Underrepresented in Medicine:

A meta-ethnography of underrepresented students' experiences of medical school

Sous-représenté(e)s en médecine:

Une méta-ethnographie

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Executive Summary

Background: the issue

With the increasing recruitment Under-represented in Medicine (UiM) students—referring to groups underrepresented in medical school compared to the broader population—there is a growing literature base examining their experiences in medical school. Challenges such as differential attainment, burnout, discrimination, and unequal access to opportunities have been identified, indicating that underrepresented students struggle in many ways.

However, evidence of students' challenges is often quantitative in nature or focused on one underrepresented identity alone, making it difficult to make connections across groups, and illuminate both similarities and differences. We established the goal of identifying and synthesizing the qualitative evidence, so that we can honour, and centre, the stories of underrepresented students in medical education policy and practice(s).

Objectives

Our objectives were therefore to: 1. synthesize qualitative evidence related to underrepresented students' experiences of medical school; 2. mobilize findings to share outcomes with local, national, and international medical education decision makers; and 3. communicate strengths, gaps, and opportunities in the literature for future research agendas.

Methodology

To meet these objectives, we conducted a meta-ethnography (ME), a critical qualitative synthesis, to help build a deeper understanding of the complex, lived experiences of UiM students during medical school. Meta-ethnography leverages existing qualitative data, grounded in the rich perspectives and experiences of UiM students, while generating new concepts and insights, and, in some cases, actionable knowledge.

Search methods

We developed a search strategy for MEDLINE (Ovid) to capture relevant concepts. Following an initial screening exercise and identification of additional records through social media and the suggestion of a UiM student, the search was expanded and rerun in MEDLINE, then adapted to Scopus. Based on conclusions from the initial screening that more recent publications contained richer qualitative data, the Scopus search was restricted to articles published from 2017 to the final search date on June 22, 2023.

Selection criteria

We included qualitative studies published in English between 2000 and mid-2023 that focus on the experience of undergraduate medical education for UiM students. We used general and specific terms describing UiM students (groups we included: racialized students, Indigenous students, disabled students, students from rural and/or low socioeconomic backgrounds, First in Family students, and gender and sexual minority students). We excluded non-research articles, articles published in languages other than English, articles published prior to 2000, articles that

did not include UiM students as participants, and articles that did not examine UiM students' experiences of medical school.

Data collection and analysis

We followed the seven-step process for meta-ethnography. First, we established the rationale and parameters for our study. We then developed our search strategy and selected primary studies, using systematic review software. Team members carefully read included studies for first and second order concepts, and pulled out key data (e.g., study characteristics, quotations, and notes about our observations and reactions). We then determined how studies were related by coding first order data (block quotations from articles), and clustering codes. We performed this same process with second order concepts (authors' interpretations). We were then ready to collectively explore broader relationships between study characteristics and concepts. We built a concept map using a virtual whiteboard. We then looked for patterns and recurring strands within our interpretations during virtual team analysis sessions. Finally, we linked our findings to the original study priorities, and connected our emerging themes to the literature.

Results

We included 37 studies on the lived experiences of UiM students in medical school. Our synthesis led to four overarching themes:

1. **"Working ten times as hard":** additional labour required of UiM students (gap work; emotion work; managing dissonance; advocating; proving stereotypes wrong);
2. **"Let me control my tone":** disciplining UiM student bodies for being "different" (tone, "professional" dress, names, dialect, stereotypes, surveillance);
3. **"I stuck out like a sore thumb":** othering, isolation, (in)visibility and representation; and,
4. **"Sticking together",** withdrawing, "playing on prejudices," and serving: strategies for surviving medical school.

Key messages

- UiM students articulated a vast amount of work required to survive medical school.
- UiM students consistently experienced dissonance between their backgrounds and experiences and the normative, expected biographies of medical students.
- Stories often revolved around negotiating the complexities of students' bodies.
- Working to meet the idealized physician identity was difficult, emotional, and exhausting.
- UiM learners constantly measured themselves against an idealized physician identity that interfered with their sense of self. Professionalism was weaponized to protect the identity of physicians as homogenous, privileged and emotionally neutral professionals.
- Theories relating to identity management, masking, code switching, and passing, help articulate the burden placed on UiM learners in medical school.
- Focusing on what UiM students lack neglects the immense insight, empathy, and sophisticated social expertise that underrepresented students bring to medicine.

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Background

This project was conceptualized to help us better understand the experience of medical school for Underrepresented in Medicine (UiM) students. Our goal was to use findings to inform policy, practice, and research agendas.

As we find ourselves in the late stages of a pandemic, access to physician care has never been more important. Yet, the health human resources situation in Canada is not encouraging. A staggering number of Canadians do not have a family doctor[1–3] and access to specialist care is even more challenging.[4–6] Further complicating the situation, the literature consistently tells us that patients who share the same race and/or ethnicity as their physician are more likely to feel satisfied with their care.[7,8] Given that the burden of illness is disproportionately distributed amongst the population, with members of marginalized populations experiencing higher rates of disease,[9] we must think critically about the physician workforce. Diversifying the workforce requires us to diversify medical education.

Quantitative analyses have consistently, and convincingly, demonstrated that despite increasing diversity of general populations, recruitment and retention of diverse medical students remains a challenge.[10,11] Further, once admitted, we know little about experiences of medical education or how we might improve the social and educational environments in medical schools to support learners who come from groups that have been Under-represented in Medicine (UiM).[12] As one example, challenges such as differential attainment, a body of literature indicating that medical students from ethnic minority groups end up performing worse on average than their white counterparts during education and training,[13,14] require urgent attention. For example, ethnic minority medical students in some regions have a 2.5 times higher chance of failing exams than white peers.[13] However, existing qualitative evidence suggests that challenges for UiM students reach far beyond recruitment and assessment, impacting also their daily experiences in medical school and their future experiences as physicians. Our work was therefore conceptualized to help us *find, and make sense of, the stories behind the numbers.* The goal was to enable a deeper understanding of the complex, lived experiences of UiM students in medical school.

What do we mean when we use the term Under-represented in Medicine, or UiM? This term refers to learners who are underrepresented relative to their numbers in the general population and/or do not conform to the white, cis, straight, non-disabled normative physician for whom medicine was historically built.[15] These are students who have had fewer educational opportunities and/or face social, economic and/or cultural barriers that threaten successful medical school admission.[16] Students who are Underrepresented in Medicine (UiM) therefore belong to several groups, and often more than one of these, that may shift, overlap, intersect, and/or conflict as a person moves through everyday life (a concept developed by Black feminist scholar Kimberlé Crenshaw, known as intersectionality).[17] These include visibly racialized students, disabled students, students from rural and/or low socioeconomic backgrounds, first generation medical students, and gender and sexual minority students. Due to historical, systemic barriers, Canadian medical students are less likely to be Black, Indigenous, and have grown up in a rural area when compared with the national population. Medical students are more likely to have grown up in high-income families with highly educated, professional parents,[10,18] who pass along inherited financial, social, and cultural resources that are more valued in

medical education and therefore bolster their success.[19,20]

Canada's colonial history looms large in medical education, with medical school admissions processes serving to ensure only the most privileged gained access.[21–24] Canadian medical schools, and medical schools around the world, are beginning the critical work of reimagining student selection procedures and student supports to ensure UiM people are admitted and supported through the program,[14] in order to better reflect, and better serve, the Canadian population. There are many arguments to be made in favor of a more diverse physician workforce. The literature tells us that physicians from historically marginalized communities improve clinical care and medical education.[25] They tend to work with underserved communities and areas,[26–28] are trusted more by minority patients, and provide unique and important expertise of the social contexts in which they live and work.[10] The unique experiences and expertise of physicians who are under-represented in medicine are invaluable to safe and inclusive healthcare.

Addressing Equity, Diversity, Inclusion and Accessibility (EDIA) during undergraduate medical education has become a priority. Over the past two decades, medical school leaders have increasingly prioritized EDIA as a core aspect of their institution's mission, under the direction of national associations including the Association of Faculties of Medicine of Canada (AFMC), which is the academic partnership of Canada's Faculties of Medicine, as well as the Committee on the Accreditation of Canadian Medical Schools (CACMS), responsible for setting the standards a medical school must meet to maintain its accreditation. Despite some promising advancements, research demonstrates that much more work remains. Barriers still exist for UiM learners within admissions processes, and for those admitted to medical schools, implicit bias can harm their experiences of medical education and patient care.[29,30] At times, EDIA discourse can be tokenistic and outweigh meaningful action.[23,31,32] Further, there is risk of becoming too occupied with numbers and accounting, rather than attempting to dive deep into understanding the experiences of UiM students.[12] We believe making space to learn from *experiences* of UiM students can inform meaningful policies and equitable practices.

Existing qualitative evidence paints a picture of everyday barriers to UiM learners entering and thriving within medical school. For example, UiM medical students reported a lack of belonging,[30] and experiencing microaggressions from peers, faculty, supervisors, and curricular content, which in turn devalues these learners, negatively affects their learning experiences and academic achievement, and personal wellbeing.[33] Black medical students reported persistent hypervigilance,[34] educational debt, lack of mentorship supports,[35] and a lack of access to knowledge about specialties as barriers to progressing into academic medicine and their specialties of interest.[36] They also were more likely to be deemed a poor "fit" for medicine or a particular specialty.[30] Sexual minority students, including gay, lesbian and bisexual learners, were also more likely to experience burnout than their heterosexual peers.[37] Disabled medical learners can face several barriers prior to and during their medical school experiences, including cultural ideas of physicians as able-bodied and invulnerable.[38] The small numbers of disabled medical learners who are admitted to medical schools often face woefully inadequate academic accommodation processes. These barriers stretch across the educational continuum, as medical learners perform additional work to arrange accommodations for each stage of their medical education, from completing the Medical College Admission Test (MCAT), to formal curricula

within pre-clerkship and clerkship phases, as well as later qualifying exams.[39]

As we deal with physician shortages, and ongoing health disparities, the field of medical education requires synthesized evidence that focuses on the *stories* of medical school for UiM learners--to guide educators and administrators in designing policy and educational practice(s) that acknowledge and authentically take into account the lived experiences of UiM learners. We hope our synthesis of the qualitative evidence will guide both research and educational practice related to student selection, experience(s) of both classroom-based and workplace-based learning, assessment practices, and a host of other issues.

Objectives

Our objectives were to:

1. synthesize qualitative evidence related to UiM students' experiences of medical school;
2. effectively mobilize findings to share outcomes with local, national, and international medical education decision makers; and,
3. communicate strengths, gaps, and opportunities in the existing literature to identify future research agendas.

Methods

Methodology

Meta-ethnography (ME) involves synthesizing qualitative studies to generate new interpretations of a social phenomenon. Due to its name, a common misconception is that meta-ethnographies only synthesize ethnographic research; rather, it synthesizes rich qualitative data more broadly.

Meta-ethnography leverages existing qualitative data, grounded in the rich perspectives and experiences of UiM students, while generating new concepts and insights, and, in some cases, actionable knowledge about both new and pre-existing barriers to EDIA in medical school. In other words, meta-ethnography builds toward a group level of analysis generating novel overarching ideas, theories, and models. This is especially important while exploring the experiences of vulnerable individuals and communities. Meta-ethnography, with its roots in critical studies of education, was particularly helpful in guiding our insights for educators and policy makers who may have been struggling to make sense of multiple and/or conflicting studies.

We followed the benchmark seven step guidance for meta-ethnography, described by Noblit and Hare[40] and expanded by subsequent authors.[41–43] In following identified good practices, we report our findings using the eMERGE Guidelines.[41]

We engaged in regular, on-going conversation throughout the process reflecting, revisiting and refining our inclusion criteria as the review progressed. We developed a search strategy (See Appendix A, Electronic databases search strategies) for MEDLINE (Ovid) to capture the relevant concepts of the review question: 1) qualitative research, 2) medical school or undergraduate medical education, and 3) general and specific terms describing UiM students (groups we included: racialized students, Indigenous students, disabled students, students from rural and/or low socioeconomic backgrounds, first generation

(or First in Family) medical students, and gender and sexual minority students). Following an initial screening exercise and identification of additional records through social media and suggestion by a UiM student, the search was expanded and rerun in MEDLINE, then adapted to Scopus. Based on conclusions from the initial screening that more recent publications contained richer qualitative data, the Scopus search was restricted to articles published from 2017 to the final search date on June 22, 2023. We included qualitative studies published in English between 2000 and mid-2023 that focus on the lived experience of undergraduate medical education for UiM students. The period was chosen to align with the rise of EDIA as a focus for medical education accreditation bodies, a process which resulted in EDIA-related accreditation standards. We chose a focus on Undergraduate Medical Education (UGME) due to: 1. medical school being the first place underrepresented learners encounter professional cultures and barriers and enablers to later success; and 2. its distinctness from residency and continuing medical education formats. We excluded non-research articles, articles published in languages other than English, articles published prior to 2000, articles that did not include UiM students as participants, and articles that did not examine UiM students' experiences of medical school.

Summary of the Stages of our Meta-ethnography

2023	M.E. Phase	Activity (Full team to engage)
May	1. Began the review	• Established the rationale and context for the study • Began the process of collaborative reflexivity • Refined our focus through collaborative discussion
May	2. Identified relevance	• Developed search strategy and related processes (see Appendix A, Electronic databases search strategies) • Selected primary studies
May-June	3. Read included studies	Engaged in collaborative reading and conversation, including: • Repeated reading and noting interpretative metaphors • Identifying concepts, themes, metaphors from primary studies • Cultivating data for analysis
June - July	4. Determined how studies were related	Compared aspects of primary studies to determine relationships between: • Research Design, such as: study aims; contexts; type of studies; theoretical approach; UiM characteristics; study focus. • Meaning of concepts, metaphors, and/or themes; the overarching explanation of phenomenon from primary studies • Other contextual factors, such as the time period, and/or whether findings of primary study accounts differed because they were conducted within different time periods/contexts.
July	5. Translated studies into one another	Conducted reciprocal and refutational translation: • Described relationships between concepts within/across studies • Represented these relationships visually (concept maps) • Considered alternative interpretations or explanations
Aug	6. Synthesized translations	Conducted syntheses including: • *synthesizing translations* looks for patterns amongst the reviewers' interpretation of the translations from step 5. • *line of argument synthesis* aims to provide a fresh interpretation by creating a new story or overarching explanation
Sept	7. Expressed the synthesis	• Related the main interpretive findings to the study objective(s), review question(s), focus, and intended audience(s) • Compared the new concept, model, or theory to existing literature
Oct	Dissemination	• Ongoing

Reflexivity

We adopted the perspective that the *stories* of UiM learners, rather than a particular group or experience, was the primary focus of analysis. We found within the literature rich and meaningful stories that evoked emotion and resonance in our research team, and we were therefore deliberate and rigorous in our approach to reflexivity.

