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# Approaches and perceptions of health inequalities in medical training: a scope review

*Abordagens e percepções das iniquidades em saúde na formação médica: uma revisão de escopo*

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## ABSTRACT

**Introduction:** Research points to the existence of a gap between medical training and the needs of populations and health systems, by not considering health inequalities in the training process of students, which results in a workforce that is ill-prepared for the challenges of the XXI century. Thus, studies are needed to monitor and evaluate training actions and strategies that can support policy makers, managers and social control in a reorientation of the medical training model that contributes to equitable, epidemiologically efficient and socially fair health care.

**Objective:** To map the international scientific production on addressing health inequalities in medical training, considering themes, strategies and perceptions about their importance for care in the health-disease process.

**Method:** This is qualitative research of the scope review type, carried out in the databases or virtual libraries PubMed, Lilacs, SciELO, Web of Science, in addition to consultation with specialists. Articles in English, Spanish and Portuguese were considered, in which, after the inclusion and exclusion criteria, a corpus of 27 articles was formed.

**Results:** The articles included represent twelve countries from three continents, which address health inequities according to different markers such as race, ethnicity, gender and sex. Strategies for approaching inequalities during medical training are distributed in mandatory and elective disciplines, through clinical simulations, transversally to the course, in lectures, workshops, tutorials or extracurricular activities. However, most studies show little socio-historical contextualization of these approaches, reaffirming stereotypes, negative perceptions of students in relation to social markers or little understanding of their relationship with the health-disease process. On the other hand, when health inequalities are addressed in an effective and critical way, there seem to be important gains in the acquisition of clinical skills, social responsibility, empathy and sensitivity to the social history of patients.

**Final considerations:** There is an urgent need to move forward in reorienting medical courses towards care capable of recognizing the general and specific needs of individuals and social groups in their different life trajectories, supported by theoretical and political supports of health inequities.

**Keywords:** Medical Education; Health Inequities; Health Policy; Health Human Resource Training; Unified Health System.

## RESUMO

**Introdução:** *Pesquisas apontam a existência de um abismo entre a formação médica e as necessidades das populações e dos sistemas de saúde, ao não considerarem as iniquidades em saúde no processo formativo dos estudantes, cujo resultado é uma força de trabalho mal preparada para os desafios do século XXI. Assim, são imprescindíveis estudos de monitoramento e avaliação de ações e estratégias formativas que possam subsidiar formuladores de políticas, gestores e controle social em uma reorientação do modelo formativo médico que contribua para uma atenção à saúde equitativa epidemiologicamente eficiente e socialmente justa.*

**Objetivo:** *Este estudo teve como objetivo mapear a produção científica internacional sobre a abordagem das iniquidades em saúde na formação médica, considerando temas, estratégias e percepções acerca da sua importância para o cuidado no processo saúde-doença.*

**Método:** *Trata-se de uma pesquisa qualitativa do tipo revisão de escopo, realizada nas bases de dados ou bibliotecas virtuais PubMed, Lilacs, SciELO, Web of Science, além de consulta a especialistas. Foram considerados artigos em inglês, espanhol e português, os quais, após os critérios de inclusão e exclusão, conformaram um corpus de 27 artigos.*

**Resultado:** *Os artigos incluídos representam 12 países de três continentes que abordam iniquidades em saúde segundo diversos marcadores, como raça, etnia, gênero e sexo. As estratégias de abordagem das iniquidades durante a formação médica são distribuídas em disciplinas obrigatórias, eletivas, por meio de simulações clínicas, de maneira transversal ao curso, em palestras, workshops, tutorias ou ações extracurriculares. Todavia, a maioria dos estudos demonstram a pouca contextualização sócio-histórica dessas abordagens, reafirmando estereótipos, percepções negativas dos estudantes em relação aos marcadores sociais ou pouca compreensão de sua relação com o processo saúde-doença. Contudo, quando as iniquidades em saúde são abordadas de uma forma efetiva e crítica, parece haver ganhos importantes na aquisição de habilidades clínicas, responsabilização social, empatia e sensibilidade à história social dos pacientes.*

**Conclusão:** *Há uma urgência em se avançar na reorientação de cursos médicos para um cuidado capaz de reconhecer as necessidades gerais e específicas dos indivíduos e grupos sociais nas suas diferentes trajetórias de vida, amparados nos suportes teóricos e políticos das iniquidades em saúde.*

**Palavras-chave:** *Educação Médica; Iniquidades em Saúde; Política de Saúde; Recursos humanos em Saúde; Sistema Único de Saúde.*

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## INTRODUCTION

Health inequities have been studied in the field of public health, where there is a historical concern to understand the relationships between health, disease and care, based on the analysis of the unfair and avoidable inequalities by which different populations are born, live, get sick and die[1,2]. Throughout their life trajectories, people need health care, and the practices carried out by the medical profession are dominant and hegemonic, which ends up influencing and even defining the course of the practices of other health professionals and, consequently, the flows of the therapeutic processes experienced by health service users[3].

