










Original research

Using medical education as a tool to train doctors as social innovators

Nagina Khan ¹, Anne Rogers ², Colin Melville ^{3,4},
 Rohit Shankar ^{5,6}, Wolfgang Gilliar,¹ Peter Byrne,⁷ Alex Serafimov ⁸,
 Sridevi Sira Mahalingappa,^{9,10} Simran Sehdev,¹¹ Anna Sri ⁵,
 Subodh Dave ^{12,13,14}

For numbered affiliations see end of article.

Correspondence to

Dr Nagina Khan, Department of Osteopathic Medicine, Touro University Nevada College of Osteopathic Medicine, Henderson, Nevada, USA; nkhan786can@gmail.com

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ABSTRACT

Introduction Current medical education prepares doctors to diagnose, assess and treat individual patients yet lacks the expectation to be responsible for the care of the wider community. Learning the skills to recognise and redress the social determinants of health are increasingly being recognised as an essential part of medical education.

Objectives The goal of this research was (1) to investigate how medical education can be leveraged to reduce health inequalities through the role and practice of doctors and (2) to elucidate how key innovations in medical education are a necessity that can support doctors as ‘change agents.’

Methods Two international multidisciplinary roundtable focus groups with 23 healthcare leaders from various backgrounds were facilitated. The discussions were audiorecorded, transcribed and then thematically analysed with the qualitative analysis software QDA Miner.

Results Eight themes emerged: (1) Social innovation training in medical education; (2) Linking community working with social innovation; (3) Future curricula development; (4) Settings, context, environment and leaving the classroom; (5) Developing links with third sector organisations and community, including low-income and middle-income countries; (6) Including learners’ perspectives and lived experience; (7) Medical roles are political and need political support and (8) The need to address power imbalances and impact of discrimination.

Conclusions Medical education needs to fundamentally widen its focus from the individual doctor–patient relationship to the doctor–community relationship. Doctors’ training needs to help them become social innovators who can balance interventions with prevention, promote good health on a community and

WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ Contemporary healthcare work has been described as complex and often inadequately captured by medical training and students have reported a lack of skills, resources and tools to address the social determinants of health.

WHAT THIS STUDY ADDS

⇒ Consensus findings in this research suggest extending the location of medical education to community settings, and community-based third sector organisations or from high-income countries to low-income and middle-income countries. These changes would allow the students to engage in clinically transformative social innovations.
 ⇒ The transformation needed for curricula reform requires the integration of the lived experience of individuals and communities, which also includes the individual social situations, alongside broader population-level data.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE AND/OR POLICY

⇒ Practice, policy and future research requires a fundamental cultural shift expanding the role of doctors from individual care providers to social innovators engineering healthy changes in their communities of practice.

societal scale and tailor their treatments to the individuals’ contexts.

INTRODUCTION

Healthcare professionals, including medical practitioners, are members of the communities they work and reside in. This familiarity, combined with their training, makes them acutely aware of the



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challenges and discrimination that deprived sections of their communities' face. This discrimination can be based on characteristics such as race, gender, sexuality, disability and class. These communities experience high levels of chronic health problems, disability and reside in geographically isolated areas which lack access to necessary healthcare provision. While social determinants are recognised as having a significant impact on health outcomes, the means to address these through social innovation is largely absent from medical training and practice. The WHO defines the social determinants of health as the conditions in which people are born, grow, live, work and age, including the health system.¹ Research also suggests that patients from deprived areas want medical practitioners who are socially and emotionally close to them and who can thus relate to the everyday realities of life in the areas in which they work and live.²

The current health workforce's inability to deal with such disparities was starkly exposed during the COVID-19 pandemic. Nevertheless, this global crisis has reignited interest in addressing the root causes of health inequities and inequalities. If this opportunity for change is taken, it could lay the ground for fundamental medical education reform through social innovation. Such reform could help prepare the next generation of doctors to tackle these inequities and practice in a socially just way. Unfortunately, examples of social innovation that positively influence health outcomes are the exception rather than the rule. The current ecosystem of medical education and clinical practice often leaves individual clinicians feeling powerless to address the wider social determinants that they know have a direct influence on their patients' health outcomes. Reforming the healthcare ecosystem to ensure that social innovation occurs because of medical training and not despite it, requires fundamental shifts in the design and delivery of medical education curricula and practices.

