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ORIGINAL RESEARCH

Medical Students' Experiences with Social Determinants of Health in Medical Education in Rwanda: A Qualitative Study

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Background: Despite growing recognition of the importance of social determinants of health in medical practice, physician training in this area remains limited. The aim of this research was to evaluate medical students' experiences with an innovative, social determinants of health-focused curriculum at the University of Global Health Equity (UGHE) in Rwanda, where social medicine is embedded in the Bachelor of Medicine, Bachelor of Surgery (MBBS) program.

Methods: This was a qualitative study using data from in-depth interviews (n=18). We used the constant comparative method of data analysis to characterize recurrent themes across the interviews.

Results: Four recurrent themes in students' experiences with the social determinants of health-focused curriculum emerged: 1) increased students' self-awareness about their own biases, 2) moved students from a mode of blame to a practice of empathy 3) allowed students to see patients as whole people with complex stories and needs rather than merely a diagnosis or set of diseases, and 4) strengthened students' commitment to addressing shortcomings in the larger health system as part of improving health.

Conclusion: Our study adds to the literature by demonstrating the potential for medical schools in low-income settings to implement social determinants of health into their curriculum. Findings from the study may be useful for medical educators and policymakers seeking to implement more holistic approaches to medical education.

Keywords: social determinants of health, medical education, Africa, social sciences

Background

Social determinants such as housing, nutrition, education, social support, and the environment have been shown to be fundamental to human health;[1–4] however, physicians' training in the social determinants of health is often limited.[5] As the first point of contact between patients and healthcare systems, physicians are positioned to play a crucial role in addressing detrimental social determinants of health.[6,7] In the last twenty years, more and more professional organizations–including the American Medical Association (AMA) and National Academies of Sciences, Engineering, and Medicine (NASEM)–have underscored the importance of the social determinants of health in medical training.[8]

Previous literature has proposed models of medical education that recognize the importance of the social determinants of health;[5,9–11] however, evaluations of such models have been limited. Recent literature reviews[10,12] have highlighted the dearth of research in this area, and the studies that do exist largely evaluate short-term workshops, classes, or modules rather than integrated curricula that span the entirety of medical education as has been suggested is critical for a comprehensive understanding of the broader determinants of health.[5,9] Furthermore, studies have focused on the impact of class content without considering the role of a critical pedagogical approach, although it may be integral to shifting future physicians' treatment of patients and communities.[5] Last, the vast majority of the extant literature has focused on educational efforts in high-income countries. Therefore, the impact on medical students of integrating the social determinants of health into their medical education in low-income settings remains largely unknown.

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Accordingly, our objective was to explore the experiences of medical students in a low-income setting with respect to an innovative, six-and-a-half year medical school curriculum at the University of Global Health Equity (UGHE) in Butaro, Rwanda. The UGHE Bachelor of Medicine, Bachelor of Surgery (MBBS) program, which admits both Rwandan and international students, contains biomedical science training, liberal arts courses, and community based learning designed to prepare future physicians to take a holistic approach to patient care. Key to the liberal arts curriculum was the teaching style, or pedagogy, used with students. The faculty used an inquiry-based pedagogy that required students to actively participate in class, ask questions, and puzzle through problems rather than memorize and parrot existing solutions. The teaching style also provided time for students to take new directions through group projects and applied learning, not merely absorb material from existing texts and knowledge. Students were empowered and guided to ask questions, examine primary sources, and develop their own perspectives on complex issues in social medicine. We focused on the role of courses embedded in a liberal arts-focused pedagogical approach and conducted this study in a low-income setting to address the gap we identified in the literature. UGHE was an ideal study setting because it has adopted a social medicine framework in its MBBS curriculum, exposing students to the social determinants of health through liberal arts courses.[13]

To understand students' experiences, we conducted a qualitative study using in-depth interviews and identified recurrent themes using the constant comparative method of qualitative data analysis.[14,15] Findings from the study may be useful for medical educators and policymakers seeking to implement more holistic approaches to medical education.