Our research team consisted of individuals with lived experience of a diverse range of identities, encompassing, but not limited to, racial and ethnic backgrounds, Indigeneity, neurodevelopmental and physical disabilities, gender and sexual orientations, rural/urban experiences, social class backgrounds, including those who were first-generation participants in higher education, and a variety of educational and professional backgrounds and experiences. Our reflexivity processes, both individual and collective, are shaped by our various identifications with communities that are privileged or underrepresented within medicine, and these at times conflicting identities shaped our assumptions about the topic and the research process.

Throughout the project, we actively engaged in reflexivity, building processes for deliberate reflection throughout our screening and data cultivation tools. We continuously reflected, individually and as a team, through written and oral modes, on the complex interplay of our multiple identities, the stories of our own lives, and how these might inform our emotional reactions to the texts we were reading. This process allowed us to critically consider the influence of our backgrounds and experiences on the review and the research process, setting ourselves up for comprehensive and nuanced reading of articles, including being sensitive to whose stories were missing in the data.

By weaving critical reflection on our diverse identities and our emotional responses into the research through all stages, we were better equipped to navigate the challenging issues that surfaced through our review. Our concrete commitment to reflexivity strengthened the quality and depth of our research, enriching our findings and promoting a greater understanding of the multifaceted issues we examined. One example of the impact of our reflexivity practices on the research process and our relationships was to avoid or minimize exploitative and colonial language in the research steps. Therefore, rather than "extracting" data from the included articles, reminiscent of the extractive relationship of colonial governments to the natural environment, we preferred to refer to the step of highlighting key elements of the studies as "data cultivation" to emphasize the relational nature of the process.

Results

Following the approach delineated above, we arrived at the following set of 37 papers to review in detail, which we describe below.

Study Selection

Initial searches and supplemental article identification yielded 1474 results, totalling 1210 after we removed duplicates. Title and abstract screening excluded 1060 of these, resulting in 150 studies included for Full text review. Full text review excluded 113 papers for a total of 37 included papers.Figure 1 presents a PRISMA Diagram detailing the study selection process.

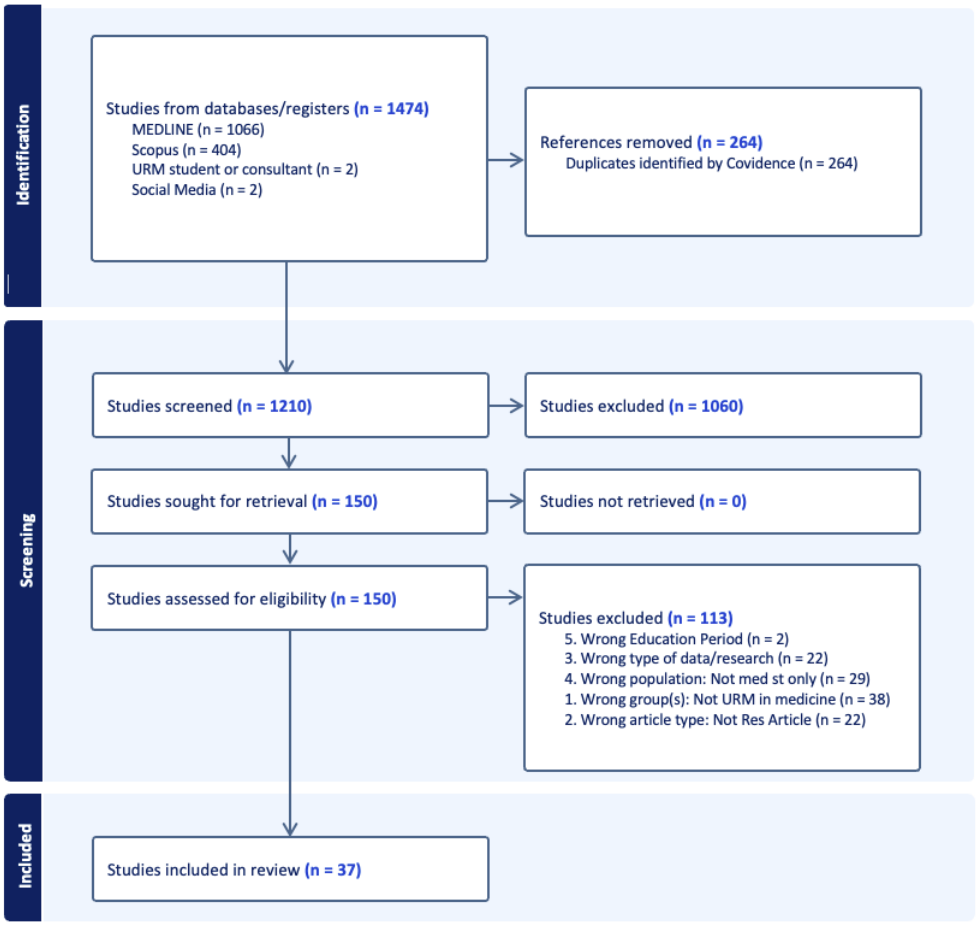

Figure 1: PRISMA Diagram

Study characteristics

We offer a detailed overview of each article in Appendix B, describing key characteristics of the 37 included articles; however, we present an overview here, in text and in Table One.

Twelve of the studies were conducted in the United States, 10 in the United Kingdom, six in Canada, 3 in Australia, 3 in the Netherlands, 2 in Sweden, and one in Brazil. 586 total participants were included in this synthesis from across the 37 included papers.

With respect to UiM groups included in the literature we reviewed, the most common participant group was "racial/ethnic minority students" with 11 papers. Six papers addressed multiple categories of underrepresentation. There were six papers focusing on disabled students, five focusing on Black students as well as five focusing on First in Family (FIF) students. Two papers focused on the experiences of Indigenous students, and two more on the stories of LGBTQ students.

Table One: Summary	
Category	Number
Location	
United States	12
United Kingdom	10
Canada	6
Australia	3
Netherlands	3
Sweden	2
Brazil	1
UiM Group	
Racial/Ethnic Minority	11
Miscellaneous UiM	6
Disabled	6
Black	5
First in Family	5
Indigenous	2
LGBTQ	2
Methodologies	
Qualitative study	22
Grounded theory	5
Phenomenology	5
Mixed methods	2
Action research	1
Critical Discourse Analysis	1
Collaborative Autoethnography	1
Methods	
Interviews	26
Focus Group (FG)	7
Interview & FG	2
Interview & arts-Based (comics)	1
Interviews & written reflections	1

In terms of research methodologies, the majority of included articles (22) were Qualitative (methodology unspecified) studies. Five papers used Grounded theory, while five were Phenomenological studies. Two studies were mixed methods and included enough detailed qualitative data for analysis. One study used an Action Research methodology, one a Critical Discourse Analysis, and one a Collaborative Autoethnography.

In terms of data collection methods, most articles used interviews (26); whereas the remaining articles used focus groups (7) or a combination of interviews and focus groups (2); interviews and arts-based (comics) (1); or interviews and written reflections (1).

Synthesis

This meta-ethnography analyzed first and second-order constructs, producing four overarching themes (i.e., third order constructs):

1. **"Working ten times as hard":** additional labour required of UiM medical students (gap work; emotion work; managing dissonance; advocating; proving stereotypes wrong);
2. **"Let me control my tone":** disciplining UiM bodies for being "different" (tone, "professional" dress, names, dialect, stereotypes, surveillance);
3. **"I stuck out like a sore thumb":** Othering, isolation, (in)visibility and representation; and,
4. **"Sticking together", withdrawing, "playing on prejudices," and serving:** Strategies for surviving medical school.

Table Two: First order constructs related to Theme 1

Theme 1: "Working ten times as hard": additional labour required of UiM medical students			
First order constructs	Description	Relevant articles	
"You will always have to work ten times harder"	*Facing double standards and unfair expectations*	Bassett 2018 Dixon 2021 Isik 2021a Isik 2021b Jean 2023	Kristoffersson 2021 Kristoffersson 2022 Morrison 2019 Sivananthajothy 2023 Volpe 2021
"A huge emotional burden"	*Additional everyday emotional work, including stress, anxiety, unworthiness, fear of failure, impostor syndrome, unattainability of medicine, representing your community*	Bassett 2018 Foreshew 2022 Kristoffersson 2022 Mathers 2009 Morrison 2019	Odom 2007 Sivananthajothy 2023 Southgate 2017 Volpe 2021 Walker 2020
"I'm always watching my back"	*Vigilance in a competitive, hostile environment*	Shaw 2023 Sivananthajothy 2023	Stergiopoulos 2018 Toman 2019
"My results weren't as good as they should have been"	*Struggles with assessment*	Isik 2021a Isik 2021a	Shaw 2022 Tso 2018
"A lot of us do not come from money"	*Financial pressures, lack of resources, reconciling economic disparities with peers and faculty, needing to take jobs, accepting charity, taking time off to earn money, lack of research and leisure time as a result*	Bassett 2019 Bazargan-Hejazi 2022 Brosnan 2016 Dixon 2021 Foreshew 2022	Sivananthajothy 2023 Southgate 2017 vanBuuren 2021 Volpe 2021 Wright 2023
"You don't have a roadmap"	*Lack of social and cultural capital, intergenerational experience with medicine, challenges in accessing opportunities*	Bassett 2019 Brosnan 2016 Dixon 2021 Isik 2021a Mathers 2009	Sivananthajothy 2023 Southgate 2017 vanBuuren 2021 Wright 2023
"I'm able to read what people expect of me and change really easily"	*Sophisticated adaptation of appearance and behaviour to meet normative expectations at school, in clinical spaces, at home; risk of losing who they are*	Bassett 2019 Brosnan 2016 Jean 2023 Kristoffersson 2021 Sivananthajothy 2023	Southgate 2017 Van Buuren 2021 Volpe 2021 Wright 2023
"I've had to educate them on my own diversity"	*Additional work to educate others re discrimination, bias, etc.*	Sivananthajothy 2023	vanBuuren 2021
"I don't know where that information is going to go"	*Managing disclosure and seeking supports, fears about repercussions, lack of representation in support programs*	Bassett 2018 Toman 2019 Tso 2018	Shaw 2023 Shaw 2022 Sivananthajothy 2023
"People can just protect themselves"	*Grappling with a lack of support and accountability re discrimination*	Kristoffersson 2022	Sivananthajothy 2023

Theme One: Working Ten Times as Hard

UiM students described an immense amount of additional work to manage medical school and prove their worthiness to be there. Students spoke of managing gaps between their reality and the reality of the "expected" medical

student: a white, non-disabled, straight, and upper middle class male student free of financial stress, physical barriers, traumatic backgrounds, class mobility negotiations, while bolstered by their family's economic, social, and cultural capital.

Students mentioned a crushing burden required to "get by" in medical school, as they worked to process feelings of unworthiness, stress, and impostor syndrome, and prove misconceptions wrong (e.g., racist stereotypes about intellectual inferiority and athletic prowess), make up for lacking personal and professional resources, managing the distance between themselves and more privileged peers and preceptors; the choice to advocate (or not) when faced with injustice; and, needing to counter stereotypes that assume they are there due to anything but their academic achievements.

For many UiM students, financial constraints created a burden of emotional and paid work that non-UiM peers did not experience. The lack of inherited wealth from their families meant that many UiM medical students bring debt with them into medical school, which is only increased during their medical program.

These material discrepancies in access to financial security added significant stress as students faced enormous uncertainty and stress as to whether they will be able to get by. The need for many UiM students to take on paid work to make up for this gap in financial resources also led to physical exhaustion and time poverty not experienced by peers. Furthermore, they often are forced to give up non- or lower paying research opportunities in favor of more lucrative paid work over their summers.

> I'm going to be one of the first people in my family to graduate from college and go to medical school, so I end up contributing financially to my family, so financial considerations are like a big part of my decision making (Black medical student).[45**]

> . . . what happens is that I do the night shift. . . I come directly to uni to do the lectures and feel tired. . . I fall asleep in the lecture and also then I feel bad, because I fell asleep. . . I kinda get sad and I feel I need to catch up (FiF medical student).[44]

** Please note: participant descriptors in this section are limited by the details provided in original studies. Many quoted participants may also be from multiple UiM groups, but for confidentiality reasons as well as the tendency for studies to focus on one UiM group, we don't have full participant details.

One Black medical student described the immense labour in facing racial stereotypes, despite these students deserving to be in medical school. This work is demanded of Black students before they even speak. In turn, the injustice of this additional work, ironically, created even more emotional burden for UiM students to contend with.

> As a black person, there's so many things that are being said about us on the news that is being portrayed in a negative way. You sit in the same seat as somebody else, and you have to work twice as hard to take those stereotypes away.... Whatever stereotype they have about that skin color is already portrayed on me before I say anything (Black medical student).[43]

This underlying misconception of UiM students not being worthy of being at medical school can also be internalized. Medical students described a substantial mental shift in imagining themselves deserving of such an

opportunity, given the status differential from their families and backgrounds.

> I constantly feel like I don't deserve to be here [...] a lot of the time I feel so different [...] I have that constant feeling that I don't deserve to be here [...] because I don't fit in with what your typical medic does or what their background is [...] (Female, Black African student).[46]

> Yeah well at first I thought I didn't realise I was good enough to get into something like medicine ... No one in my family has ever done anything like that before ... (H)aving the background I have too, being Aboriginal, you don't really feel like you're entitled to something as good as this. (Indigenous female student).[45]

Some UiM students noted that this inner sense of unworthiness dissipated as they progressed through their medical programs. However, others described this feeling as persistent and continuing through their medical school experience.

This feeling of being different and undeserving can be underscored by daily microaggressions that remind underrepresented medical students that they don't belong. Two of many examples included a medical students' name being constantly mispronounced, and being interrogated regarding their country of origin:

> They asked if English was my first language and...after saying yes, it is my first language, they kind of started to disagree with me and [asked], 'are you sure? Are you sure it's your first language?' And this was a staff member...a clinical tutor, so that was quite surprising (Asian British female medical student).[47]

Disparities in resources and opportunities can create the appearance that more privileged medical students are more "accomplished" and "impressive," with their access to expensive international travel and leisure.