Our work has been informed theoretically by the notion of inclusive pedagogy and enhancing 'practitioner agency' as a means of advancing medical learners to develop as 'agents of social justice and change.'³ Through developing an inclusive pedagogical approach, learners are better able to challenge the status quo, to work purposefully with patients and other stakeholders to draw attention to and challenge social injustice and exclusion.⁴ Our lens also included Amartya Sen's capabilities approach, a human rights-based theory that emphasises flourishing as a product of the conditions under which people live. Practitioners can focus on realising human flourishing among those who are marginalised offering them a sense of their freedom to pursue the lives they have reason to value.⁵

There is an opportunity for doctors and healthcare workers to move from a doing, or an influencing role, to being an 'agent of social innovation' in the communities they serve. Of course, social innovation is not

unique to any given sector.⁶ It can be driven by other institutions, such as academia, as well and a wide variety of actors both inside and outside health systems.⁷ This makes it possible to (1) support local working initiatives, (2) mobilise the power to regularise social innovation in the complex culture of health and other organisations and (3) forge links and working together with other sectors outside of healthcare. Halpaap *et al* recognise that 'health innovation is often developed in response to local challenges, driven by frontline health workers responding to unique needs and opportunities. Yet, 'the power to scale up innovation is often vested in high-level authorities that have limited understanding of local contexts.'⁸ (e633) It is insufficient for social innovation approaches to be a mere disrupter of established systems of health services delivery⁸ because there is now growing evidence that supports social innovation for health systems.⁹¹⁰ 'Social innovation can best be understood as innovation in social relations, in power dynamics and in governance transformations, and may include institutional and systems transformations.'¹¹ (p.1) Furthermore, we believe that doctors trained in the community could potentially attain various sustainable education goals for positive community health outcomes. The conditions for medical education reform could not be more suitable for the purposive training of doctors in social innovation for local settings.⁸ Thus, the overall purpose of our work is to nurture a commitment to social justice as part of learners normative expectation and to develop competencies needed for inclusivity and a social justice curriculum.

METHODS

Design

We conducted two multidisciplinary roundtable discussions which were organised as a series of focus groups with four designated facilitators, two in each group (CM, NK, PB and SSM) with clinical and academic backgrounds. The discussions were organised as consecutive focus groups (rather than concurrent), so that all members could participate in the entire integrated discussion. Using a phenomenological approach,¹² we explored the following topics: how we currently teach and assess medical knowledge, the skills and attitudes of medical students interested in learning, health disparities, the social determinants of health and inequity. The phenomenological approach in our study considered and explored the preliminary conditions for the constitution of social distance and silence around social inequalities. We framed this article using the Standards for Reporting Qualitative Research.¹³

Sampling and recruitment of participants

Our purposive sampling strategy aimed to produce data that are 'information-rich.'¹⁴ We populated the discussions with leading national and international

Table 1 Sample detail

23 agreed of those that accepted, 10 had a background in medical education, 2 were learners, 1 patient representative, 5 Professors, 5 in healthcare policy.	16 declined and 8 did not respond (international), 16 declines were due to reason of other prior engagements, 17 had a background in medical education and 7 in healthcare policy.
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medical figures, and divided the potential participants into sectors including representatives with a healthcare policy and medical education background, and from different healthcare organisations. We sent out invites to 47 people. 23 agreed to participate, 16 declined and 8 did not respond (international) (see [table 1](#)).

Setting

The round table discussions took place in June 2021. The round table focus groups were conducted as a webinar-style conference using the *Zoom* video teleconferencing software.

Data collection and handling

The event was arranged around two panels and two main topic areas (see [box 1](#)). The topic guide was created in cooperation with the authors and was sent to participants for clarification before the conference, which resulted in minor adjustments relating to more comprehensive areas of the topics that were debated.

Two facilitators (PB and SSM) led the first focus group, while two others (CM and NK) led the second focus group. Each session began with a brief introduction of the topic followed by a subsequent 2 min contribution by panellists.