Methods

Setting

The University of Global Health Equity (UGHE), was founded in 2015 through dedicated collaboration between Partners in Health, the government of Rwanda, and other partners including the Cummings Foundation and the Bill & Melinda Gates Foundation. UGHE delivers Bachelor of Medicine (MBBS), Bachelor of Surgery, and Master of Science in Global Health Delivery degrees intending to strengthen the medical workforce dedicated to serving underserved, under-resourced communities. The MBBS curriculum begins with a six-month liberal arts phase of classes that seek to broaden medical students' perspectives and build appreciation for the social determinants of health. Instruction at the university is conducted in English with community work being carried out in Kinyarwanda.

Study Design and Sampling

To explore MBBS students' experiences with the liberal arts phase of their curriculum at UGHE, we conducted a qualitative, in-depth interview study using a grounded theory approach.[14] Glaser and Strauss'[14] and Miles and Huberman's[16] work on qualitative research and theoretical sampling suggest the diversity of a qualitative sample should reflect the variety of variables that may influence participants' experiences. Furthermore, sampling employed in similar qualitative studies evaluating students' experiences in medical school have identified factors such as age, gender, and nationality as important to understanding their experiences.[17–19] Therefore, we used purposive sampling to select a diverse sample of participants concerning students' academic years, nationalities (Rwandan vs international students), and genders. A list of MBBS students at UGHE (n= 215) was randomized, and participants were then selected in random order, skipping students of the same academic year, gender, and nationality profile as students already selected for the study to ensure diversity in the sample. The eligibility criterion was enrollment in the UGHE MBBS program at the time of the study. From this target population, we drew a purposeful sample to ensure we had appropriate representation by gender, year in the MBBS program, and national origin. We continued to interview students until we reached theoretical saturation, which occurred after 18 interviews, as is consistent with Dworkin's[20] suggestions of appropriate sample sizes in qualitative studies.

Data Collection

After participants were purposefully selected, three members of the research team (COS, EAL, CUG) emailed the students to request their participation in the study and to establish an interview time if they accepted. In-depth interviews

were then conducted in English, in person (22%) and online (78%), according to the participants' availability. To explore students' experiences in the liberal arts phase, grand tour questions,[21] open-ended questions carefully phrased so as to not elicit specific responses from participants, along with probe questions were utilized. Each interview lasted an average of about 30 minutes and was audio recorded with the participants' written informed consent to participate and to the publication of anonymized responses. Transcriptions were completed using Rev,[22] an artificial intelligence transcription software, and researchers checked the accuracy of each transcription against the corresponding recording. The authors include one faculty member who has taught MBBS courses at UGHE and three former Masters students at UGHE who were unaffiliated with the MBBS program. The faculty member was not involved in the interview process, and all data were anonymized during transcription to limit bias. The researchers further limited bias by looking for disconfirming evidence and reflecting regularly on our affiliations with UGHE and their potential to influence the outcomes of the study.

Data Analysis

Qualitative data analysis was carried out using the constant comparative method.[14,23] An inductive code sheet was developed by a diverse team of researchers (COS, EAL, CUG, EHB) after they independently read early transcripts. Researchers identified chunks of data and assigned codes that characterized concepts expressed by interviewees. We arrived at a final code sheet after constantly comparing chunks of data to similarly coded data and refining the meaning of each code. Following thematic analysis, the researchers met throughout data collection to discuss notable patterns, key phrases, and emerging themes. We coded each transcript in pairs and used negotiated consensus to resolve any discrepancies. The code sheet was revised throughout the process to include new codes, group similar codes together, or further specify the definition of existing codes, as is recommended in qualitative data analysis.[24] This process was repeated with each interview transcript until we arrived at a final code sheet, which was then re-applied to all transcripts for consistency. Dedoose, a data analysis software that assists in simultaneous access to and analysis of qualitative data within research teams, was used to facilitate data analysis, and analytic decisions were documented in an audit trail throughout the process.

Ethical Considerations

Ethical clearance was granted by the UGHE Institutional Review Board (IRB) (Reference number: UGHE-IRB/2023/007). The authors have no conflicting interests to declare.

Reflexivity Statement

The authors include one faculty member (EHB) who has taught in the UGHE MBBS program and three former master's students (COS, EAL, CUG) who graduated from UGHE in August 2024. The former master's students had no affiliation with the MBBS program during their graduate studies. To mitigate potential bias, the author with teaching experience did not conduct interviews, and all student data were anonymized during transcription. The researchers were aware that previously held biases and their affiliation to UGHE may influence the project, so they actively reflected throughout data collection and analysis and met periodically to discuss disconfirming evidence and feedback to mitigate bias.