> A lot of people in my class, they were very accomplished. A lot of them are very well-travelled, they have been all over the world backpacking. They are very intelligent, very athletic people [...] In a way, I felt like I had to work harder to be equally as impressive as them (First in Family medical student).[42]

However, many UiM students resisted the idea that they were in any way less-than their more resourced peers, pushing back on easy assumptions about their value and worth by framing these false ideas as stereotypes.

> There's a stereotype that I'm not as hard working or not as smart or both. I feel like there's that added burden because I'm spending all of this energy trying to figure out why I'm being treated differently and it's taking away my ability to focus on more important things like the work at hand" (Black medical student).[48]

Many UiM students articulated the burden they encounter by entering a hostile environment that was not designed with their strengths or needs in mind. This additional work in encountering and negotiating stereotypes compounds the already immense workload of medical school, while not having a strong financial, social, and cultural asset to draw from. Instead, many UiM students have to start from the ground up, creating their own foundation to make up for the often-glaring disparities with peers. These more privileged students "create a path" laid out by their wealthy, often physician, parents, whereas many UiM students have to forge a path themselves, intensive and exhausting work that demands extensive physical and emotional labour.

> Literally every step of the way, like I do not have, you know, my – my dad, whose name is Tom, who has, you know, been a doctor for generations, I cannot just go like shadow at my mom's office. I had to literally not only like follow a path, but literally create a path and hope that it was like going in the right direction (Black medical student).[52]

> I just think that there shouldn't be spaces in which we cannot inhabit naturally as our selves while being appropriate. We've earned that. We've earned that right to this point. If you're in the room being interviewed for a medical school, you've earned the right, in my opinion, to appropriately display your personality. And that is something that I like, I may seem like I have, but I am working on it consistently. I think that's a consistent practice for blacks and blacks/minority medical students (Black medical student).[53]

Despite, or perhaps because, of this enormous effort demanded of UiM students to be considered "normal" future doctors, some participants insisted on the importance of their ability to be authentic in medical spaces. This right to authenticity, they noted, is not a given in medical school; even when students know they deserve to show up as their full selves, doing so involves working against the survival strategies that require UiM to take on in order to "pass" and "belong" in spaces made for white, non-disabled, straight, cis, and upper-class future physicians.

In addition to this work required to be perceived by others, and themselves, as a "suitable" future doctor, UiM students described facing misconceptions regarding their merit as medical students. Several participants described hearing stereotypical ideas from peers that suggested that they were in medical school only due to EDIA quotas rather than their academic accomplishments and inherent value.

> We were discussing like how you get into Med school and [the student began] rolling their eyes and saying 'yeah, but all these quotas are letting you know people who shouldn't be here, just because of positive, uh, discrimination' (Asian British female medical student).[51]

In response to entering difference social spaces, participants spoke of developing sophisticated social strategies to perceive others' expectations, anticipate misjudgement from peers, faculty/staff, and even family and friends, and prove them wrong. For example,

students described interacting with friends and family after entering medical school, and feeling the impact of cultural and class differences:

> I would be here [at Penn] and then I would go home which is totally different than [Penn]. It's like you have to always switch between environments all the time ... It was always this big jump back and forth. I remember I went to [my home city] on some interview and stayed with my uncle and he was like "why you talking so formal? (Black medical student)[45]

Over time, many UiM students described the necessity, and a skillful ability, to read an environment shape themselves into a given situation.

> I'm pretty flexible and adaptable to circumstances. And even when it doesn't always feel comfortable, ... I'm like able to do it. I know I feel like I'm able to read what people expect of me and... change to that really easily. um So I feel like that's kind of like part of just like being a woman in society or being like any minority in society... (Female ethnic minority student).[53]

Participants spoke of other additional work demanded of them, including the burden of educating those around them regarding their strengths, challenges, and experiences. This included being singled out in classroom settings when discussing their specific underserved communit(ies) and navigating whether (and how) to disclose their accommodation needs and seek formal learning supports.

Medical student participants also described emotional and strategic work relating to assessment during medical school. This work ranged from grappling with the sometimes-difficult question of whether to ask for accommodations or report bias. For example, underrepresented students described barriers relating to assessment specifically. For one student, short answer exam items were problematic amid the transition to virtual assessment due to COVID-19:

> The [multiple choice exams] worked quite well, but the short answer questions were awful 'cos the textbox was tiny. You could only see 3 or 4 words and you obviously have to write a few sentences (Disabled medical student).[54]

For another disabled student, accessing inclusive skills examinations was challenging. Barriers included miscommunication about student accommodations and lack of awareness of how these examinations might look different for disabled learners, for example, involving an electronic stethoscope:

> [Feedback on a cardiology clinical examination station] they said that I hadn't used the bell [of a stethoscope] to check for mitral stenosis, but I did! It's just when you press a button [on an electronic stethoscope it changes to the bell function]...I thought I told [name of staff] and disability team and that was enough. I didn't know I had to tell an extra person [examination officer]...I do not know everyone who I am supposed to tell unless people tell me?' (Disabled medical student).[55]

Racialized students spoke of medical schools "dropping the ball" on assessment, including supporting Black learners with board exams:

> They have dropped the ball with me and everybody else who has been in my same position because there are a lot of us. And they – most of us look like me, who have been through this of like failing classes and like struggling through, you know, board exams. I just – if you saw that there was a problem I feel like you should have intervened sooner and offered me something else from what everybody else is doing, because obviously what everybody else is doing is not working, so that would have helped a lot (Black medical student).[52]

Finally, underrepresented medical students spoke of grappling with a lack of institutional and faculty support and accountability regarding experiences of discrimination. One UiM student described white fragility, and deflection of racist acts, by those around them in the medical school setting:

> People can just protect themselves. Because it is nothing concrete. They can defend themselves by saying: "No, I said nothing wrong. How can you accuse me of being a racist?" True! I can't do that, because they haven't explicitly signed a paper where they say: "Hereby I certify that I have racist prejudices and oppress people because of it" (Male UiM student). [34]

Even when racist acts are reported, some participants described a lack of action on the part of their medical school: "The individuals who [perpetrated the racist act] didn't get any disciplinary action at all. They were just fine,"[56] thereby sending the message that such acts are acceptable, and that some students are protected more than others.

Table Three: First order constructs related to Theme 2

Theme 2: "Let me control my tone": disciplining UiM student bodies for being "different"			
First order constructs	Description	Relevant articles	
"They don't acknowledge it as real"	*Minimizing/questioning disability/diagnosis and its impacts, gaslighting from others*	Stergiopoulos 2018 Shaw 2023	deOliveira 2022
"We don't want to be intimidating"	*Managing physical appearance and behavior to counter stereotypes, fit in*	Jean 2023 Morrison 2019	Sivananthajothy 2023
"The people in the room didn't even know"	*Adaptations being done behind the scenes, others unaware, invisible toll*	deOliveira 2022	
"Maybe if I get a higher chair"	*Medical school classes (e.g., class length, classroom size/layout, audio, locations, teaching formats) are made for certain bodies*	deOliveira 2022	Shaw 2022
"The normal glove does not fit/The caps did not fit over my hair"	*Clinical tools are made for certain (non-disabled, white, non-religious) bodies*	deOliveira 2022	Jean 2023
"You do not go skiing and you pray five times a day"	*Embodied expectations of what a physician does in personal life, implications for "fit"*	Isik 2021b	
"Almost exclusively white men think I'm bad at communicating"	*Biased assessment re communication styles, religious dress, appearance*	Isik 2021a Isik 2021b	Jean 2023
"Everyone was posh in how they spoke"	*Class privilege as embodied in speech, underrepresented accents and dialects mocked*	Bassett 2018 Foreshew 2022 Jean 2023	Sivananthajothy 2023 Southgate 2017
"They segregated us… they always do that"	*Binary-gendered spaces, Using binary gender to group students (social and curricular, informally and formally)*	Butler 2019	
"I might have to be a more refined version of myself"	*Adapting appearance, speech and behavior to white, higher class contexts in medical school, and/or with family and friends at home*	Brosnan 2016 Sivananthajothy 2023	Volpe 2021
"Plain blue dress shirt," "Patagonia sweater, Blundstone boots, it's like being part of the group" "Can I wear a hijab?"	*"Professional" clothing representing the expected, ideal doctor*	Sivananthajothy 2023 vanBuuren 2021	Volpe 2021
"I don't think I would feel like that if I was a blonde"	*Racial visibility*	Kristoffersson 2022 Odom 2007 vanBuuren 2021	

Theme Two: Let me Control My Tone

Students narrated every day microaggressions that pointed out their embodied difference, from tone policing of Black students, to jokes about accents and vocabulary, students' names and clothing type and expense, and access to higher-class leisure activities like skiing and golfing. They described additional tracking of their lives,

from having to "prove" their disability for accommodation to being watched more closely by campus security. They spoke about their bodies being unexpected in medical school spaces, and conversely, very specific bodies being expected and normalized.

Racialized students described the embodied work of countering stereotypes in medical school, including controlling voice intonation, volume, accents, and inflections, as well as body movements like the tilt of their head.

> Every [Black medical student] deals with the same thing.... Let me control my tone. Let me make sure I don't have too many inflections.... I may not move my head too much as I talk. I don't want people to assume that I'm this type of person when I'm not (Black medical student).[47]

One way UiM students' bodies were deemed different or unexpected was the use of gendered changing rooms, thereby excluding non-binary and gender nonconforming students. One such student noted that they commonly faced challenges such as binary-gendered changerooms during medical school. This students' account articulates that certain embodied differences were also deemed more legitimate or conceivable than others—biomedically provable medical conditions like allergies, for example, rather than complex, perhaps invisible, barriers and identities not experienced by the expected medical student.

Normative medical student bodies were also anticipated and enforced through the parameters of medical equipment and tools, and during assessment processes. For example, disabled medical students described chairs that were too low for them to view a surgical field, while a Muslim medical student described a preceptor criticizing her wearing a headscarf in the clinical setting, which then dominated her assessment.

Medical student clothing also anticipated certain bodies over others. For example, a disabled student was forced to find and buy her own surgical gloves, due to the "standard" not fitting her hand.

> When we started to practice dissection [...] there was the issue of the glove, because my right hand is smaller and it has 2 fingers, so the normal glove does not fit well. [...] my mother and I found a factory that produced custom gloves for us (Disabled medical student).[58]

Meanwhile, Black medical students shared stories of medical gear made for white people's hair, thereby drawing attention to normative expectations of physician bodies:

> "I don't know if you've seen the surgical caps, but like, they're designed for really like thin compressible hair, like they're not designed for higher volume hair that black people tend to have or [...]I could get a different hairstyle or I could but cut all my hair off. [...] (Black medical student).[53]

Table Four: First order constructs for Theme 3

Theme 3: "I stuck out like a sore thumb": Othering, isolation, and (in)visibility and representation			
First order constructs	Description	Relevant articles	
"Where are you *really* from?"	*Microaggressions: getting name wrong, asking where they are from or their first language, trans and homophobic pranks, getting underrepresented students confused, racial and/or cultural stereotypes, disparaging remarks*	Butler 2019 Cedeno 2023 deOliveira 2022 Foreshew 2022 Jean 2023 Kristoffersson 2021	Kristoffersson 2022 Leyerzapf 2017 Morrison 2019 Morrison 2023 Sivananthajothy 2023 Toman 2019
"They never talk about what Black people have gone through"	*Invisibility/bias in the curriculum, silence re social aspects of society including clinical environments, uncritically reproducing stereotypes, assumption that students are not from these communities, lip service to EDIA*	Bazargan-Hejazi 2022 Cedeno 2023 Foreshew 2022	Kristoffersson 2021 Leyerzapf 2017 Southgate 2017 Van Buuren 2021
"I stood out like a sore thumb"	*Exposure, scrutiny, and conspicuousness*	Cedeno 2023 Walker 2020	Sivananthajothy 2023 Volpe 2021
"It was so important for me to see that"	*Importance of representation in medical leadership, mentorship*	Cedeno 2023 Dixon 2021 Isik 2021a Isik 2021b	Jean 2023 Morrison 2019 Odom 2007 Sivananthajothy 2023
"It was as if I wasn't there"	*Invisibility in medical education settings*	Kristoffersson 2021	Toman 2019
"Look, she's a doctor, she looks like you"	*Visibly representing underrepresented communities*	Dixon 2021	Odom 2007
"I didn't go"	*Othering and exclusion in informal social gatherings (e.g., due to alcohol, gender binary "events, etc), people being less friendly*	Butler 2019 Isik 2021a Morrison 2019	Sivananthajothy 2023 vanBuuren 2021
"You can clearly see my race and gender… but [sexuality] is the one I can hide"	*Navigating visible and invisible underrepresented identities, class and cultural identities invisible until revealed through language*	Butler 2019 Foreshew 2022	Toman 2019 Volpe 2021
"I understand independent learning, but I would have really benefitted from some guidance"	*Feeling isolated and alone, lacking supports, widened access but little supports once students are accepted*	Brosnan 2016 Foreshew 2022	Kristoffersson 2022

Theme Three: Sticking Out

UiM students spoke of visibility and invisibility, powerful dynamics that shaped their experiences of medical school and their sense of belonging. This theme related to many facets of in(visibility), from the burden of choosing (or not having the choice) to disclose their UiM identities, being conspicuous and experiencing surveillance and scrutiny, being seen and not seen by peers, faculty, staff, patients, to seeing and *not* seeing UiM leaders in medicine and medical education, and being in(visible) within the curriculum itself.

Racialised students spoke of being placed under a "spotlight" or a "magnifying glass" due to their visible differences in various medical school settings, from the classroom to the clinic. This visual exposure meant a higher degree of scrutiny and surveillance in clinical settings, intensified in settings with

the highest prevalence of white students and health professionals.

> So it's almost like there's a spotlight on you, the things you do people can remember more because there's only four of us. So, yeah you stick out like a sore thumb (Black medical student).[45]

Similarly, a medical student who is both Black and First in Family commented on the challenge of entering professional spaces where "the people at the top" don't look like you:

> I'll often be the only Black person in my classes. [...] You're under the magnifying glass now. You're part of the Black Medical Student Association, you study with people who try to understand your experience of being Black. You go in the hospital and there's no one that looks like you ... most students don't look like you, doctors don't look like you. Nurses look like you, cleaners look like you, but the people who are at the top typically don't look like you (Black First in family medical student).[46]

Because only "cleaners and nurses" look like them, racialized medical students reported being often mistaken for one of these workers while in clinical spaces—because "you have to be a certain person to be a physician."