Data analysis

We audiorecorded the event and analysed the verbatim transcription of the recording. The transcriptions were carried out by a professional transcriber. Audiorecordings were uploaded onto *QDA Miner* and analysed by NK, checked for accuracy by SD and AR. Verbal data were initially coded along with the four topic areas by NK. Special attention was paid to capturing emerging

Box 1 Key topics discussed

Panel 1:

How can we create and manage a set of educational conditions—a curriculum and assessment plan—that focuses on teaching how inequity, inequality and the social determinants of health impact the communities in which students/trainee physicians will eventually work?

Panel 2:

What do we think of when we talk about health disparities, the social determinants of health, social justice, inequity and inequality, and structural and systemic racism? What are the key elements to include in medical education?

Box 2 Characteristics of participants

- ⇒ (21 national) (2 international) 23 participated in the conference.
- ⇒ 11 women and 12 men.
- ⇒ Two medical directors.
- ⇒ Six director of medical education.
- ⇒ Two academic researchers.
- ⇒ One deputy chief executive.
- ⇒ One vice president.
- ⇒ Seven professors and heads of departments.
- ⇒ One patient representative.
- ⇒ Two medical students.
- ⇒ One national clinical director.

themes. These were created as we examined the transcripts in more detail to reflect recurring issues and ideas emerging from within the discussions. We drew on the work concerning health equity that is grounded in general theories of justice.¹⁵

RESULTS

Twenty-three participants took part in the conference on the day. Two participants acted as Chairs in the conference proceedings. We had 10 participants in each focus group, and 2 of those 10 served as the facilitators in each group. We did not ask individuals to self-report ethnicity or race however we did endeavour to send a number of invitations to leaders from minority ethnic groups, (perceived ethnic minority participants 15) and all participants represented a variety of disciplines, sectors and levels of authority. We achieved a diverse group that ranged from public health, primary care, psychiatry, acute medicine and surgery (see [box 2](#)).

The following key themes emerged from the discussions (see [box 3](#)).

Box 3 Summary of themes

- ⇒ Social innovation training in medical education: a bridge to community engagement.
- ⇒ Linking community working with social innovation.
- ⇒ Future curricula development: fostering doctors' roles as 'change agents'.
- ⇒ Settings, context, environment and leaving the classroom.

Shifting the focus from the individual patient to the community

- ⇒ Developing links with third sector organisations and community settings, including low-income and middle-income countries.
- ⇒ Including learners' perspectives and lived experience in medical education.
- ⇒ Medical roles are political and need political culture to be on their side.
- ⇒ Racism, diversity, class, inclusion and addressing power imbalances.

The results are presented below as themes, with additional consecutive themes are presented in [table 2](#). The themes relate to (1) medical education as a bridge to community engagement, (2) linking community work with social innovation and (3) future curricula development: developing doctors' roles as 'change agents.'

Social innovation training in medical education: a bridge for genuine community engagement

The panel included students that embraced the idea of acquiring training through immersive experiences in local communities. It was clear that the complexity of healthcare work meant that patients' problems were 'unpackable' without understanding patients' lived experience. It was also agreed that the medical diagnosis framework was only one of several lenses through which to view a person's individual situation and experience.

So, how do we actually therefore teach our medical students in context and which means that maybe that you have to have a pathway of community care more in that pathway so for example a patient has had a fractured neck of femur and the medical student has been in theatre with it you know when the surgery happened. Then it's about taking that medical students into the community once the patient is discharged to see how that patient is then going to manage. What are the inequalities and inequities that patient has to face in that social environment that they live in, where they might be living on their own or they have do not have a bedroom downstairs. It's little things like that, and you can't teach that enough, you know, in a curriculum. It has to be actually taught in an environment where they see it happening. So, that's my viewpoint. (2P11)

Linking community working with social innovation

Participants agreed that experiential learning was important in understanding the context in which patients live and work. In the past, the conceptual model for diagnosis tended to exclude the environment in which patients' problems play out. Resulting in a gap between interventions that work in clinical settings versus those that are unsustainable when patients' leave the clinical environment. Furthermore, there is a lack of resources available for doctors to deal with such issues.