Results

Sample

The study included 18 MBBS students (50% male and 50% female). One-third (33.3%) were first-year students, while the remaining participants were distributed equally across the third, fourth, and fifth years (22.2% each). The majority (66.7%) were Rwandan and Ugandan participants (11.1%). The remaining participants came from the Democratic Republic of Congo, Tanzania, Lesotho, and Malawi, each representing 5.6% of the total sample (see Table 1).

Four recurrent themes emerged from our analysis. Students' experiences of the curriculum: 1) increased students' self-awareness about their own biases, 2) moved students from a mode of blame to a practice of empathy 3) allowed students to see patients as whole people with complex stories and needs rather than merely a diagnosis or set of diseases,

Table 1 Demographic Characteristics of Participants

Demographic Characteristics		n	%
Gender	Men	9	50%
	Women	9	50%
Academic year	1st year, liberal arts phase	3	17%
	1st year, 2nd semester	3	17%
	3rd year	4	22%
	4th year	4	22%
	5th year	4	22%
Nationality	Rwandan	12	67%
	International	6	33%

and 4) strengthened students' commitment to addressing shortcomings in the larger health system as part of improving health. Below, we describe these recurrent themes in further detail and use verbatim quotes to illustrate each theme.

Self-Awareness About One's Own Biases

Exposure to new perspectives, both through course content and discussions with classmates, challenged participants to confront their long-held beliefs and values. For instance, participants described how they grew to recognize the importance of separating their religious and cultural beliefs from their perception and treatment of patients who may hold values that differ from their own. Participants related that after studying the social determinants of health, they were more open to receiving and treating patients of diverse backgrounds and beliefs. A range of biases were recognized including, but not limited to, gender, sexual orientation, education, religion, and nationality. Reflecting on lessons learned during the liberal arts phase of the curriculum, participants said:

> It was an eye-opener to see that maybe I have my own beliefs, religious and cultural beliefs and everything, but … my own beliefs and concerns should not come between me and people who think differently than I do. It helped me to be in the position to receive everybody and not be biased by what I believe in and what I've been taught growing up. (ID 4, 5th year female Rwandan student)

Furthermore, the process of facing biases took time and was not easy, as expressed by one participant:

> I think some topics were very ambiguous–topics about homosexuals, members of the LGBTQ community–those kinds of things. So being introduced to them for the first time, people used to make a lot of noise about them, and people would often judge each other. We had some negative experiences during that time. But I think as time went on and we had more exposure, we came to understand other perspectives. (ID 18, 5th year female Rwandan student)

Moving from Blame to Empathy

Participants described that exposure to the social determinants of health moved them from a mode of blame to a practice of empathy towards patients and their peers. They explained that before developing an understanding of social determinants, they analyzed patients' situations with simple causal models in which the patient was to blame. For example, they related previously interpreting cancer diagnoses as a reflection of patients' poor health behavior, lack of adherence to medical advice, or ignorance–rather than considering the socioeconomic environment that may have led to or exacerbated cancer risks. Participants described that over time, they grew to recognize that diseases can be brought on by a complex web of often uncontrollable factors, and hence, they developed greater empathy for patients. Understanding the influence of proximal factors, like one's social and economic circumstances, and more distal influences such as

political unrest or a country's social norms increased students' compassion toward patients, as illustrated by this participant:

> A lot of factors play a role in patient health: political factors, social factors, and economic factors. Understanding the bigger picture helped me stop this kind of blame game or blaming the patients for what they didn't choose to have. It gave me a better understanding and helped me be more compassionate and ask questions because there is a lot that we should strive to understand instead of accusing people instantly. (ID 16, 5th year male Rwandan student)

A notable mechanism by which blame was transformed into empathy was through asking questions and striving to develop a deeper understanding of their patients and their health, an approach modeled in inquiry-based pedagogy. For instance, a participant described slowly coming to understand the full extent of a patient's health challenge after asking about his work, family, and socioeconomic context. The participant reflected that a patient's lung cancer diagnosis was much more casually complex than only smoking or working in mines–explaining that a multitude of factors, such as education and historical and political contexts, must be considered instead of casting judgment on a patient. Furthermore, discussions in class on contentious topics like mental health and gender equity, about which some students held differing views, allowed students to learn from each others' experiences and perspectives and gave rise to respect and empathy among peers.