> Patients say: "Are you an assistant nurse?" ... Then you have to explain. Yeah, people might think: "He doesn't look like a medical student", or it's like: "Is it you who will help me with transport to the X-ray?" I just: "No ..." Then their like: "Well, who are you then?" This has happened often, yes on all my clinical placements. There is nothing wrong with being an assistant nurse, but you still have to explain. They think that you have to be a certain person to be a physician. Like you don't meet their requirements (Racial/ethnic minority medical student).[60]

Not surprisingly, these additional barriers for UiM students often resulted in othering and isolation, as they are set apart from more privileged medical student peers. These included daily reminders of their difference from student peers and faculty, as well as the curriculum itself, which often contains problematic stereotypes about poverty, racism, and other forms of injustice.

The (in)visibility of UiM student identities shaped this experience, as student choices varied according to their ability to control how and when they disclosed their identities and experiences (e.g., LGBTQ+ students), whether they were tasked with "proving" their UiM identities exist (e.g., disabled students), or whether "masking" and passing were ever an option (e.g., with (in)visibly racialized students).

UiM students experience medical school through intersecting layers of identity that can bring complex combinations of oppression and privilege. A Black LGBTQ+ woman medical student noted that the visible racial and gender identities she inhabited shaped her decisions to disclose (or not disclose) her sexuality:

You can clearly see my race and gender, those are the obvious ones, but this one is the one [sexuality] I can hide if I need to. Why would I want to put myself in a situation where I get penalized twice for my race and my sexuality? (Black, female, LGBTQ+ medical student).[61]

One LGBTQ+ student, for example, describes the difficult process of considering coming out to preceptors, while describing the advice given to him from his physician father, showing the interwoven elements of UiM status and class privilege. The student commented that his father, a physician warned him, 'Don't let the doctors know about your sexuality because they might know someone who knows someone. They might be the residency director that you want to get into in five years. So I was very nervous about coming out to higher up professionals (LGBTQ+ medical student).[61]

Individual medical students often inhabit multiple underrepresented identities at once, which shape the nature and extent of their exposure in medical school settings. While invisibility can bring opportunities for choosing disclosure, invisible identities can also mean that student barriers and struggles can exist under the surface, and therefor may be overlooked, minimized, or denied by those around them. For example, one disabled student described her disability being minimized and denied:

I have heard several times [expressions] that hurt to hear: you don't have any trouble, you can walk, you can breathe, you can see. [...] when someone looks at your disability and says, 'This is nothing' [...] they reduce it to zero importance, and you know that it [...] matters (Disabled medical student).[58]

Other disabled medical students spoke of their desire to disclose their disabilities to reduce misconceptions about the reasons for their struggles. As this student noted, "I wanted people to know that there was a reason why I ... couldn't do what I was supposed to be doing, as opposed to running the risk of people thinking that I'm lazy."[62]

Gender identities were another aspect of UiM medical student identity that often manifested under the surface of awareness. One way this unfolded in medical school was the division of social and learning activities based on binary gender. For non-binary medical students, this created distress, isolation, and othering.

It's always like, if the guys are doing something, they don't invite me, and if the girls are doing something, they don't invite me either...Sometimes I'm completely left out from something because the girls assume that I was invited by the guys and the guys assume that I was invited by the girls (Non-binary medical student).[57]

Students who don't drink alcohol described a similar exclusion from informal social settings during medical school.

Underrepresented medical students described engaging in intensive and sophisticated identity work when moving between worlds—engaging with people in the spaces between "where they come from" (their families and longstanding friends) and "where they are going" (medical student peers, faculty, staff, patients). In both spaces, students need to "strike a balance" between both worlds, through regulating their accent and taking on a more "chatting" conversational style:

There were times where I was perceived [friends from home] as a little bit of a snob because I'd gone off to university. . . But now I have managed to get the balance between coming to university, working hard here [medical school], being surrounded by everyone [other medical students] here, and then when I get home my accent changes and my personality doesn't. . .when I go home, I tone it [accent] right down and I just get into their [friends from home] level of chatting. . . for that, I think they respect me a lot more, because they don't think of she went to university and she became this person. . . I've got the balance right, which was hard to start with. . ." (Female First in Family medical student).[44]

Finally, underrepresented medical students described experiencing stereotypical or one-dimensional depictions of their communities in medical curricula, often in ways that drew on deficit approaches and obscuring (making invisible) the membership and/or personal connections that students may have to these groups.

So it struck me that if you have a case of a Moroccan or a Turk, she was always unwantedly pregnant. You also have other patients with other symptoms. I was like: "Oh no, not again!" We also sometimes have the flu or something like that (Female minority student).[63]

The experience of "sticking out" was shaped not only by the presence or absence of UiM peers. (In)visibility of teachers, preceptors, administrators, and other leaders in medicine from UiM students' communities was identified as crucial across studies and UiM groups. Students drew a direct line between experiences of scrutiny, exposure/othering and representation of medical leaders who look and/or experience the world like them.

It was so important for me to see that… to actually witness empowerment in action, especially from a woman of color. A lot of the faculty members at UW School of Medicine, are White. So for someone who is, you know, a woman of color, it was so great to see this person own her presence at a community health center (Female racial minority student).[64]

Several underrepresented medical students emphasized the direct relationship between representation in clinical settings, at all levels, and their ability to "see themselves" as doctors.

You have no example. You have neither someone who can mentor you, nor an example to work towards. Because even if you are doing an internship in your first year and in hospitals where you only see White doctors and then you think: "Ok, but will I ever get there?" (Male ethnic minority medical student).[65]

At the medical school [...] there's not enough people in the echelons of the faculty staff who [...] I can relate to, so I don't think there's anyone necessarily that I would go for support (Female, Asian Bangladeshi medical student).[50]

Similarly, students expressed a desire to "see themselves" in the curriculum. UiM students described having to witness uncritical, stereotypical, and distressing

depictions of UiM communities in biomedical curricula, without considering or acknowledging social and historical factors, nor the lived experiences of UiM communities of these diseases. Some of these students suggested that instead, curriculum could talk about social factors, and, for example, "what Black people have lived through."

> We talk about Black people are disproportionately this, or Latinos are disproportionately that, or Asians are disproportionately that. They never talk about what Black people have gone through and what those communities of Black people … there's just so much other things that are affecting these diseases, and we give so much weight and so much clout to the biology, but there's so much research that's coming out that's showing that the social context affects the biology (Racial minority medical student).[66]

When the curriculum lacks these elements of social determinants of health and how these determinants are lived by real people, the implicit message to UiM students is that these issues don't matter and, further, that these students don't belong in medicine. In fact, some underrepresented medical students described their classes being addressed as if "those kinds of people" would never be at medical school in the first place:

> We had a few lectures on public health and social determinants of health … and they were giving us examples. First there was a girl, and she was perfect, grew up in a perfect family and was rich and had wonderful opportunities and was loved and went to high school and now she's us. And I'm like "Okay". Then the other one was this little boy who was growing up and his mother was a heroin addict and … he ended up in jail. And (the lecturer) was like, "See, so you're all privileged and you don't know these kinds of people", and I'm like, "Hmm, I was that little boy, but okay." Then it sparked quite a lot of conversation in the tut(orial) and everyone was … like, "We're never going to meet these people." I didn't say anything. I bit my tongue (Female First in Family medical student).[49]

In this situation, as in others, underrepresented students, and the patients in their communities, are dehumanized and deemed unthinkable.

Table Five: First order constructs for Theme 4

Theme 4: "Sticking together", withdrawing, "playing on prejudices," and serving: Strategies for surviving medical school.			
First order constructs	Description	Relevant articles	
"Because we're all minorities, we stick together"	*Safety in numbers, but more challenging for students with multiple underrepresented identities*	Butler 2019 Brosnan 2016 Isik 2021a Leyerkapf 2017	Morrison 2019 vanBuuren 2021 Volpe 2021
"I should be working all the time"	*Overwork as a strategy for coping with barriers, unintended consequence is social isolation*	Bassett 2018 Kristoffersson 2022 Volpe 2021	Walker 2020 Wright 2023
"I always had friends that helped me"	*Peer advocacy and support* *Struggling with patients, partnering with more confident students*	Bassett 2018 deOliveira 2022 Morrison 2019	Shaw 2022 Walker 2020
"Little victories"/"My resilience allows me to get back up each time"	*Pride in strengths, Celebrating, feeling pride for where they come from, or accomplishments that other students may take for granted*	Brosnan 2016 Dixon 2021 Jean 2023 Odom 2007	Volpe 2021 Walker 2020 Wright 2023
"Make yourself more agreeable"	*People pleasing, making people happy, avoid disappointing others*	Isik 2021a Kristoffersson 2021 Leyerkapf 2017	Morrison 2019Walker 2020
Finding meaning: "I know how easily that can happen," "We lend our voices to the community"	*Finding meaning in lived experiences, empathy and connecting with patients, service emphasis in their clinical roles, being role models*	Bassett 2018 Bassett 2019 Bazargan-Hejazi 2022 Brosnan 2016 Chichekian 2022 Dixon 2021	Isik 2021b Odom 2007 Southgate 2017 Stergiopoulos 2018 Volpe 2021 Wright 2023
"I close myself off"	*Self-isolation and detaching as a coping mechanism*	Bassett 2018 Kristoffersson 2022	Sivananthajothy 2023

Theme Four: Sticking Together

Students described various strategies to manage and/or resist these barriers, including "sticking together" with other isolated students and seeking validation from friends and family; withdrawing and protecting themselves from the pain of othering, but missing out on academic opportunities; and, perhaps most prevalent, pride in where they come from while focusing on the service aspect of medicine, particularly while caring for patients in underserved communities. While many strategies involved unintended outcomes, challenges and drawbacks in themselves, e.g., social segregation from their wider class or fewer networking opportunities, students framed these choices as protective and in terms of making the most of the resources they had.

> My friendship group mostly consists of people of colour. I don't know if it's something I generally gravitate towards. They are also people who look or dress similarly to me (Female, Pakistani medical student).[50]

Across underrepresented communities, students spoke of *sticking together* with underrepresented peers as a way of finding solace, mutual understanding, and safety in numbers. However, this strategy was not equally available to all UiM students. Black LGBTQ+ medical students, for example, spoke of additional complexities in navigating peer relationships in medical school. One Black trans medical student described facing the impossible tension of this type of strategy when they belonged to multiple UiM groups, facing with having to choose which aspect of their identity could be affirmed:

> I really targeted friendships with people that I thought were queer… But the thing is that all of those people were white, so—in one way, yes, I felt comfortable being trans, but then I was always kind of hyperaware that when we would be doing social things, I would be the only person of color… I felt like I fit in in one way but not in another. And then I would make friends with people of color, but I was always like, well, if these people knew that I was trans, would they still treat me the same way? (Black trans medical student).[57]

Students also described *overworking* as a strategy to combat prejudice and cope with the significant burdens of being underrepresented in medicine, on top of the already demanding workload of being a medical student. This often involved taking on extra academic work to prove to themselves and/or others that they deserve to be in medical school. Like many strategies they were required to take on, there were unintended consequences to this approach. For example, this additional work meant that students were further socially isolated and were even less able to access much-needed supports.

> I felt I should be working all the time. So, people stopped asking if I would like to join them in social activities. Thus, by the end of my second year I was an invisible entity within my cohort– blending into the background. I ended up back in my cycle of overworking. Medicine is a long, intensive, and demanding course. Therefore, if you are unable to establish supportive social networks you may struggle with the constant competition and emotional stresses of life in class and on the hospital wards. This becomes increasingly intense in the later years of study (based primarily in the hospital, learning "on the job") and you need to find and maintain revision groups. During the first two years I had given up on making friends (Disabled medical student).[67]

Peer advocacy and support were also mentioned by many students across included studies. Though students did share examples of micro (and macro) aggressions from peers, many students found their peers as supportive and willing to help them access academic and social success. At times, what students described as institutional support, was in fact more grassroots support from classmates.

> The university environment is very welcoming […]. I always had friends that helped me (Disabled medical student).[58]

Peer learning and support were common strategies that students from multiple underrepresented communities used to compensate for the barriers they faced, including students who didn't find they needed this strategy until they entered the

uniquely demanding medical school curriculum.

> I've never been someone to really heavily depend on friends when it comes to like exams or whatever, but I've realised since starting med school if I didn't have friends with me, I probably would not be in this position (Female, racial minority medical student).[50]

Underrepresented medical students also described the approach of *celebrating victories and resilience*—feeling proud of where they come from, the barriers they surpass, and the resulting strengths they offer as future doctors. Through this strategy, underrepresented medical students resisted using a deficit lens for themselves and their communities, and instead centered the strengths and insights that their identities, backgrounds, and experiences have brought them. This included gratitude for their families and friends, and holding onto their work ethic, service commitments, and "who they really are."

> It would probably be work ethic. I think that the stereotypical Jamaican mindset is to have as many jobs as possible.... So, the work ethic, always doing something even if you didn't have the education or weren't in school, but working, trying to better yourself, I think that's the kind of cultural background that I come from (Black medical student).[68]

Medical students in our included studies also spoke of not taking for granted activities and accomplishments that they may find harder than non-UiM peers.

> On the flipside, there have always been the "little victories" in my life that keep me going. They can be anything at all, such as taking blood, being useful or just making a decision They are the small things that most people can do and take for granted. But when I manage them, I get an immense feeling of pride... (Disabled medical student).[67]

Students, largely racialized and disabled women students, also described the strategy of *people pleasing* and "making themselves agreeable" to those around them. This often meant anticipating peoples' wants, carefully presenting a happy face, and not showing their reactions to microaggressions and other hostility they may face in medical education contexts.

> You feel like they're going to base all of their opinions on you, so sometimes you have to sort of water down some of the opinions you have or [...] you have to kind of force yourself to make yourself more agreeable to people just because you're aware that [...] they are basing their opinion of Muslim people on me [...] (Female, Bangladeshi medical student).[50]

> Yes, just answer and smile, stupidly smile. You do not even enter into the discussion. Yes, sometimes you dwell on it and sometimes you don't. That's how my friends deal with it. Also, I know several people, [ethnicity] people who have failed an exam. Yes, how do they deal with it? As I said, just keep going on (Female ethnic minority student).[65]

Underrepresented medical students also spoke of professionally *finding meaning* from their personal identities and experiences, which for many means having a strong orientation to service in their professional role. This was often related to the ways their identities and experiences offer unique skills, insights, and empathy to their clinical work, particularly with patients from underserved communities.