...then there's the experiential issues. At the moment we teach medical students like they are going to the zoo. They see people in cages. They might see patients but they don't see them in their context, they don't see what's brought them there, they don't see how they interact with their environment. (CC02)

Participants raised concerns about how the complexity of the problems faced by patients might not lend to simple assessments in the curricula. As one participant explained,

...how do we translate that finding, that understanding, to teaching, to curriculum, to teaching and assessment ...There is a real question about what you need to do ...to make sure that these matters are assessed and clinically assessed. So, tell me how does racism account for this presentation of this person today. What has housing and unemployment got to do with them being unable to recover and unable to find a place to discharge him to and so on... it is actually a practical problem in the world of business function. (2P13)

The importance of translating evidence of health inequalities into action with respect to medical education was a consistent theme.

We're talking about communities themselves and marginalised communities and what they can offer in terms of lived experience and community-based practise with them. And you know what? I think medical students would love that. (2P09)

An important element in implementation related to current medical faculty members' was related to the existing culture and processes that hold the power to allow for such developments to occur.

...in practice and getting this into a longstanding integrated curriculum, is faculty development, as we need to acknowledge that some of us may not be from a generation for whom this is a routine way of teaching and so it is about faculty development. (2P14)

Values guide and shape behaviours and this was discussed by the patient representative with lived experience. Panellists highlighted the role of and importance of 'higher values' in delivering person-centred care. It was seen as essential link to teaching inequity, inequality and social determinants of health. The intrinsic values of doctors were important to them, should be included and balanced with the actual routine work that doctors carry out.¹⁶ It was seen as essential link to teaching inequity, inequality and social determinants of health.

Report Core Values with Psychiatrists outlines values which provide a lens which would enable the shaping of perspective and enhance the focus on teaching how inequity, inequality and social determinants can impact on health and the delivery of person-centred care. (2P10)

Future curricula development: fostering doctors' roles as 'change agents'

Data were seen to play a significant role in setting benchmarks and in helping quality improvement processes.

it is (sic) absolutely taught us all sorts of things about where you live, whether it's air pollution or overcrowding or, you know, other indices and the impact they had on your likelihood of getting coronavirus with severity with which you had it and the outcome. (C03)