Seeing Patients as "Whole People"

Participants also reflected that they grew to see patients as "whole human beings" instead of seeing them as only a set of symptoms and clinical diagnoses. Reflecting on their future role as physicians with respect to their new understandings of social determinants, participants described that they considered their responsibilities as physicians to include not only diagnosing and treating disease but also caring for patients with complex stories and needs. They began to consider patients' "life histories" "struggles, and disappointments" along with their medical history, as described below by two participants:

> I feel like to be a good physician, you actually need to understand your patient, not just as a sick person, but as a whole human being who has a family to take care of, who has dreams and struggles and disappointments. And that actually changed the way you approach treating them. (ID 7, 1st year female Rwandan student)

> Some of the social medicine courses that we take, like community engagement, help us to really see deeper and to understand the history of the patients, not just the past medical history, but also their life histories. And to try to link them to why they're here and how if possible, we can better support them. (ID 4, 5th year female Rwandan student)

Participants further described that understanding the patients through their personal stories and relationships helped participants grasp patients' medical and social needs.

> As a physician, you have to understand the patient wholly as a social entity. You need to understand who they are and what their families are like. When you start understanding the patient, you ask about their family as well. Then the patient opens up and becomes excited to tell you. You're like wow, it was relevant for me to ask about the family. For example, I encountered a woman who had typhoid fever and was having diarrhea, fevers, and vomiting. When I asked about her family members, she started crying. Almost everyone at home was also sick. Even her 2-year-old baby was sick and did not have access to medication. So you see that rather than focusing only on the patient and her illness and everything, you must realize they're very much connected to their families. (ID 14, 3rd year male Ugandan student)

Commitment to Addressing Shortcomings in the Larger Health System

After completing courses such as anthropology and African history, participants shared ways in which such courses influenced their thinking about health and disease. They began to appreciate the importance of root causes of disease such as lack of financial security, inadequate access to clean water, or gender inequality. Moreover, participants began to recognize their responsibility and expressed enthusiasm about addressing shortcomings in the larger system as part of being a physician in the future.

> I appreciate the importance of [the social aspect of medicine]. I understood that given the many social factors that interfere with medicine. I realized that not only will I be a doctor who focuses on the medical content, but I will also be able to navigate the social part, which is really crucial. (ID 17, 4th year male Congolese student)

Furthermore, participants found the prospect of addressing the systemic issues that compromise health inspiring, as expressed by this student:

> It was very exciting to be taught and trained about what we're expected to become, not just doctors who sit in the offices and get to see patients on a daily basis, but more of doctors who reason enough and maybe know what's happening in the community. Because at the end of the day, everything happening in the community is the one that is going to determine the kind of patients you receive, and the kind of care you give to the patient. (ID 8, 3rd year female Rwandan student)

Discussion

In reflecting on their experiences studying in the liberal arts phase and growing to understand the social determinants of health, students recognized a transformation in their perception of patients, patient care, and their future role as physicians. We found that exposing medical students to the social determinants of health increased their self-awareness, reduced blaming behavior, and enhanced empathy towards patients and peers. Furthermore, students commented that they grew to see patients as whole people with complex stories. Learning about the social determinants of health also enhanced students' commitment to addressing shortcomings in the larger health system. We did not find differences in students' experiences based on gender or national origin. Students across their demographic differences reflected similarly on their increased self-awareness, empathy, perspectives towards patients, and the larger healthcare system. Post-clinical students, however, were able to offer examples revealing the clinical implications of the liberal arts phase they had experienced and were grateful for peer relationships fostered during their liberal arts coursework that helped them navigate clinical rotations in the hospital setting. Pre-clinical students were unable to offer such examples but expressed hope that the liberal arts courses would prove useful during their subsequent clinical experiences. Our findings highlight an opportunity to address detrimental social determinants of health by integrating training on social determinants into medical education.