> Some patients, who come from very disadvantaged backgrounds, they resonate with my story, so I tend to be a little more attuned to their strife and their background, and have a deeper sense of understanding of what they're going through and where they're coming from. I think that makes me a better physician (First in Family medical student).[46]

Finally, some students described *detaching and isolating themselves* as a strategy to avoid further harm in spaces not always made for them. They described this approach as "minding their own business," "keeping quiet," while they avoided risk by detaching. This meant distancing themselves from seeking validation and accommodation in medical school settings, and thereby preventing (further) harm.

> They just mind their own business. They don't want to end up in a situation where they also risk losing something (Ethnic/racial minority medical student).[60]

> Yeah you know, then they start laughing. It disappoints me, even with Ramadan [the Muslim fasting month]. They do not know that I am a Muslim and they show their disapproval. People do not always see that I am a Muslim and then I hear these things: "How can people not eat for so long!" I don't say that I'm Muslim then. I just keep quiet. I also think that they [majority students] do not know much about it (Female Muslim medical student).[63]

Discussion

Meta-ethnography allowed us to synthesize conceptual data from existing qualitative studies to generate new insights and/or theories. Rather than summarizing existing research, we engaged with primary concepts from existing research to generate new interpretations. This enabled us to maintain the conceptual integrity of past qualitative analyses of UiM students' experiences, while elaborating on these analyses. While our focus was on UiM learners as a disparate group, we were deliberate in our attempts to

acknowledge intersectional identities[69] with a significant element of our reflexivity and analytical work being focused on better representing the experiences and needs for multiply disadvantaged learners. Our work therefore went beyond examining one layer of learner identity at a time, e.g., racism, ableism, patriarchy, colonialism, and acknowledged the complex and interconnected dimensions of UiM medical student experiences [69,70] and aimed to honour UiM learners' complex identities and experiences.[34]

Qualitative research explains the "why" and "what" behind the "how many" of quantitative studies.[30] For EDIA policies and practices to adequately address the barriers experienced by UiM medical students, a deeper understanding of how these learners experience undergraduate medical education on a day-to-day basis is necessary.

UiM students articulated a vast amount of work required to survive medical school, thereby informing all four of our interconnected third order themes. Theme 1 elaborated on the types of additional work required of UiM students. Theme 2 described the ways that UiM bodies were deemed unexpected and unthinkable in medical school environments. Theme 3 explored the ways (in)visibility shaped UiM experiences of medical school, including related work and survival strategies. Theme 4 laid out strategies that UiM students reported using to cope and survive in this environment that wasn't made for them, all of which had benefits and drawbacks.

An idealized physician identity

The stories in the literature we analyzed reinscribed an *idealized physician identity*. Depending on their various intersectional social characteristics, attempting to meet this ideal was difficult, emotional, and exhausting for UiM students. Three overarching barriers complicated the stories in the literature: 1. The Disembodied doctor; and, 2. Impossible professionalism, which in turn create additional labour for underrepresented medical students in the form of: 3. Hidden work: compensation, masking, and passing.

First, let us address the issue of the idealized physician identity. It seemed to be a universally held truth, across the studies we reviewed, that physicians are competent professionals who engage in care that is informed, above all else, by science. While individual participants in the studies we reviewed may have questioned this identity, the concept of the ideal physician as a manifestation of competence, science, and professionalism was largely unquestioned—even if participants couldn't see themselves living up to the ideal.

The disembodied doctor

The first, the "Disembodied Doctor" is based on feminist theories of the "disembodied worker."[71] Joan Acker's classic work sets the foundation for this challenge. The concept of the "disembodied worker" is a critical framework within feminist theory that illuminates how traditional workplace structures often assume an ideal worker who is disconnected from the complexities of their embodied existence. The ideal worker is therefore typically envisioned as a person free from bodily constraints, such as illness, emotion, or family responsibilities. Acker's seminal work encouraged institutions and workplaces to reflect on how these assumptions can reinforce and perpetuate gender inequalities, in particular, but also other inequities, to move through various workplaces, putting a disproportionate burden on individuals whose embodied experiences do not conform to this ideal.

And so, the stories we identified from the literature often revolved around learners who were negotiating the complexities of their

body: which involved mental, physical, social and emotional work. The further from this disembodied doctor a learner was, the greater the work required to fill the gap. Learners were navigating the expectation of imperviousness to the fatigue and emotion brought about through persistent microaggressions, in addition to the normal exhaustion associated with the heavy workload of medical school.

Impossible professionalism

The idea of "Impossible Professionalism" required learners to constantly measure themselves against this idealized physician identity, in which an assumed professional stance of "neutrality" is privileged above all. This interfered with a learners' sense of self, keeping them from 'being who they are'. Instead, professionalism was *weaponized* to protect the identity of physicians as homogenous, privileged and emotionally neutral professionals.

Medical professionalism was historically shaped around the white, straight, cis male and non-disabled physician who dominated the occupation for centuries.[72] Students and physicians who do not fit this narrow mold of what is "normal" or "neutral" often have to silence or deny their stigmatized identities. Professionalism norms can silence students and physicians from underrepresented groups, who feel pressured not to report harmful experiences such as microaggressions, thereby creating ongoing work, stress, and dissonance that compound other multi-level barriers and can create permanent harm. Medical professionalism can be "a restrictive, assimilative force," particularly for underrepresented students and physicians.[72]

Hidden work: compensation, masking, and passing

On a deeper level, these students consistently experienced dissonance in their medical school experiences. This included tension between multiple elements of medical student and physician identity, such as gaps between the students' backgrounds and lived experiences and the *expected* biographies of medical students and the cultural, social, and economic capital they were expected to bring. Reconciling this gap between who they are and who they are expected to be, mourning the barriers and struggles they faced before and throughout medical school, the immense ground to be covered to make up for their lack of inherited cultural, social, and economic resources—the result is labour upon labour.

To become a doctor, medical students must perform medicine in a way that aligns with normative ideas of how doctors look, sound, think, and act. This process of identity formation is shaped by several factors, including how important the physician identity is to the student (the *centrality* of this new identity); the extent to which the student derives positive self-identity from the emerging identity (*private regard*); and students' perceptions of how others' consider their new identity (*public regard*).[73] First in Family (FiF) students, for example, may perceive more of a gap or even incompatibility between their backgrounds and their new environment,[74,75] as well as the professional identity of a physician. This incongruity between who they are and who they are supposed to become can create overwhelming pressure for FiF students to prove their suitability and competence, while being more hesitant to seek help.[76,77]

Sociologists concerned with stigma and disability[78] have developed theories about how "normal" is attributed to bodies that look and act according to expectations, and conversely, how stigma is attributed to

disabled bodies. More recently, the concept of "hidden labour" performed by disabled people has been articulated, as they are tasked with managing the presentation of their impairment(s) to those around them, as well as their own and others' emotional reactions to this impairment. While such work can be goal oriented and pragmatic, this hidden labour has been criticized due to the toll it can take on a disabled person, and the way the invisibility of this work is central to its effectiveness.[79]

Disability studies scholars have explored the related concepts of "compensation," "masking," and "camouflaging", all of which are part of a "cognitively taxing"[80] process often involving suppressing autistic characteristics and support needs to the detriment of autistics' mental health. Compensation entails "using intellectual and executive functions to regulate social behavior," in this case, in order to be intelligible as a medical student—in other words, to fulfil the expected student form that medical school is and has been made for. As we saw in Theme 2, compensation can also be intensely physical work, as UiM students regulate their accents, vocabulary, intonations, and body language in order to overcome anticipated or occurring discrimination. It can also entail emotional work, as compensation can be stressful and exhausting, and lead to anxiety, depression, and even suicidal ideation. However, if compensation is successful, then both the effort involved, and the needs of UiM students, is rendered invisible, as is the mental and emotional harm that compensation can do. In this way, the immense work UiM students perform can lead to burnout and worse, while at the same time, locating the issue in the individual and obscuring the systemic injustices that make this work necessary in the first place.

Goffman developed sociological compensation theories relating to how individuals represent themselves to align with normative expectations, thereby avoiding stigma (i.e., tarnished social identity).[78] "Passing" refers to the lengths a person will go to fulfil the requirements of normalcy, often involving hiding atypical aspects of a person's body, background, or identity toward protecting against stigma and/or increasing social standing. Literature in critical race studies,[181] disability studies,[82] sociological class theories,[83] and queer studies[82] have elaborated on the additional effort required for those inhabiting "spoiled identities"[78] in academic and professional spaces more broadly. Theories relating to identity management and "passing,"[78] help articulate the burden placed on racialized learners and professionals in medical school and beyond.

However, compensation work is complex and nuanced, as Goffman's concept of "passing" illustrates. While conforming one's appearance and actions to normative expectations may not change those narrow expectations, passing and other compensatory strategies can be seen as resistance as they enable UiM students' participation in spaces that otherwise they would be excluded from. Their choices are constrained within dominant ideas of what medical students and physicians look and act like, but at the same time, their presence in these spaces can be considered important acts of resistance and defiance in themselves. Furthermore, UiM identities themselves are complex, fluid, and ever changing. As Moriel points out, all people hold multiple identities, but "people are not always everything that they are all at once."[84] These multiple identifications are associated with what Moriel calls "variable visibilities," the visual aspects of our identifications as "we are not only who we are but we are also who we look like."[84,p.171] Visual elements are therefore crucial to theoretical considerations of passing, including UiM students in medical school. Theories of passing must consider, she argues, "facial features, gestures, clothes,

style, and body language … and class and education c(l)ues, including speech and other aural signs."[84,pp.171-2]

The concept of intersectionality provides insight into the complexity of compensatory work for UiM students. As illustrated in several quotations, students may inhabit multiple memberships of UiM communities, which can bring cumulative, contradictory, and/or complex interactions between these identities as they move through their everyday life as medical students. Also, students can simultaneously inhabit marginalized and privileged identities, as we saw, for example, in the LGBTQ+ student who was advised not to come out to superiors by his physician father.

UiM students are unjustly tasked with labour upon labour, but our synthesis shows that a deficit-focused story misses the whole picture. Focusing on what is missing—the resources UiM students lack—neglects the immense insight, empathy, and sophisticated social expertise of these students. A deficit mindset[85] also can place the responsibility for social inequities on an individual student or community, rather than on the structural systems that create both privilege and oppression. It is important that we acknowledge that the significant additional work UiM students perform is not due to flaws in the traits of these students; rather, the systemic privileging of white, settler, cis, straight, non-disabled, higher-class students and doctors creates this immense burden. Racism and white supremacy, colonialism, homophobia and transphobia, ableism and classism are baked into society, the healthcare system, higher education institutions, and medical programs. These are complex, far-reaching structures that cannot be changed through simplistic, individualistic solutions advocated in the literature we reviewed.

Implications

We delineate herein the recommendations arising from our meta-ethnography with respect to: 1) Research; 2) Practice; and, 3) Policy.

Implications for Research

1. Make Space for Stories: We noted that while the qualitative research was illustrative and informative, it was constrained by the genre of academic writing, in which a particular tone, voice, and format are expected. We urge that researchers resist the conventional approach of linear, sanitized stories followed by surface-level solutions. This is particularly the case in medical education, a cousin field of medical science, which is constrained by the Introduction, Methods, Results, Discussion format, as well as restrictive word count limits. We require alternative publications formats and opportunities that make space for the in-depth voice of underrepresented learners.

2. Critical Research on Professionalism and Professional Identity: Across the various articles we observed that learners were aspiring to achieve an idealized version of the physician, in which objectivity, neutrality, and conformity are valued. We noted that this approach to professionalism was harmful to many students, and they felt tension between managing their multiple intersectional

identities with the idealized physician identity. We require more research to help us better understand how the idealized physician professional identity might be questioned, critiqued, and reimagined, and to articulate the burden of hidden work placed on underrepresented students in working to meet these normative expectations. Research can help create and/or amplify counter-narratives and new figured worlds of physician identities.

3. Deliberate Reflexivity: Incorporate reflexivity as a standard practice in the research process. Rather than approaching it as a tool to reflect on how *bias* might influence data collection and analysis, researchers should build in strategies to systematically reflect on their multiple identities and emotional reactions throughout the research process, starting from study design and continuing through to dissemination. Rather than treating researcher subjectivity or positionality as a "weakness" or "limitation," it should be considered a matter of fact, present in all research projects, qualitative and quantitative alike. This should be an integrated and introspective approach, that allows research teams to think critically and collaboratively about how they read and respond to various facets of the process.

4. Emotionally Inclusive Research: We believe it is important to recognize, attune to, and acknowledge the significance of emotional experiences during the research process. We encourage researchers working in the context of equity, diversity, inclusion and accessibility to emphasize the importance of acknowledging and critically considering emotional reactions, as these can significantly impact the research process and outcomes. We also encourage researchers to "follow the emotions"—to reflect on what is gained by acknowledging emotions of researchers and participants alike, by embracing the role of emotion in generating new insights, and by designing research strategies that integrate emotional awareness throughout methodologies.

5. Theoretical Perspectives and Traditional Ways of Knowing: The prevalent trend observed across numerous articles lies in their reliance on familiar theoretical frameworks, prominently featuring Bourdieu's work, which undeniably forms a fundamental cornerstone within the academic discourse. While acknowledging its significance, we must recognize the existence of underrepresented developments within the literature. Notably absent are critical engagements with emergent perspectives like Crip Time,[86] which offers a unique lens on disability, challenging conventional perceptions of time and disability experience.

Similarly, sociomaterial perspectives,[87] instrumental in comprehending the dynamic interplay between space and social phenomena, remain largely overlooked. Furthermore, Indigenous ways of knowing and academic theories[88–90] and critical race theories,[91,92] pivotal in contextualizing and understanding colonialism and racial disparities, are often suppressed within colonial institutions and are notably absent from these discussions. These omissions suggest a critical gap in the synthesis of contemporary research and our underlying understanding of what research *is* and *does*, urging scholars to broaden their theoretical scope beyond traditional frameworks to encompass these important perspectives and contribute to a more inclusive and comprehensive academic discourse.

6. Teams that Reflect the Diversity of Community: Encourage and prioritize the formation of research teams that reflect a broad spectrum of identities, including racial and ethnic backgrounds, Indigenous identities, disabilities, gender and sexual orientations, social class, and educational

backgrounds. Such diverse teams can be more critically reflective of the research process and contribute to a more comprehensive understanding of complex issues.