Processes and systems

Table 2 Themes from the focus groups

Themes	Concepts	Focus group data from panellists
4) Settings, context, environment, and leaving the classroom Shifting the focus from individual patients to the community	The round table had an introductory keynote that presented the robust scientific data linking social inequity and health outcomes. Despite the growing evidence, this was rarely integrated into clinical practice or medical education. ^{29 30} A prime example of this was the largely tertiary (hospital) settings of clinical education. Shifting learning to a community-based setting is not only possible but also desirable.	"Primary care particularly embraced that message way back in 2005 so if you look at what's happening... in primary care teaching, they are looking at students as problem solvers in their own right, they are adults, they can solve problems so they are getting them into this community practice." (2P14)
5) Developing links with third sector organisations and community settings, including low-income and middle-income countries (LMICs)	Data from the participants showed that they brought up third sector involvement. Forging links with third sector educators could allow collaborators from those sectors to be brought into teaching and assessment interventions for clinical trainees. Taking a personalised approach, focused more on the positive strengths of individuals was advocated.	"So, training people in having that understanding of people's strengths rather than just weaknesses, that seems to be fundamental to personalised medicine. There you go, I connected it! I think the other thing is, wouldn't it be great if in medical training that practitioners spent time in voluntary and community organisations rather than always having to do, you know, if you learn all of your mental health training in a psychiatric ward you're going to learn a bit but you're never going to notice anyone recovering or never going to understand the social and economic context." (1P05)
	Participants in the focus groups extended the notion of community learning to include LMICs and suggested teaching that was less didactic and more interactive. The essence of structural racism was linked to the colonial past. The consequence of not understanding this history was indicative of some of the racism experienced by healthcare staff and patients.	"(Firstly)... each medical student should be sent to a poor country for a month to do an attachment in a hospital. the second one is there should be a lesson in colonial history and the slavery in the curriculum for them to understand what is the root cause of structural racism is. the third one is there should be a lot more collaboration..." (1P07)
6) Including learners' perspectives and lived experience in medical education	Medical education should be learner-centred and led by learner requirements. Stakeholders engaged in the training of future doctors have revealed an explicit appetite for the inclusion of social justice and the social determinants of health in medical education.	"The students that are currently studying medicine, that are coming in - this new generation are perhaps the most progressive generation of young students we've ever seen." (1P04)
	This notion of learners as 'change agents' wanting to be socially innovative was clearly articulated by 1P04. The teaching and practice of medicine should be embedded within the patients' personal situation.	"They are the ones that are going to make the difference and they are already seeing how they can be that original model of a doctor to the advocate for the patient. Not to see the patient as a disease but to see them in the context of where they live." (1P04)
	Integrating the lived experience of patients and carers in medical education was identified as key to the enhanced role of doctors as change agents delivering truly person-centred care.	"Patients are not objects for clinical care. A patient is a person. Understand that context." (2P010)
7) Medical roles are political and need political culture to be on their side	The participants also highlighted how contemporary healthcare work is concerned with the kind of regressive policies that negatively impact health service users. There was an undeniable link there and concern was related to political culture and its policies around social deprivation and poverty.	"We coined the awkward phrase 'proportionate universalism.' We want universalist policies with effort proportionate to need. What we've got here is effort inversely proportionate to need: the greater the deprivation, the greater the need, the greater the need, the greater the reduction in spending. Could such regressive policies had contributed to worse health and increased inequalities? Yeah? I think they could. These policies didn't work n their own terms. We were told that the reason for this austerity was to get finances back on track to get the economy growing again." (C01)
	One of the barriers to enhancing doctors' role as social agents was the notion that 'politicising' medicine will detract from its scientific foundations. This misperception not only ignores the robust evidence linking psychosocial determinants and health outcomes yet can also potentially disempower doctors.	"We shouldn't be afraid to say the things that are political because that is the job of a doctor, doctor is political because... if I don't stand up for my patients, no one's going to stand up for them." (1P04)
	The subtle but significant shift from being advocates for patients to 'physician activists' and speaking up for patients was also highlighted. Speaking up was linked to empowering others. The consequence of not speaking up was seen as both disempowering and ineffective advocacy.	"If you don't say anything and stay quiet then you are not empowering others to speak up. So, I think... we can all make a difference and change on the ground in the different roles that we do, and empowering others to do the same, is important." (1P02)
	How political decisions can impact health outcomes was brought sharply into focus through an awareness of realistic advice and 'fearless advocacy.' This transcended beyond the simple meaning of standing up for patients and to genuinely push for social and welfare support, and what is doable in the context of the patients' lives versus not speaking up for patients.	"Do you think there is agreement, then, as clinicians we should be more fearless and we should say this is what's making this man or woman sick and there's no point me wagging my long finger and saying eat better food when every single local supermarket discounts heavily processed foods and this patient has barely access to kitchen ingredients." (C02)

Continued

Table 2 Continued

Themes	Concepts	Focus group data from panellists
8) Racism, diversity, class, inclusion and addressing power imbalances	<p>Social innovations aimed at improving health outcomes must not only focus on patients but also the workforce. There was concern about the minimal representation of doctors from a working-class background in medicine. Changes around admission of student with a working-class background in medicine was still low to effect substantial changes.</p> <p>Tailoring medical education to create a workforce that is not only part of the change but one that actively works to shape change for the better was a significant aim for the panellists.³¹ Workforce Race Equality Standards data has clearly demonstrated the lack of gender and ethnic diversity in leadership positions in healthcare organisations. Decades of work that has been of qualitative nature has been ignored on the issues around racism, differential attainment and career progression of the ethnic minority workforce.</p>	<p>"We can see that inequality affects life expectancy and we're seeing inequality widening, not getting less... but also, remember that only 4% of doctors are currently working class. we're working to improve this." (1P03)</p> <p>"I just wanted to talk about the bullying and racism in medical schools (sic)... stereotyping of especially ethnic minority students is so common. They are reluctant to stand up and ask questions." (1P07)</p>

The participants agreed that the first step in improving the health of individuals and populations is having a better understanding of what the main health problems are and of these, which are the most urgent priorities from the patients' situation. Ascertaining what is the most urgent priority for the patient and what can be done using both quantitative and qualitative approaches, applied to their individual situation was paramount. Quantitative data can help develop an individual's health portrait, and qualitative data can be used to better understand why the local population thinks that addressing certain health challenges should be prioritised to their 'lived' context. Interestingly, National Health Service England has implemented a programme, Core20PLUS5, that reflects this finding.¹⁷

DISCUSSION

The medical leaders who participated in this study described medical education and medical practice as lacking the understanding—that people present to doctors with strengths and not just weaknesses that are embedded in a host of social situations.