Since 1970, medical education and the medical profession in the Latin American context have been the object of several pioneering studies that proposed a sociological-critical reflection based on the Marxist framework, considering a mode of production of health professionals in modern capitalist societies. As an example, we cite the famous study "*La Educación Médica en la América Latina*"[4], where Juan César García makes important considerations about the need for a medical education capable of breaking with the positivist ideals that reduce subjects to a mere biological structure with productive capacity[5].

In the same decade, Cecília Donnangelo[6,7], Ricardo Bruno Mendes-Gonçalves[8], Madel Luz[9] and Sérgio Arouca[10] analyzed the medical professional and the practice of medicine in Brazil from several theoretical-conceptual perspectives that converge in the society-health-work-capital interaction, where the physician's role is interpreted, in some way, as an instrument for perpetuating or reducing health inequities.

Fifty years after these studies, international consensuses still indicate the existence of an chasm between medical training and the needs of populations and health systems, the result of which is a workforce that is poorly prepared for the challenges of the 21st century, with a strong hospital-centric orientation and that does not consider health in its broader concept or in its most equitable practices[11, 12].

In a favorable political situation, Brazil tried to make progress in overcoming this challenge. In 2014, new National Curriculum Guidelines (DCN, *Diretrizes Curriculares Nacionais)* for medical courses were created aiming at improving competencies, values and perspectives for the achievement of the medical graduate profile in the fields of education and health, with the inclusion in the medical curriculum of approaches and discussions considering the concepts of race, ethnicity, gender, sex and class, among others, as transversal topics. These changes intended to value social responsibility as a central element in the practice of medicine aiming at reducing inequities and inequalities in health[13], thus dialoguing with the recommendations of the World Health Organization in recognizing the impact of Social Determinants of Health (SDH) on population health[14].

In this sense, it is worth highlighting both the students' curriculum-learning interaction and the reproduction of inequalities and inequities that tend to be perpetuated from the interior of the courses to professional practice. Knowledges and practices are constituted from intentionalities, explicit or not, that manifest conceptions of health in their broadest concept, the plurality of the human condition, its intersectionalities and the presence of critical reflection[4].

In Brazil, especially since the 2000s, policies to expand access to higher education have been implemented, such as the Quota Law, the Program University for All, and the Student Financing Fund, with a consequent increase in the number of medical professionals in the country[15]. However, this process is added to a global trend of medical education privatization, especially in middle and low-income countries[16], where this expansion associated with the financialization of the sector confers a commodity characteristic not only to the professional, but to the final product of their care, health[17].

Given the old and recent disputes involved in medical education and practice, the expansion of medical schools in Brazil, and the need to subsidize policymakers, managers, and social control for the development of alternatives that break with a professional pattern of scarce social reach and effectiveness in health[18], this article aims to map the international scientific production on the approach to health inequities in medical education, considering topics, strategies and perceptions about its importance for care in the health-disease process.

## METHOD

This is a qualitative research of the scoping review type, following the structured assumptions of the Joanna Briggs Institute (JBI)[19], having as characteristics the capacity to map concepts, theories, synthesize evidence and point out gaps in an area of knowledge[20,21].

To support the performance of this review, a research question was created based on the Population, Concept and Context (PCC)[19] strategy, as follows: P=medical students C=health inequities C=training, converging to the following question: how do medical students relate to health inequities in the health-disease process during their training?

An electronic search was carried out between March 10 and May 13, 2023, in the following databases and/or virtual libraries: PubMed, for access to studies published in the Medical Literature Analysis and Retrieval System Online (Medline); Latin American and Caribbean Literature in Health Sciences (Lilacs); Scientific Electronic Library Online (SciELO);

Web of science. Additionally experts were consulted on the subject so that they could indicate studies that could also be included in the analysis.