Recommendations for Practice

1. Value Stories: Across the medical education literature can be detected the influence of time pressures and a resulting sense of urgency. This urgency is particularly pronounced for learners who are managing multiple courses, responsibilities, and pressures. This means that stories, in which the complex dynamics of marginalization and privilege are shared and thoughtfully considered, can be reduced to noise, seen as a distraction from the task at hand. These may be oral stories shared informally, but also can be the formal stories that are written into formal curriculum. We believe the culture of medicine, and medical education more broadly, would benefit from storified pedagogy,[93] and guidance from traditional storytelling of Indigenous peoples[89,94] and other forms of counter storytelling that push back on historical silences.[17]

2. Dissect Professionalism: We encourage medical education curriculum developers to build discussions of professionalism and professional identity into curriculum. Given the preponderance of case and problem-based approaches, there are opportunities to avail of these approaches to discuss broader topics outside of clinical or biomedical content. We encourage regular conversation about what it means to be a physician, and the impacts this may have on whether people can see themselves within the profession.

3. Encourage emotion: Related to the above, we encourage institutions of medical education to normalize emotion. Far from the neutrality envisaged in the idealized professional identity, we believe recognizing, and providing medial learners with tools to understand, emotional reactions is an important step toward cultivating emotional intelligence and self-awareness. Stepping away from the disavowal of emotion is an important step in acknowledging difference across learners, and will support them in providing more empathetic and effective care, support, and services to clients and patients.

4. Faculty Development: The literature was replete with stories of bias and microaggressions, characterizing the everyday experiences of learners who are UiM. We believe there is space for ongoing critically oriented faculty development addressing the concepts of active allyship and providing faculty and staff members with the tools to engage in everyday advocacy. Further, the literature also delineated pervasive challenges related to issues of merit and affirmative action, causing learners to question whether they belong. We believe faculty development providing critically conceptualized content addressing the realities of affirmative action may help to counter some of the harmful assumptions, and related experiences, learners described in the literature.

5. Think Critically About Mentorship: We noted that many of the articles suggested faculty or peer mentorship programs as a mechanism to support students who are UiM. While we recognize the appeal and potential value of this approach, we also recognize the invisible work for mentors, and note the well-documented minority tax[95–98] in which these mentors may be engaged. In the spirit of respecting this work, we encourage

institutions to think critically about how the mentor role is conceptualized and valued.

We believe appropriately remunerating mentors for their mentorship efforts, and valuing this work within promotion processes, may be a way to value these contributions, while cautioning against increasing the minority tax and other existing burdens of work for underrepresented students and physicians alike. Mentorship is only one facet of a complex systemic challenges to underrepresented students, and it can be used to hide systemic barriers and push the burden of change onto individuals. Mentorship programs then should be approached with caution and critical awareness of how they can increase burdens for underrepresented students and faculty, rather than alleviate them.

6. Reimagine Assessment: To date, much assessment practice in medical education has focused on recall of medical knowledge, demonstration of clinical skill, and the ability to present appropriate professional attitudes. We believe it is now time to shift assessment practices to ensure that "no student is unfairly or unnecessarily disadvantaged by the design or delivery of assessment."[99]

As the medical education landscape become more diverse, a focus on fairness and equity throughout students' academic journeys becomes paramount. This means, we must extend our EDIA efforts beyond admissions to ensure equitable opportunities for achievement and career progression. Drawing on the exemplar work of Ajjawi and colleagues,[99] we are calling for assessment practices that recognize and accommodate the diverse abilities and histories of students, advocating for designs that cater to this spectrum of capabilities.

Prevalent medical assessment methods may exclude (deliberately or not) certain student groups, particularly those from non-traditional backgrounds, prompting a critical re-evaluation of these approaches. Exploring strategies such as Universal Design for Assessment and personalized accommodations, we are advocating for a more inclusive perspective in assessing students' capabilities, stressing the need to bridge theoretical discussions on inclusion with practical implementation to ensure fairer outcomes. Assessment that enables flexibility in task and process, as well as greater contextualisation, require further research.

Recommendations for Policy

1. Provide Ongoing, Tailored Support: Medical schools face an imperative to implement comprehensive policies aimed at fostering an inclusive environment for UiM learners throughout a medical program. While strides have been made in refining and adapting admissions criteria, there is a pressing need for a paradigm shift towards developing policies to provide sustained and adaptable resources which bolster individuals throughout their undergraduate experiences. Such measures should encompass a spectrum of resources, ranging from tailored assessment accommodations to financial and emotional support systems led by staff with lived experiences of being underrepresented in medicine.

Accountability through ongoing confidential student feedback, equity audits, and other measures, can help ensure that medical schools' responsibility to UiM student inclusion and support is fulfilled.

Student perspectives on this mechanism are crucial, as is an awareness of inter- and intra-group diversity and intersectionality (how multiple identities intersect).

2. Establish a Process to Report Discriminatory Behaviour: We believe medical schools should develop and institute a mechanism for UiM learners to safely report incidences of discrimination in such a manner that the reports will be carefully considered and addressed. Along with this, the establishment of an independent committee, separate from administrative influences and led by members with lived experiences of being underrepresented in medicine, should be tasked with the resolution of received complaints. This process should be underpinned by a commitment to treating allegations of discrimination with the utmost seriousness and diligence, accompanied by accountability measures to ensure these processes enact meaningful change.

By fostering an environment where individuals are empowered and assured that their concerns regarding discriminatory conduct are not only heard but also investigated impartially and acted upon, medical schools can work toward a culture of accountability, equity, and inclusivity within their academic and professional spheres.

3. Ongoing Learning and Evolution: Medical schools must commit to ongoing learning and continuous improvement with respect to fostering equity, diversity, and inclusion in the learning environment. A proactive advocacy lens that acknowledges complexity, lived expertise, and structural impacts on individuals is crucial. Increased underrepresented medical leaders is key, as is continually reviewing curriculum for bias and positive EDIA values, designing inclusive social events, and supporting underrepresented learners in clinical placements.

To put it simply, there is no "one and done" solution to addressing issues of equity. Therefore, medical schools must embrace an ongoing commitment to learning, critical analysis and reflection, and ongoing policy refinement to work toward becoming safe, respectful, and inclusive environments for all.

4. Reconsider High Stakes Assessments: While we certainly appreciate the importance of assessment, high-stakes assessments can be harmful due to their intense pressure and singular focus on performance outcomes. Exams are the assessment approach requiring the most accommodations and adjustments.[87] They lead to heightened stress, anxiety, and burnout among students, already at untenable levels for students who are UiM, impacting mental health and overall well-being. Moreover, the hard-line risks associated with these assessments can lead to increasingly competitive environments that prioritize exam outcomes over comprehensive learning or holistic understanding. This, in turn, inscribes a surface-level approach to studying, encouraging memorization over deep comprehension, potentially compromising the development of practical clinical skills essential for future medical practice. These complexities are further intensified in light of the literature on differential attainment,[14,100] which, in the context of medical education, refers to the observed disparities in academic achievement among different demographic groups, particularly concerning racial, ethnic, or socio-economic background.

This literature lays bare the inequalities in educational outcomes, where certain groups may consistently perform less well compared to their peers. This achievement gap is not caused by a lack of merit from underrepresented students, but is rather the result of systems of power and privilege that, among many other effects, undervalue the considerable knowledge of underrepresented

students and assert the dominance of normative assessment practices that benefit more privileged students.[101]

Differential attainment in medical education is a concerning issue as it not only affects individual learners but also has broader implications for healthcare. It raises questions about fairness and equity within medical education, highlighting assessor biases and systemic barriers that hinder academic success for UiM learners. In light of these considerations, we urge institutions of medical education to think critically about the role, value, and consequences of high stakes assessment—including *what* we are measuring, *why*, and *how*—with respect to achieving equity in medical education.

Conclusion

The UiM students in our synthesis often reported a lack of awareness of the additional workload for UiM students just to survive medical school. Not only was this immense workload invisible to peers, teachers, and administrators, but UiM students were often faced with the assumption that they made it to medical school due to affirmative action type policies and didn't deserve to be there. This analysis clearly illustrates the opposite: not only do UiM students deserve to be in medical school based on their academic achievements, they overcame unjust obstacles to do so, and continue to contend with immeasurable workloads once accepted into medical programs.

While the literature was replete with descriptions of programs and services for UiM learners, their stories continued to be oriented toward a struggle to belong. In the absence of a critical examination of normalized professionalism, and a recognition these ideas can maintain a narrow, exclusionary, and potentially harmful physician identity, students who are UiM will continue to shoulder these untenable burdens.

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Appendices

Appendix A – Electronic Database Search Strategies

Appendix B – Table: Characteristics of Included Articles

Appendix C – Reference List for Included Articles

Appendix D – Knowledge Mobilization Plan

Appendix A – Electronic databases search strategies

Ovid MEDLINE(R) ALL <1946 to June 22, 2023>

1 ((("semi-structured" or semistructured or unstructured or informal or "in-depth" or indepth or "face-to-face" or structured or guide) adj3 (interview* or discussion* or questionnaire*)) or (focus group* or qualitative or ethnograph* or fieldwork or "field work" or "key informant" or phenomenolog* or autoethnograph*)).ti,ab,kf. or interviews as topic/ or focus groups/ or narration/ or qualitative research/

2 (qualitative or experience* or perception* or perspective* or interview* or focus group* or mixed methods or participant observation or transcript* or ethnograph* or phenomenol* or grounded theor* or grounded-theor* or purposive sample or lived experience* or narrative* or life experience* or life stor* or action research or thematic analysis or narrative analysis or field stud* or field-notes or videorecording).mp.

3 1 or 2

4 Schools, Medical/

5 Students, Medical/

6 Education, Medical, Undergraduate/

7 ((medical or medicine) adj2 (undergraduate* or school* or education or student*)).ti,ab,kf.

8 4 or 5 or 6 or 7

9 ((underrepresented or "under represented" or uim or urm or urim or minorit* or marginali* or racial* or disabilit* or disabled or dyslexi* or neurodivers* or neuro-divers* or adhd or autis* or "sexual orientation*" or "gender identit*" or "non-traditional" or nontraditional or mature or "first in family" or "previous career" or immigra* or refugee* or "foster care" or parent* or indigenous or native or aboriginal or american indian or african american* or black* or latin* or hispanic* or SOGI or gay or trans or transgender* or nonconforming or queer or lgbt* or two spirit or "2 spirit" or divers*) adj3 (student* or trainee* or learner*)).ti,ab,kf.

17 3 and 8 and 9

Scopus: 2023-06-22

((TITLE-ABS-KEY ((("semi-structured" OR semistructured OR unstructured OR informal OR "in-depth" OR indepth OR "face-to-face" OR structured OR guide) W/2 (interview* OR discussion* OR questionnaire*)))) OR (TITLE-ABS-KEY ("focus group*" OR qualitative OR ethnograph* OR fieldwork OR "field work" OR "key informant" OR phenomenolog* OR autoethnograph* OR "mixed methods" OR "participant observation" OR transcript* OR ethnograph* OR phenomenol* OR "grounded theor*" OR "purposive sample" OR "lived experience*" OR narrative* OR "life experience*" OR "life stor*" OR "action research" OR "thematic analysis" OR "narrative analysis" OR "field stud*" OR "field-notes" OR videorecording))) AND (TITLE-ABS-KEY (((underrepresented OR "under represented" OR uim OR urm OR urim OR minorit* OR marginali* OR racial* OR disabilit* OR disabled OR dyslexi* OR neurodivers* OR "neuro-divers*" OR adhd OR autis* OR "sexual orientation*" OR "gender identit*" OR "non-traditional" OR nontraditional OR mature OR "first in family" OR "previous career" OR immigra* OR refugee* OR "foster care" OR parent* OR indigenous OR native OR aboriginal OR "american indian" OR "african american*" OR black* OR latin* OR hispanic* OR sogi OR gay OR trans OR transgender* OR nonconforming OR queer OR lgbt* OR "two spirit" OR "2 spirit" OR divers*) W/3 (student* OR trainee* OR learner*)))) AND (TITLE-ABS-KEY (

((medical OR medicine) W/2 (undergraduate* OR school* OR education OR student*))))
AND PUBYEAR > 2016

Appendix B – Table: Characteristics of included studies

Author(s) & year, country	Participant characteristics	Reflexivity? Authors with lived experience?	Research aim	Methodology & analysis	Data collection	Summary of findings
Bassett 2018 United Kingdom	20 First in Family medical students	Reflexivity is mentioned in passing in Methods. First author has lived experience.	to understand the transitional journey into, and through, undergraduate medical education, and future career aspirations for first-in-family (FiF) medical students	Qualitative study Interpretivist epistemological perspective, Thematic analysis	Interviews	1. The road to medical school a. Motivations to study medicine b. Familial/School expectations c. Personal and familial reactions of acceptance into medical school 2. The medical school journey a. Expectations of medical school b. Fitting in to the world of medicine c. Personal sacrifices of studying medicine d. Informal/formal supports at medical school 3. Future plans a. What it means to practice medicine b. Career aspirations
Bassett 2019 United Kingdom	20 First in Family medical students	No.	to better understand how socio-educational background shapes perspectives of FiF medical students; to explore how FiF medical students accessed resources during medical school; to find out how student identity developed	Qualitative study Interpretive approach informed by Bourdieu's forms of capital (social, economic and cultural)	Interviews	Forms of capital (economic, social, and cultural) were central to participants' experiences. Challenges: Finances, juggling paid work, lack of medical contacts, lack of cultural capital. Social networks increased at university; however, there was a division along the lines of educational background. Becoming a medical student influenced social relationships for many students ambivalent about their new status.
Bazargan-Hejazi 2022, United States	15 Black; Other: Latinx medical students in all years of program	Reflexivity is broached in "Study Credibility: "To guard against researchers' reflexivity, i.e., "researcher	To ask, "What do URiM students at a Historically Black Colleges and Universities (HBCU) medical school believe would make a	Grounded theory analytical approach and content analysis via qualitative thematic evaluation	Interviews	Themes include: 1) Grounding learning in the community; (a) community engagement, and (b) student-run clinic, mobile clinic, and homeless clinic