A case-based lens that focuses on social situation of the presenting individual and a personalised form of medicine was now seen as a more fitting approach, especially with the inclusion of a voluntary and community-based practice approach, leading the arena for where genuine learning was possible. Our analysis showed that there was consensus around including community settings in the training of doctors. Medical students immersing themselves into environments that have not been the normal domain of healthcare work was acknowledged as beneficial both for medical students themselves and for their patients. The traditional work of healthcare was seen as propagating stereotyping of people into disease and clinical cases. This focus on individuals, as opposed to communities in which they are embedded, has largely ignored the science of the social determinants of health and cultivates doctors that are ill-prepared to deal with the clinical realities of their contemporary practice. For example, when doctors prescribe lifestyle changes without understanding the

wider social context and constraints of individuals, it means that the prescribed changes are difficult or impossible for the patient to implement or sustain in their lives outside of the clinical environment. This sets up even well-evidenced clinical treatments to fail, and it most importantly fails patients.¹⁸ The task of social change can seem immense and can easily engender helplessness in doctors. Therefore, clinicians must be reminded that they can tackle these issues by engaging with everyday realities of people's lives and are thus more able to 'fearlessly' advocate on behalf of their patients if they are equipped with the resources, training and means to do so.

Developing a (both quantitative and qualitative) data and evidence-driven approach to identifying key health problems and the impact of these problems on local populations is the first step in improving health at both individual and population level.¹⁹ Healthcare benchmarking data can play a significant role in delivering change by helping to identify variations in health outcomes in diverse communities and in identifying the impact of interventions.^{20 21}

Implementing such an approach has been difficult as medical education has, up to now, not drawn sufficient attention to doctors' role as social innovators responsible for the care of their communities. Traditional medical education has focused almost exclusively on doctors' roles in diagnosing and treating dysfunction in individual patients, not communities or societies.¹⁸ Indeed, students have reported a lack of skills and tools to help individuals access relevant services. Our analysis suggests that current medical training can allow students to think in social innovative ways. Barriers posed by discrimination based on class, gender, race and other protected characteristics may seem insurmountable in clinical settings, however they can be successfully challenged if medical education transforms medical students and subsequently doctors from professionals desiring change to 'agents enabling change.' This possibility is not impossible as the the evaluation framework pilot study showed

social accountability can be assessed through a critically reflective and comprehensive process. As social accountability focuses on the relationship between health professions schools and health system and health population outcomes, each school can demonstrate to students, health professionals, governments, accrediting bodies, communities and other stakeholders how current and future healthcare needs of populations can be addressed in terms of education, research and service learning.²² (p.116)

Our expert panel and our analysis both indicated that a transformation which integrated lived experience of individuals and communities in clinical education is a necessity. Developing links with community-based third sector organisations, and exposing medical students in high-income countries to clinical experiences in low-income and middle-income countries, are some ways in which the doctors of the future can be primed to engage in clinically transformative social innovations. van Niekerk *et al* also illustrated

the importance of addressing prevailing institutional voids, while holding steadfast the vision of what renewed institutional logics could achieve and providing an inclusive opportunity for all actors to move forward. In this way change occurs slowly, requiring multiple microshifts in individuals, communities and healthcare institutions to ensure sustainability and embedding.¹¹ (P23)

The array of sectors represented in this study is a strength, including, as it did, students and patient representatives with lived experience. This was also indicated by the lively discussions and the participants' passionate responses. Our results have real significance relating to current and future medical curriculum. Even so, there are some limitations. We aimed to increase the diverse sector representation, and this yielded a significant number of stakeholders joining from varied backgrounds and experiences. However, owing to the sizeable groups, each person may not have had the opportunity to participate to the extent they might have liked. In addition, some of the facilitators were not trained qualitative researchers, though they had academic credibility and were well-known healthcare leaders in the field. Further limitations of this research consist of the relatively small number of participants, a fact that could limit the generalisability of the findings, and the lack of representation from some sectors, professions, additional patients and learners. The research team mainly consisted of individuals with a substantive medical education background, and fewer with a healthcare policy background. However, our panels provided expert, qualitative experiential data in an area where little research has been done on integrating social innovation in medical curricula.

