn ($n = 4$). The majority of students identified a desire for further education as a motivation to participate in the program, which was further divided into professional development ($n = 25$), general interest ($n = 13$), and personal growth ($n = 8$). Participants expressed a desire to engage in advocacy to change racial inequity in society ($n = 5$) and healthcare ($n = 4$), as well as update the RCSI medical curriculum ($n = 2$). For example, one student wrote that they would:

... like to start learning about race and racial inequalities in healthcare during [their] medical education, to be able to understand and attempt to change them throughout [their] career.

Finally, participants wished to avail of a safe space to talk about racism ($n = 4$).

Barriers to discussing race

When asked about the barriers to discussing race, the participants reported five key themes (Table 2): lack of confidence ($n = 27$), fear of offending others ($n =$

20), fear of conflict ($n = 10$), perceived futility of the discussion ($n = 6$), and power dynamics ($n = 5$). Students reported a lack of confidence as a barrier due to a knowledge deficit ($n = 13$), lack of lived experiences ($n = 12$) or lack of support to explore the topic in a safe space ($n = 2$). Fear of conflict as a barrier to discussing race included apprehension about starting a disagreement, entering a debate, or evoking an emotional response ($n = 10$).

Students who reported the feeling of being unheard and the perceived futility of the discussion ($n = 6$) noted that when difficult discussions around race arise:

"...people often prefer to ... ignore, or outright deny the need to talk about race,"

Finally, students reported difficulty discussing race with superiors in clinical settings and education settings due to power dynamics and felt ill-equipped to challenge racist practices and teaching ($n = 5$).

Challenges emerging from programme participation

Three themes emerged when students were asked about challenges associated with the programme (Table 2): conflicts of reconciliation ($n = 17$), the difficulty identifying next steps to challenge racism ($n = 6$) and their emotional response to the programme ($n = 4$). Three sub-themes emerged from 'conflicts of

Table 2. Key quotes highlighting the themes from qualitative data.

Question	Theme	Example quotation
What was your main motivation for signing up for this programme? (pre-survey)	Professional development ($n = 25$)	<i>'I am aware of racial inequalities in medicine, but would like to be more informed so I can educate others and take better care of my patients.'</i>
	Personal growth ($n = 8$)	<i>'Always looking for opportunities to learn, unlearn, and decolonise my mind when engaging in discussions about health inequalities.'</i>
	General interest ($n = 13$)	<i>'I want to learn more about race' 'Curiosity.'</i>
	To effect change in curriculum ($n = 2$)	<i>'I would like to see a change in the teaching curriculum to include diagnostics on different races. For example, the appearance of cyanosis on different skin colours'</i> <i>'To contribute to the learning process for RCSI curriculum building'</i>
	To effect change in society and healthcare ($n = 9$)	<i>'I would like to start learning about race and racial inequalities in healthcare during my medical education, to be able to understand and attempt to change them throughout my career.'</i>
What did you consider a barrier to talking about race? (pre-survey)	Safe space ($n = 4$)	<i>'To be heard.' 'To have a space to have discussions about race explicitly'</i>
	Lack of knowledge ($n = 13$)	<i>"I don't have the right phrasing or background information to support my beliefs during a debate/conversation"</i>
	Lack of lived experience ($n = 12$)	<i>'As a white individual, I will never be able to understand what it is like to be discriminated against based on my race and therefore don't have that experience or understanding from which to speak.'</i>
	Lack of support/safe spaces ($n = 2$)	<i>'People have to be given safe and respectful venues in which to engage in these kinds of debate or else they will feel intimidated.'</i>
	Fear of offending ($n = 20$)	<i>"Worrying that I might say something wrong and accidentally offending someone."</i>
	Fear of a negative reaction ($n = 10$)	<i>'The fear of other people's reactions.'</i> <i>'The fear of creating conflict.'</i>
	Power dynamics ($n = 5$)	<i>'Speaking up to those in positions of authority is intimidating.'</i>
What was the most challenging part of the programme for you? (post-survey)	Perceived futility of the discussion ($n = 6$)	<i>'Believing it won't make a difference.'</i>
	Reconciliation with self ($n = 7$)	<i>'Initially I was just shocked at the idea of race being a social and political construct so that took a little while to get used to.'</i>
	Reconciling view of clinical practice ($n = 7$)	<i>'To realize that the medical field, which I had thought was so comprehensive and holistic, was so laden with underlying racism.'</i>
	Reconciling view of their education ($n = 3$)	<i>'It was initially hard as a lot of things I had been taught in my undergrad were incorrect.'</i>
	Emotional response ($n = 4$)	<i>'Emotionally it was difficult to be faced with facts of medical racism.'</i>
	Difficulty identifying next steps toward anti-racism in medicine ($n = 6$)	<i>"Trying to determine what must be done to end racial discrimination in the medical sphere."</i>

reconciliation', namely their view of self ($n = 7$), view of clinical practice ($n = 7$) and view of their own education ($n = 3$).