Author(s) & year, country	Participant characteristics	Reflexivity? Authors with lived experience?	Research aim	Methodology & analysis	Data collection	Summary of findings
		positionality: and ensure the provision of impartial results, the research team had received training on implicit bias." No noted authors with lived experience.	medical education program (MEP) impactful?"			rotations. 2) Progressive system-based practice competency; (a) interprofessional learning and (b) multidisciplinary medicine for cultivating a 'just' healthcare system. 3) Social justice competency; (a) longitudinal social justice curriculum, (b) advocacy, and (c) health disparity research. and 4) Trauma-informed medical education delivery; (a) early and ongoing mentoring and (b) provision of supportive policies, services and practices to maximize learning and mental health.
Brosnan 2016, Australia	22 Indigenous; First in Family; Rural/Remote; mature medical students	No. No noted authors with lived experience.	To draw on the theory of Bourdieu to explore FiF students' experiences at one Australian medical school, aiming to identify barriers and strategies	Qualitative study Conceptual framework: Bourdieu's forms of capital (social, economic and cultural)	Interviews	The absence of social capital (networks) was a barrier to connecting with fellow students and accessing placements. Financial challenges: expenses associated with medical school, juggling paid work with studying. 'Medical student' status brought new forms of cultural capital, a transition that was received with some ambivalence by participants and their social networks.
Butler 2019, Canada	7 LGBTQ2S+ medical students	In Methods, positionality of authors is mentioned. All authors have lived experience.	to understand the experiences of TGNC medical students in Canada. (Trans and gender nonconforming (TGNC))	Grounded theory Constructivist approach	Interviews	Main theme: navigating cisnormative medical culture Subthemes: culture and context; interactions with classmates, curriculum, policy, and administration; and gendered spaces.
Cedeno 2023, United States	12 Black; Indigenous; Other: People of	No. No noted	to gather insights into clinical training experiences from	Qualitative study Directed content	Focus groups	4 themes: Overall Experience; Placement

Author(s) & year, country	Participant characteristics	Reflexivity? Authors with lived experience?	Research aim	Methodology & analysis	Data collection	Summary of findings
	Color (BIPOC) medical students between their first and second years of medical school.	authors with lived experience.	BIPOC medical students at the University of Washington (UW) participating in the Rural Underserved Opportunities Program (RUOP), a 4-week elective immersion experience	analysis, using Williams, Skinta and Martin-Willett's taxonomy of microaggressions to classify those shared by participants.	and interview	Preferences and Anxieties; Microaggressions; Systemic Racism in Medicine; and Support and Institutional Strategies. All participants reported having an overall positive experience, but everyone also witnessed and/or experienced at least 1 microaggression. Rural students expressed anxiety about being in predominantly White communities and experienced feelings of racial and/or ethnic isolation.
Chichekian 2022, Canada	4 Indigenous medical students	Mention of authors' positionality in Limitations section: "analyses were conducted by non-Indigenous authors…" No noted authors with lived experience.	to explore how Indigenous female medical students' motivations played a role in their pursuit of a medical career	Phenomenology	Interviews	Student motivations: 1. pedagogical experiences (i.e., contextual factors at school, academic interests, and opportunities) and 2. personal experiences (i.e., family support and influence, and future career prospects). Learning about specialized Indigenous streams for admissions played the most influential role in students' decision-making to pursue medical studies.
deOliveira 2022, Brazil	9 disabled medical students from 1st year to 3rd year	Reflexivity is referenced in a "Disclosure Statement" at the end of the paper. No noted authors with lived experience.	To identify the facilitators and barriers that determine the experience of medical students with disabilities and to propose possible inclusive institutional attitudes and policies.	Qualitative study thematic analysis	Interviews	Barriers to inclusion: teachers' lack of knowledge about students' needs, students' own lack of knowledge about their needs, underestimation of disability by teachers and peers, difficult access to college buildings Facilitators: acceptance of disability by professors and peers, proactivity of professors and

Author(s) & year, country	Participant characteristics	Reflexivity? Authors with lived experience?	Research aim	Methodology & analysis	Data collection	Summary of findings
						peers in adapting practical learning scenarios.
Dixon 2021, United States	20 Black; Other: Black and other (Latino, Indigenous), Iranian, Latino medical students in years 1,2,4. 16 identified as Black/African-American. fifteen of the participants were female and 3 were male.	No. No noted authors with lived experience.	To explore the experiences of UIM medical students at two urban medical centers who have an interest in pursuing academic pediatrics. to understand what students perceive as support of and barriers to pursuing academic pediatrics	Qualitative study	Focus groups	Family had a major influence on students' interest to pursue medicine. Students felt there were fewer expectations of them during secondary school which affected them throughout their journey to medical school. Facilitators: Mentorship, serving as role models, working with children and seeing UIM academic pediatricians positively influenced students to pursue academic pediatrics. Barriers: debt and lack of knowledge about the field.
Foreshew 2022, United Kingdom	4 medical students who self-identified as "less privileged" or from marginalised groups	In Methods section and throughout. Authors have lived experience.	to ask medical students 'What is your experience of marginalisation at medical school?' to openly explore intersectional experiences of marginalisation.	Action research Bourdieu's theories re how social class hierarchies are reproduced in medical culture, healthcare and society	Comics-based workshops and 1:1 interviews	Students' experience, feelings and ideas give us a source of knowledge to challenge classist, racist and sexist degradation widespread in medical culture. In particular, class elitism negatively impacted three women of working-class origins.
Garvey 2009, Australia	16 Indigenous medical students	Surface mention of reflexivity in Discussion. No noted authors with lived experience.	to document the experiences of Indigenous Australian medical students and to identify the factors perceived to affect their progression through training.	Qualitative study	Focus groups	Factors influencing Indigenous students' progress through medical training are multi-faceted and inter-related. They are associated with: student support, course content and styles of learning, personal traits (e.g., confidence, coping skills), discrimination and distinctive cultural issues pertinent to Indigenous students.
Isik 2021a, Netherlands	18 Ethnic minority medical students from years 1 to 6 with immigrant parents from:	Methods, under heading "Reflexivity" refers to "the ethnic minority background of	to gain insight into what support medical students from ethnic minorities need in their learning	Qualitative study Constructivist, thematic analysis	Interviews	Students' negative experiences could be categorized as: 1. the effect of discrimination

Author(s) & year, country	Participant characteristics	Reflexivity? Authors with lived experience?	Research aim	Methodology & analysis	Data collection	Summary of findings
	Afghanistan, Armenia, Egypt, Ghana, Philippines, Morocco, Nigeria, Russia, Syria, Turkey, Ukraine, and Uzbekistan	the main researcher" Lead author has lived experience.	environment to mitigate experienced barriers, sustain their motivation and ultimately perform to their full potential.			2. lack of ethnic minority role models, 3. lack of belonging, 4. lack of a network, 5. differences and difficulties in cultural communication and language, and 6. examiner bias in clinical assessments.
Isik 2021b, Netherlands	26 Gender, ethnic, racial minority medical students	Yes. At the end of the methods. They mention it in the limitations again as potential taking the experiences for granted because of the team's diversity. Lead author and one co-author have lived experience.	To investigate how medical students' ethnic identities and their intersection with other aspects of diversity relate to their motivation.	Qualitative study Thematic analysis	Focus groups	Three main themes: 1. the role of autonomy in the formation of motivation, including students' own study choice and the role of their family; 2. interactions/'othering' in the learning environment, including feelings of not belonging; and 3. intersection of ethnic minority background and gender with being 'the other', based on ethnicity.
Jean 2023, United States	24 racial and gender minority medical students (Black; Indigenous; Gender; Blacks, Mexican Americans, Native Americans, and mainland Puerto Ricans)	Details included in Methods. Three authors have lived experience.	to understand the variations in experiences that exist among underrepresented minority students in a cohort of medical students. We also investigated the quantitative metrics of success applied during medical student evaluations	Mixed methods study	Interviews	Participants described feeling that the way their assessors interacted with them was largely affected by their race or gender; and tension between how they would usually express themselves and how they were expected to in the clinical environment. Participants adapted to this tension by changing their hair or natural style of speech and modifying their perception of their role in the clinical environment.
Kristoffersson 2021, Sweden	18 cultural, ethnic or linguistic minority medical students	In Analysis and Limitations sections. No authors with lived experience.	to analyze narratives of minority students in one Swedish medical school, to explore how they perceived and made sense of interactions during their education that they perceived to be connected to	Grounded theory Constructivist	Interviews	Participants described regularly encountering subtle adverse treatment from supervisors, peers, staff, and patients. Lack of support from bystanders was common. These experiences marked interviewees' status as 'Other' and made them

Author(s) & year, country	Participant characteristics	Reflexivity? Authors with lived experience?	Research aim	Methodology & analysis	Data collection	Summary of findings
			their minority position. We sought concrete examples of how inequality between majority/minority stu-dents is (re)created – a necessary starting point for designing measures to counteract such unjustified difference.			feel less worthy as medical students. Interviewees seldom used terms like being a victim of discrimination or racism. Most hesitated to name the behaviors and comments experienced as "discriminatory" or "racist", likely because of prevailing ideas about Sweden and, in particular, medical school, as exempt from racism, and beliefs that racial discrimination can only be intentional.
Kristoffersson 2022, Sweden	15 Rural/Remote medical students and/or those from Ethnic, cultural, or linguistic minority backgrounds	Embedded in the analysis, ethics, and limitations sections. No authors with lived experience.	To explore and analyze the strategies used by racialized minority medical students to manage episodes of everyday racism – and their under-lying motives and considerations	Grounded theory Constructivist	Interviews	Racism is not caused by the exposed individuals' own ways of being or acting. Therefore, behavioral changes on the part of minority students won't prevent discrimination. Strategies such as adaptation and avoidance run the risk of re-inscribing the white majority as the norm. However, as long as racialized minority students stand alone it is difficult for them to act in any other way. Anti-racist policies and routines for handling discrimination are insufficient.
Leyerzapf 2017, Netherlands	29 "cultural minority" medical students, which included religions (Christian, Hindu, Jewish, Muslim) and "cultural backgrounds" (Afghan, Cape-Verdean, Chinese, Congolese, French, Indonesian, Iranian, Moroccan, Pakistani, Surinamese, Syrian, Turkish, Ugandan)	In Methods, data analysis and quality criteria. Lead author has lived experience.	To describe the experiences of minority medical students in the context of intercultural competence activities within medical school. to formulate recommendations for educators, policymakers and other professionals in the field of academic medicine on how to generate intercultural	Qualitative study Thematic analysis	Interviews, focus group, observations	Cultural minority students experienced a lack of respect and understanding by cultural majority peers and teachers. Education activities intended to transfer intercultural knowledge, address personal prejudice and stimulate intercultural sensitivity were perceived as stigmatising and as creating an unsafe climate. Cultural minority and majority students on campus

Author(s) & year, country	Participant characteristics	Reflexivity? Authors with lived experience?	Research aim	Methodology & analysis	Data collection	Summary of findings
			competency and inclusiveness in medical education.			seemed segregated and the intercultural awareness of minority students was not integrated in intercultural competence activities.
Mathers 2009, United Kingdom	12 medical students at three English medical schools who are First in Family, "working class", and emphasis on "widening participation," which often includes eligibility criteria based on postcode, attainment of school attended, carer status, foster care history, parents in the armed forces etc.	No. No noted authors with lived experience.	to further understand the reasons why students from lower socio-economic circumstances remain underrepresented in UK medical schools	Qualitative study Narrative-style, in-depth interview analysis	Interviews	This study demonstrates how 'normal working-class biographies', constructed by most students, result from the influences of socio-cultural context, as well as familial and institutional habitus. The resulting influence on habitus as identity and, in particular, the disjuncture between working-class perceptions of medicine and individual identities are key to understanding the reasons behind the low number of working-class applicants to medical school.
Mincey, 2023, United States	40 Black medical students enrolled in over 16 US or Caribbean medical schools.	No. No noted authors with lived experience.	to understand the factors that impact the matriculation and persistence of Black medical students.	Phenomenology using Tinto's Model of Institutional Departure as an organizing framework.	Interviews	Two factors impacted matriculation for Black medical students: 1. exposure to the medical field and 2. resources, particularly financial resources Three factors impacted the persistence of Black students once in medical school: 1. diversity, 2. support, and 3. emotional resources.
Morrison 2019, United Kingdom	24 medical students who are Black/Asian/mixed/other	In Data collection methods, Data processing and analysis. Lead author has lived experience.	to build on previous research, examining the potential reasons for underperformance by BME graduate-entry medical students, exploring their experiences of undergraduate medical training and their	Qualitative study Thematic analysis	Focus groups	Students reported facing a range of difficulties, throughout their undergraduate medical training, that impeded learning and performance. Relationships with staff and clinicians, though also identified as facilitators to learning, also hindered progress, as a lack of

Author(s) & year, country	Participant characteristics	Reflexivity? Authors with lived experience?	Research aim	Methodology & analysis	Data collection	Summary of findings
			perceptions of barriers and facilitators to performance			BME representation and understanding of cultural differences among staff impacted their experience. Students also reported a lack of trust in the institution's ability to support BME students, with many not seeking support. Students had to mask their identity to fit in among their peers and to avoid negative stereotyping. Many students reported feelings of isolation, reduced self-confidence and low self-esteem.
Morrison 2023, United Kingdom	20 medical students with "racially minoritised backgrounds"	In Methods section and then briefly in the discussion section under "strengths and weaknesses." Lead author and three co-authors have lived experience.	to identify experiences of racial microaggressions among RM medical students; to explore student perspectives on how their experiences of microaggressions impacted on their learning and performance; and to use the lens of the student participants to identify how medical schools can reduce racial microaggressions and build more inclusive learning environments.	Qualitative study	Focus groups	Participants reported numerous racial microaggressions. These impacted directly and indirectly on their learning, performance and well-being. Students reported feeling uncomfortable and out of place in teaching sessions and clinical placements. They reported feeling invisible and ignored in placements and not being offered the same learning opportunities, leading to disengagement. Students described feelings of apprehension and having their 'guards up', particularly at with new clinical placements, an additional burden.
Odom 2007, United States	43 "ethnic minority" medical students. Eighty-eight percent were of black/African descent, 10% were Hispanic, and 2% were Asian/Pacific Islanders.	No. No noted authors with lived experience.	To explore the barriers and facilitators experienced by ethnic minority medical students in achieving personal and professional success.	Qualitative study Thematic analysis	Focus groups	Facilitators of success: 1. support systems, 2. professional exposure, 3. financial aid, and 4. personal characteristics. Barriers: 1. lack of financial and social support, 2. challenges with standardized tests,