CONCLUSIONS

The results suggest that producing socially innovative medical practitioners requires, as one of the steps, the recruitment of greater numbers of medical students from working-class and diverse communities. This will enable better responsiveness to patients from marginalised and disadvantaged backgrounds. Fortunately, widening participation initiatives are helping more students from diverse backgrounds, including those with lived experience of mental health to be admitted into medical school.²³ Medical students, we discovered, are also eager to pursue an agenda of addressing inequalities and promoting social justice.²⁴ However, the ambition of medical students as nascent social innovators is made difficult through the institution of a hospital-based education and socialisation together with a health service configuration which makes health delivery partnerships with community groups difficult.²⁵ Therefore, the next step is the transformation of medical education itself. Currently, traditional medical education promotes a tendency towards professional isolation from community groups. Nonetheless, there are examples that point to the considerable power of working with marginalised communities using new social innovations in response to the pressing health challenges. Take, for example, the outreach work of the Consortium of BAME (black, Asian and minority ethnic) Health Professional Networks to address vaccine hesitancy in the UK among ethnic minority groups.²⁶ There are other promising sources of change such as the revised Outcomes for graduates from the General Medical Council with a greater focus on health promotion, community care, multimorbidity and managing physical, mental and social aspects of health together.^{27,28} Further, the Medical Education Reform Programme from Health Education England advocates for an immersive community-based learning approach. This approach aims to create a flexible, generalist, systems and data-literate workforce that can deliver improved population health outcomes and are precursors of this change. However, the impact of such initiatives will remain limited unless there is a fundamental social and cultural change in the way medical training is designed, structured and delivered across the UK. Medical education must do more to implement the necessary changes identified in this study. This requires significant organisational change that fosters and encourages medical students and doctors to become real 'change agents' and 'social innovators in healthcare.'

Author affiliations

¹Department of Osteopathic Medicine, Touro University Nevada College, Henderson, Nevada, USA

²Health Sciences, University of Southampton, Southampton, UK

³General Medical Council, Manchester, UK

⁴University of Manchester, Manchester, UK

⁵Cornwall Partnership NHS Foundation Trust, Bodmin, UK

⁶University of Exeter Medical School, Exeter, UK

⁷East London NHS Foundation Trust, London, UK

⁸Loughborough University, Loughborough, UK

⁹Western Sydney Local Health District, Wentworthville, New South Wales, Australia

¹⁰University of Nottingham, Nottingham, UK

¹¹University of Southampton Faculty of Medicine, Southampton, UK

¹²Derbyshire Healthcare NHS Foundation Trust, Derby, UK

¹³Royal College of Psychiatrists, London, UK

¹⁴University of Bolton, Bolton, UK

Correction notice This article has been corrected since it was published. Orcid id has been added for Alex Serafimov.

Twitter Nagina Khan @DrKhan_do, Anne Rogers @aerogers1, Colin Melville @drcolinm, Rohit Shankar @haritsa1, Wolfgang Gilliar @gilliar_do, Peter Byrne @pubmentalhealth, Sridevi Sira Mahalingappa @sri_2050, Simran Sehdev @SimranSehdev, Anna Sri @DrAnnaSri and Subodh Dave @subodhdave1

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ORCID iDs

Nagina Khan <http://orcid.org/0000-0003-3870-2609>

Anne Rogers <http://orcid.org/0000-0002-7231-790X>

Colin Melville <http://orcid.org/0000-0003-2256-7895>

Rohit Shankar <http://orcid.org/0000-0002-1183-6933>

Alex Serafimov <http://orcid.org/0000-0001-9390-003X>

Anna Sri <http://orcid.org/0000-0002-5335-7332>

Subodh Dave <http://orcid.org/0000-0002-1262-4879>

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