In terms of their view of self, students described difficulties reconciling with a change in their mindset following completion of the programme. One student highlighted their desire:

"... to challenge myself and make sure I'm not unintentionally propagating racial issues in medicine."

With respect to their view of clinical practice, one student noted it was a challenge:

"... to realise that the medical field, which I had thought was so comprehensive and holistic, was so laden with underlying racism,".

When discussing their own education to date, one student quoted that it was:

"... difficult to accept that I had accepted some of these stereotypes without questioning what I'm being taught,".

Implementation of the programme

External education

Sixty percent ($n = 25$) of participants had not received any formal education about racism in medicine and

48% ($n = 20$) had not completed any prior self-directed learning. Following completion of the program, 69% ($n = 22$) of the students reported that they engaged in further reading/research on racism in medicine.

Barriers and facilitators to programme participation

Participation challenges identified by students were divided into reading-specific ($n = 3$) and discussion group-specific ($n = 9$) issues. Time management and fitting the readings around the existing curriculum were identified as barriers to attending the programme, while discomfort speaking up in the discussion groups and answering the questions were noted as challenges to participating in the discussion group.

Students identified that both the reading resources and the discussion groups were important and informative elements of the programme ($n = 24$). One student wrote:

"... hearing other people talk about what they took away from the readings - their perspective in understanding the readings was valuable to me,".

Of note, 100% of students stated that they would recommend this anti-racism education programme to other students.

Programme feedback

Regarding programme feedback, one student wrote:

“I truly believe every student in RCSI should be offered the chance to take part. I’ve learned so much from the readings and I now find myself being more comfortable talking about race with others. Hopefully, in the future, I would like to see a programme like this expanded.”

Many other students echoed the call for the programme to be made mandatory for all students.

One poignant quote from a student indicated:

“I learned things that truly shocked me and it made me question so much of my previously formed opinions and things I just took for granted as being true. I had never really thought much into race as being just a construct.”

Another student wrote:

“I found this programme extremely interesting, it challenged me and what my blindly accepted thoughts on race were.”

Discussion

This study was the first in Ireland to describe the development and implementation of a student-led anti-racism education programme with pre-clinical students in a medical school. Using a mixed methods approach, this study demonstrated that students’ awareness of, and confidence to advocate against racism in medicine were improved following participation in the programme. Students felt better informed about the history of racism in modern society, how to recognise racism in its various forms and how it can impact healthcare outcomes. Taken together, these findings demonstrate the need for, the potential benefits of and the challenges involved in educating students on the role of racial bias in medicine.

Following programme completion, the vast majority of students disagreed with the use of race in clinical practice. Indeed, a significant reduction in agreement with using race in medical practice was observed among all statements except ‘It is standard practice to prescribe medication based on a patient’s race’ (Table 1), which likely related to the basement effect of the Likert scale as the median responses from pre- to post-programme were ‘disagree’ and ‘strongly disagree’, respectively. Furthermore, students’ perceptions of race as a biological factor rather than a social construct were changed following completion of the programme. Our results align with previous studies demonstrating that medical students’ knowledge and awareness of racism was improved following discussion groups on the topic [37,49]. Degife’s et al. adopted a similar approach to the current study, with reading materials from the same

text followed by a discussion with the author [37]. The satisfaction with the session was good and students felt much more comfortable to confront peers and senior colleagues about the misuse of race following the session. Bright and Nokes however used a different approach [49]. Following 10 hours of discussions on race and racism, they demonstrated greater awareness and knowledge regarding racism as well as comfort discussing it amongst the participating first year medical students. Although the format of the interventions in these studies differ, the results are similar to those observed in the current study.

A recent study exploring the challenges of introducing an anti-racism curriculum at Tuft’s University reported similar challenges to the present study, including that there is a need to address issues around racism both in medical education and medical care and that there is a need to hold individuals and institutions accountable for racist beliefs [34]. The students in the present study also noted the need to address racism in medical education and medical care, and importantly, a further challenge of reconciling with their personal views of racism emerged. Notably, the opportunity to reflect on racism in the context of medical education led some students to challenge their own acceptance of some of the teaching in the medical curriculum and to consider whether they themselves may have been unintentionally propagating racism.