Author(s) & year, country	Participant characteristics	Reflexivity? Authors with lived experience?	Research aim	Methodology & analysis	Data collection	Summary of findings
						3. experiences with racial stereotyping and discrimination, and 3. self-imposed barriers.
Roberts 2020, United States	16 Black medical students	No. No noted authors with lived experience.	To interview African-American students who are interested in surgery about the perceived challenges of pursuing a career in academic medicine.	Qualitative study	Interviews	Barriers to pursuing a career in academic surgery: 1. lifestyle concerns, 2. financial pressures, 3. having to work in a predominantly white environment, 4. lack of mentorship, 5. feelings of having to prove oneself, 6. stressful environments 7. concerns of being a minority female in surgery.
Shaw 2022, United Kingdom	5 disabled medical students.	At the end of the introduction, under "Author backgrounds." Lead author and one co-author have lived experience.	To explore the overall experiences of dyslexic students learning/studying during COVID-19	Phenomenology	Interviews	Students highlighted a largely positive experience, with an improved culture of togetherness, freedom and sense of control. They also revealed issues with a lack of clinical exposure, potential negative impacts on ranking positions for those with dyslexia, and possible cheating in exams. There are some surprising results—in particular the positive responses to how remote learning was delivered. These seemed to put our participants more on a par with their non-dyslexic colleagues—except in some examinations.
Shaw 2023, United Kingdom	5 disabled medical students from five different UK medical schools.	In Methods, Discussion. Lead author and one co-author have lived experience.	To address the lack of research on lived experiences of autistic medical students, and ask: "What are the experiences of autistic medical students?"	Phenomenology	Interviews	Participants longed for understanding and support from their medical schools. They reported isolation, bullying and anxiety, as well as being on guard and needing to mask. Most felt themselves to be victims of the system, whereby they were expected to adapt themselves to appear non-autistic. When participants reported

Author(s) & year, country	Participant characteristics	Reflexivity? Authors with lived experience?	Research aim	Methodology & analysis	Data collection	Summary of findings
						not coping due to being autistic, most were advised to 'take time out'. None were offered personalised adjustments to their learning environment. All reported strengths associated with being autistic. This supports the assertion that autistic people can be safe, effective and skilled doctors.
Sivananthajothy 2023, Canada	16 Black; Disabled; LGBTQ2S+; Gender minority medical students.	In Methods under heading "Strategies to promote rigour and reflexivity." Lead author and three co-authors have lived experience.	to explore how students from equity-deserving groups (EDGs) experience belonging during medical school, including those who are women, racialized, Indigenous, disabled, and 2SLGBTQIA+.	Mixed methods; interviews were based on survey results re belonging, burnout, depression, impostor syndrome	Interviews	Participants described belonging as being able to exist as one's "true self" while emphasizing feelings of acceptance, comfort, and safety as well as being valued and seen as an equal - yet described how routine experiences of "othering" inhibited a sense of belonging, often due to differences in social identity and structural privilege. Poor sense of belonging negatively affected learners' wellbeing and career trajectory. We illuminate the range of psychological and professional consequences associated with diminished sense of belonging and highlight the need to expand traditional notions of equity, diversity, and inclusion to consider structural barriers to belonging.
Southgate 2017, Australia	21 First in Family medical students	No. No noted authors with lived experience.	To explore the research question: What are the experiences of FiF medical students in medical education and how do they understand their personal and professional journey through a high-status professional degree?	Qualitative study	Interviews	Students described getting to medical school 'the hard way'. Many felt like 'imposters', using self-deprecating language to highlight their lack of 'fit' in the privileged world of medicine. However, such language also reflected resistance to middle-class norms and served to create solidarity with

Author(s) & year, country	Participant characteristics	Reflexivity? Authors with lived experience?	Research aim	Methodology & analysis	Data collection	Summary of findings
						community of origin, and, importantly, patients. Students' stories reflect a tactical refinement of self and incorporation of certain middle-class attributes, alongside an appreciation of the worth their 'difference' brings to the profession.
Stergiopoulos 2018, Canada	10 disabled medical students	No. No noted authors with lived experience.	to understand how disabled students relate to their identities as patients in medical training, and how their experiences as health care users affect both their approach to training (including disclosure and support seeking) and their attitudes toward peers, instructors, health care providers, and patients. to identify structural and sociocultural components of training that may hinder or help students succeed as learners and compassionate doctors.	Critical discourse analysis, drawing from sociocultural theories of professional identity construction and the hidden curriculum.	Interviews	Two dominant discourses emerged, revealing institutionalized notions of the "good student" and "good patient." These roles held contradictory demands, demonstrating how institutions often implicitly and explicitly framed wellness as a means to optimal academic performance. Two additional themes, "identity compartmentalization" and "identity intersection," captured students' experiences navigating identities as patients and trainees. Although students lacked explicit opportunities to express their expertise as patients in the formal curriculum, their experiences in both roles led to improved communication, advocacy, and compassion.
Strayhorn 2020, United States	5 Black men medical students	No. No noted authors with lived experience.	to investigate the role of race (and racism) and sense of belonging for Black men in medical school, asking: How do Black men in medical school describe their experiences?	Qualitative study	Interviews	Race adversely affected students' academic and social experiences and diminished their sense of belonging in medical school. Consequently, they faced: difficulty connecting with White peers and faculty, racist stereotypes, and racial microaggressions that stigmatized them as "out of place,"

Author(s) & year, country	Participant characteristics	Reflexivity? Authors with lived experience?	Research aim	Methodology & analysis	Data collection	Summary of findings
						unqualified, or unusual.
Thomas 2011, United States	13 Black medical students	Positionality mentioned in abstract, also in data collection within the methods. Lead author has lived experience.	To determine characteristics and individual experiences that contribute to black men's success in being admitted to and graduating from medical school.	Qualitative study, thematic analysis	Interviews	The authors identified six broad contributors to successful admission to and completion of medical school: social support, education, exposure to the field of medicine, group identity, faith, and social responsibility. These six categories were subsequently grouped into four major themes: educational experiences, exposure to medicine, psychosocial– cultural experiences, and personal attributes and individual perceptions. The metaphor of a table (success) with four legs (four major themes) illustrates the complex dynamics that contribute to success.
Toman 2019, United States	12 LGBTQ2S+ medical students	No. No noted authors with lived experience.	to investigate how LGBTQ medical students navigate medical school as minorities and how sociocultural behaviours within medical culture contribute to their overall well-being and mental health.	Grounded theory	Focus groups	The prominent themes that emerged were: fear of repercussions; absence of mentorship between LGBTQ medical students and their advisers; and the added burden of being non-white. Non-white LGBTQ medical students experience medical school at an intersection of sexual-identity oppression and racial discrimination. LGBTQ medical students abandon hopes of creating close relationships with faculty members and educators because they have witnessed them make derogatory comments towards LGBTQ patients. The burden of performing well academically and

Author(s) & year, country	Participant characteristics	Reflexivity? Authors with lived experience?	Research aim	Methodology & analysis	Data collection	Summary of findings
						suppressing important aspects of the students' identities creates a stressful work environment that contributes to poor mental health.
Tso 2018, United Kingdom	8 disabled medical students	In Methods (Box 1, Rationale for this study and reflexivity). Lead author has lived experience.	to explore the experiences of graduate-entry medicine degree program students who were disabled on the disclosure of their disability and the challenging disability issues they encountered during their degree program.	Qualitative study Thematic analysis	Interviews	Contributory factors to a reluctance or delay in disclosing disability to the medical school included confidentiality concerns, the potential impact of disclosure on their medical school application outcome and not perceiving their disability had an impact on their ability to function. Disabled medical students encountered challenging issues such as having concerns about their future fitness to practice and employability, repeated disclosure of disability, confidentiality, abuse and difficulties in organising reasonable adjustments.
vanBuuren 2021, Canada	16 LGBTQ2S+, Racialized, and/or lower social class First-year medical students	In Methods (Study design). Authors have lived experience.	to understand how the first-year medical students' transition into medical school is influenced by their perceptions and experiences of diversity and inclusion during orientation.	Qualitative study, thematic analysis	Interviews	Participants highlighted the importance of social orientation during their transition into medical school and noted experiencing complex social pressures during this time. They shared how incoming students were introduced to the dominant medical professional identity during orientation. Participants noted tensions during this period, many of which revolved around the dominant identity and their past, present and future selves.
Volpe 2021, United States	9 medical students from historically underrepresented in medicine (UiM) groups.	No. No noted authors with lived experience.	to learn about the experiences of minoritized medical students, we asked: How do participants	Grounded theory	Interviews	Two themes speak to the process of PIF for minoritized students within the dominant cultures of medicine: 1. Participants

Author(s) & year, country	Participant characteristics	Reflexivity? Authors with lived experience?	Research aim	Methodology & analysis	Data collection	Summary of findings
			understand their personal identity, and how it fits in—or does not—with the medical culture?			experienced a complex push-pull of their personal identities: they pulled their personal identities into their professional development in positive ways, but also sometimes found it necessary to push their personal identities away and make them less salient in order to be successful. 2. This push-pull contributed to feelings of self-doubt and isolation.
Walker 2020, United Kingdom	1 disabled medical student.	Intertwined throughout the writing, but formally within "Introduction to the authors" section. Lead author has lived experience.	to explore the lived experiences of a UK medical student with dyspraxia within the current culture of UK medical education.	Collaborative Autoethnography	Collaborative ethnographic data (interviews, written reflections)	Findings are narrative in text, categorised by the following sub-headings: "My dyspraxia/being different"; "Pervasive emotional impact"; "Impact on studies and career"; "Determination"; "Coping strategies"; "The importance of others' reactions".
Wright 2023, Canada	17 First in Family medical students	In Methods section, right before Findings. Authors have lived experience.	to explore, using a critically reflexive lens, the experiences of FiF students to better understand the ways in which the medical school environment can be exclusive and inequitable to underrepresented students.	Qualitative study; Bourdieu's theories and concepts were used as sensitising concepts to explore the data.	Interviews	FiF students discussed the implicit messages they received about who belongs in medical school, challenges in shifting from their pre-medical lives to a medical identity and competing with peers for residency programs. They reflected on the advantages they perceived they had over their fellow students due to their less 'typical' social backgrounds.
Wyatt 2020, United States	14 Black medical students	In Methods. uthors have lived experience.	to examine how URM students took active steps to negotiate their professional identity, considering the larger sociohistorical context surrounding minoritized	Qualitative study.	Interviews	URM students were aware of racist stereotypes and the potential for the medical community to view them negatively. In response, students employed identity cues and strategies to bring the community's perceptions in line with how they perceived

Author(s) & year, country	Participant characteristics	Reflexivity? Authors with lived experience?	Research aim	Methodology & analysis	Data collection	Summary of findings
			individuals. Understanding these nuances in URM students' negotiation process of a professional identity will better inform medical schools interested in supporting the development of URM physicians.			themselves—black and a physician. Specifically, students actively worked to integrate racial and professional identities by "giving back" to the African American community. Community-initiated mentoring from non-URM physicians helped to reify students' hope that they could have a racialized professional identity.

Appendix C – Reference List for Included Articles

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Appendix D – Knowledge Mobilization Activities

Our team has been committed to integrated knowledge translation throughout our project. This meant that we approached the review using a collaborative method, working with knowledge users from various sectors throughout the process to refine our search. We have also included opportunities to consult with UiM students beyond our team to ensure we are engaged in knowledge exchange throughout the process.

Moving forward, our plan is to continue to leverage our well-developed connections with educational leadership and curriculum developers in the Faculty of Medicine at Dalhousie University as well as with the national medical education community through the Canadian Association for Medical Education (CAME) and the Association of Faculties of Medicine of Canada (AFMC).

Activity and Reach	Type of Activity	Timing
Knowledge User Consultations - local	*Exchange*	*Ongoing*
Meet with Dalhousie UiM learners, educators, administrators and curriculum designers to engage in deliberative dialogue with respect to emerging findings. These consultations will focus on first-hand about challenges, ideas, and promising practices in recruiting, retaining, and supporting UiM medical students. We will seek feedback on findings and share emerging ideas from our work with this group.		
Knowledge User Consultations – national	*Exchange*	*January-May 2024*
Meet with UiM learners, educators, administrators and curriculum designers from each of the 17 Canadian medical schools to engage in deliberative dialogue with respect to emerging findings. These consultations will help us explore challenges, ideas, and promising practices in recruiting, retaining, and supporting UiM medical students that are in development across the country. We will seek feedback on findings and share emerging ideas from our work with this group.		
Knowledge Mobilization Forum – national	*Exchange*	*October 2023*
We participated in the virtual or in-person SSHRC Knowledge Mobilization Forum. This will provide an opportunity to engage in interdisciplinary knowledge sharing, learn from colleagues, and make new connections.		
Summary of Key Findings (Fact Pages)	*Dissemination*	*January – May 2024*
The results of our meta-ethnography will be synthesized into a series of user-friendly knowledge mobilization products (fact sheets), highlighting suggestions for best practices and available supporting resources with respect to recruiting, retaining, and supporting UiM learners. We will work with a communications coordinator and a digital content creator to ensure the messages are presented in engaging formats including infographic, short videos, social media messages, and fully developed information summaries. These resources will be shared with educational offices in the Faculty of Medicine at Dalhousie University, other Canadian medical schools, and with some international medical schools. We will also make these resources available to other Faculties/Schools of Health Professions Education.		
Project Website	*Dissemination*	*January 2024*
We will work with a communications consultant to develop an interactive addition to our current website that will make resources developed through out meta-ethnography widely available to our various stakeholders, including participants, knowledge users, and the general public. The website will be maintained by the project coordinator and will be collaboratively updated with our communications consultant.		
Publications – journal articles	*Dissemination*	*Spring 2024*
We intend to share the insights garnered through this meta-ethnography in the format of peer-reviewed journal articles. We will target journals that focus on medical education, EDIA, and qualitative research. We will publish in open-access journals in order to maximize the reach of our work, and making use of Open Access Green strategies, where possible.		

Presentations – academic	*Dissemination*	*Spring 2024*

We will share findings with researchers, decision-makers and knowledge-users at high impact academic conferences focusing on Medical Education, EDIA and qualitative research. These may be face to face and/or online opportunities. We are seeking funding to support one conference; however, we may use other funds to attend and present on these materials at additional conferences.

Presentations – professional	*Dissemination*	*Spring 2024*

We will share findings with researchers, decision-makers and knowledge-users with local decision-makers through short presentations at committee meetings. These will be committees focusing on Medical Education and/or EDIA. Examples of such committees include Undergraduate Medical Education Curriculum Committees, Medical School Admissions Committees, and other relevant committees to be identified through consultation.

Podcast and Webinar Appearance(s)	*Dissemination*	*Spring 2024-ongoing*

We will share findings with researchers, decision-makers and knowledge-users via appearances on select podcasts or webinars which focus on Medical Education and/or EDIA.

Integration of Findings	*Application*	*Ongoing*

Throughout the process, we will work collaboratively with UiM learners, educators, administrators, curriculum designers, and EDIA professionals involved in Medical Education at Dalhousie University, across Canada, and internationally, to ensure insights garnered through our meta-ethnography are presented in a user-friendly and actionable manner. Our goal is to share our insights broadly, in order to provide a synthesized knowledge base about UiM learners' experiences of medical school.