For decades, evidence of the negative health effects of social inequities and injustice, particularly for vulnerable and marginalized populations, has motivated international action to address the social determinants of health.[4] Previous studies describe the benefits of incorporating the social determinants of health into medical education;[5,10,25,26] however, to our knowledge, this is the first study that examines medical students' perspectives on social medicine curriculum in a low-income setting where physicians are often tasked with treating vulnerable, underserved patient populations. Furthermore, previous studies have examined the influence of short-term social medicine modules or single courses rather than a full curriculum grounded in social medicine. Thus, the present study builds on extant literature by describing students' reflections on social medicine courses embedded in a curriculum that emphasizes the importance of social determinants throughout. The current findings suggest that medical schools that commit to augmenting their curriculum in this way may witness substantial positive shifts among students–increased knowledge, reduced bias, enhanced empathy, and greater drive to make a system difference through their physician roles.

The implications of our findings are several. Most importantly, medical educators may use these findings to galvanize efforts to re-examine medical school coursework and assess whether social determinants are covered adequately. Given student accessibility to artificial intelligence, which can summarize existing knowledge quickly and efficiently, it may be time to re-examine medical school lecture material to make room for engagement with new topics such as the social determinants of health. Additionally, our study may prompt policymakers and leadership of medical school consortia to consider how accreditation standards and continuing medical education programs might reinforce the importance of social determinants in the pedagogy of both medical school and post-graduate years. Last, our findings give rise to a set of research questions important to the future of medical education such as how best to impart knowledge and understanding of social determinants, when to do so in the years of medical school, and how to assess both what has been absorbed and its impact on the quality of physicians' practice. The field would further benefit from additional studies of

the liberal arts in medical education and its impact on training in social medicine in other parts of the world–Latin American, Asia, and other African countries–to understand the global and cultural relevance of our findings.

Our findings should be viewed in light of the following limitations. First, this is a descriptive, qualitative study and while we could generate recurrent themes, the study design does not allow us to draw causal inferences or test hypotheses. Furthermore, students were difficult to track as they experienced heavy workload and limited connectivity, and thus we did not use member checking, which may have enhanced the trustworthiness of the results. Still, we used rigorous qualitative methods such as employing a diverse research team, performing quality checks on each transcribed interview, and reviewing and coding each transcript independently to ensure the trustworthiness of the findings.[27,28] Second, although we reached theoretical saturation, our study was conducted at a single university, and findings from other institutions may vary. Given the authors' and students' affiliation with the university, social desirability bias may have influenced interviews and data interpretation, although the authors worked diligently to limit such bias. Finally, our study did not address the impact of medical students' understanding of social determinants on their subsequent treatment of patients or on patient health outcomes. Further studies investigating the longer-term clinical impacts of social medical education are warranted.

Conclusion

Our findings highlight the role that education on the social determinants of health can play in increasing medical students' empathy toward patients and treatment of patients as "whole people." Medical schools committed to graduating physicians with a devotion to addressing their own biases in addition to shortcomings in the larger healthcare system can broaden their impact by incorporating an understanding of social determinants into their curriculum. Our study adds to the extant literature by demonstrating the potential for medical schools in low-income settings such as Rwanda to implement such curricular innovations. The next steps include assessing the exposure to social determinants in medical school curricula globally with a focus on low-income settings. Context specific adaptability of the approach we described may present a challenge, particularly in hierarchical, less inclusive classroom environments where student engagement and effort may be difficult to elicit and encourage. Furthermore, UGHE and its approach to medical education is unique in the funding, institutional, and faculty support it garners, and similar support may be difficult to generate in other settings and institutions. Future studies that explore the impact of physicians with an in-depth understanding of social medicine on the health outcomes of their patients and communities are warranted in addition to studies that investigate the feasibility of this approach in diverse settings. Universities that seek to produce students dedicated to delivering compassionate healthcare and addressing detrimental social determinants of health may benefit by integrating the social determinants of health into medical school pedagogy throughout the curriculum.

Abbreviations

AMA, American Medical Association; NASEM: National Academies of Sciences, Engineering, and Medicine; UGHE: the University of Global Health Equity; MBBS: Bachelors in Medicine and Surgery; IRB: Institutional Review Board.

Data Sharing Statement

Data are qualitative and are kept confidential. However, upon request to the corresponding author, our audit trail and coding decisions will be made available.

Ethics Approval and Informed Consent

Ethical clearance was granted by the University of Global Health Equity (UGHE) Institutional Review Board (IRB) (IRB number: UGHE-IRB/2023/007). All subjects provided written consent which was deemed appropriate by the IRB.

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Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

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Disclosure

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