A further challenge for the students in the current study related to finding time in a busy academic schedule to participate in the programme despite the student-identified necessity of the programme. This highlights the need for medical schools to formally incorporate anti-racism and social justice education into the timetable, the benefits of which have been highlighted in a recent systematic review [50]. The review demonstrated improved knowledge and skills related to understanding and tackling social injustice amongst medical students and that graduates were better prepared to work with underserved populations when they have dedicated teaching regarding the impact of social injustice on health. Other student-identified barriers that emerged from the present study were a fear of conflict in raising the subject amongst peers and in particular the difficulties of challenging senior colleagues due to the power dynamic between students and faculty. Efforts to expand opportunities for faculty and students alike may assist in neutralising power dynamics as faculty and students learn and explore this topic together in a safe space. Future iterations could address the impact of power dynamics when discussing and dismantling racial biases in medicine, as well as exploring the tools available to challenge racist assumptions in medicine to effect lasting change. Bystander

intervention training for students could be an effective way of providing students with the skills needed.

Programme adoption and implementation was strengthened through student-led advocacy and co-facilitation of the sessions in partnership between staff and students. However, several limitations of this work are worth noting. First, the survey questionnaire assessing student self-report awareness, confidence and understanding of race-based medicine is not a validated item, and, as is the case with all self-reported data, is subject to possible over-estimation. The internal validity of the results may have been affected by the Hawthorne effect as students were aware the results of the study would be analysed and by social desirability bias, as students may have falsely reported their change in awareness or thoughts about racism in medicine in an attempt to say/do what is seen as socially acceptable [51,52]. We attempted to minimize this by collecting data anonymously. Although the qualitative data was independently coded by three researchers, confirmation bias and culture bias may have affected internal validity of the data. In an attempt to circumvent this, group discussion occurred to reach consensus [48]. The researchers who coded the data identify as health equity advocates with anti-racist views. In addition, relatively high awareness and advocacy scores as well as low scores relating to the use of race in medicine prior to programme participation indicate a possible ceiling and basement effect, respectively, thus, limiting the magnitude for change. This may relate to the fact that students self-selected to participate in the study; thus, there is likely to be a self-selection bias towards those with an interest in health equity. The small sample size of the present study limits the representativeness of the findings; however, 76% of the participants completed the pre-survey and the post-survey, therefore, the data should be representative of the group that participated.

The student-identified barrier of committing to the programme alongside a demanding medical curriculum is likely to have had an impact on sample size. Recruitment was completed via online advertisement and social media networks due to limited in-person interactions during COVID-19 pandemic. This lack of face-to-face engagement and opportunities to publicise the programme in person prior to enrolment may have affected student recruitment. Furthermore, no demographics were collected from the sample population in the interest of anonymity. This prevented analysis between those who did and did not complete the programme. Finally, the programme design, timeframe and execution does not allow for more detailed evaluation of effectiveness and lasting impact [53].

This initiative was the first step towards addressing the issue of racial bias in our medical school

curriculum. Arising from this student-led initiative, the programme was implemented in partnership with faculty, and there has been further faculty engagement, student initiatives and faculty-wide discussion regarding racism in medicine as a result of this programme, leading to a thorough review aiming to deconstruct racism in our medical curriculum [54]. Therefore, this student-faculty partnership has had a meaningful and tangible impact in raising awareness well beyond the students that participated in the programme. Indeed, the importance of student partnership has been recognised in medical education, highlighting benefits to faculty, students and the impact of the projects being implemented [55]. Future initiatives aimed at integrating long-standing anti-racism practices in medical education both in Ireland and abroad should continue to strive towards addressing upstream policy and organisational factors, including curriculum reform throughout every level of programme delivery.

Conclusion

To our knowledge, this is the first study within Ireland to demonstrate that a student-led anti-racism programme for early year medical students results in a greater understanding of racism as a social rather than a biological construct, an increased appreciation of how racism impacts on health outcomes and an improved confidence to advocate against racist practices in medicine. After the programme, the vast majority of students disagreed with statements relating to the use of race-based medicine, indicating a clear shift in thinking. This work adds to the emerging literature regarding the need to tackle racism in medical school curricula and the central role that the next generation of health care professionals is playing in ensuring greater equity in health care delivery.

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