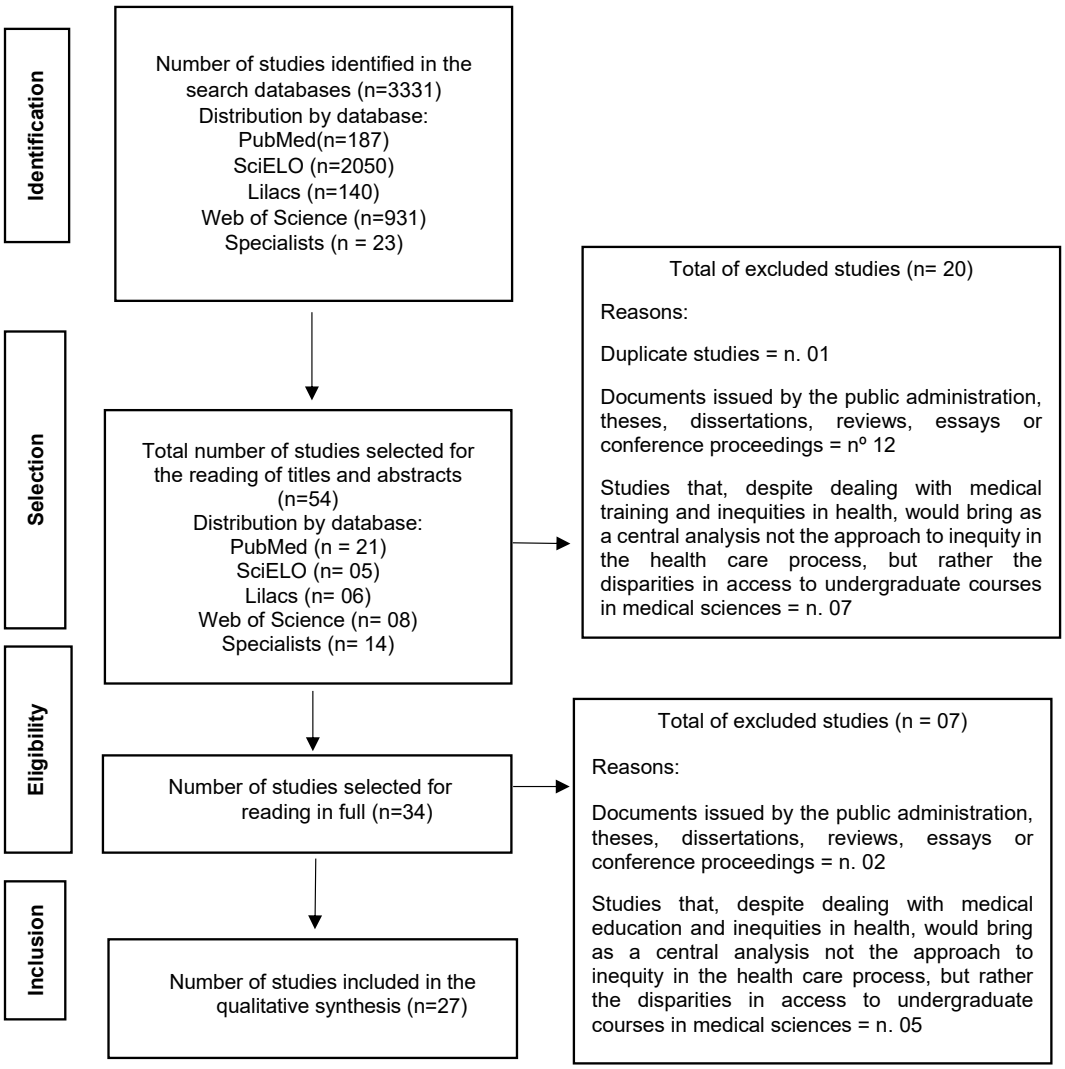
In the search strategy, the terms inequities in health and medical education referenced in the Health Sciences Descriptors/Medical Subject Headings (DeCS/MeSH) were used as the main descriptors, adapting them as needed to English and/or Spanish, also conjugating them with the Boolean operators AND and OR[20]. Thus, the following key was obtained, for instance, used in PubMed: (((((((health inequities[Title/Abstract]) OR (health inequity[Title/Abstract])) OR (inequities, health[Title/Abstract])) OR (inequity, health[Title/Abstract])) OR (health inequalities[Title/Abstract])) OR (health inequality[Title/Abstract])) OR (inequalities, health[Title/Abstract])) OR (inequality, health[Title/Abstract])) AND ((Medical students[Title/Abstract]) OR (medical education[Title/Abstract])).

Articles in Portuguese, Spanish, or English were filtered, without the delimitation of an initial publication date, to retrieve the first study published on the subject within the historical conjuncture, but with the deadline of December 31, 2022.

The searches were carried out by two independent researchers (R.C. and J.L.) guided by the eligibility criteria: i) inclusion: studies that mentioned how health inequities are addressed, worked on or perceived during medical training. ii) exclusion: studies in duplicate; Documents issued by the public administration; theses; dissertations; reviews; essays or conference proceedings; studies that, although dealing with medical training and health inequities, do not address inequity in the care or health-disease process, but other issues that do not provide any information for the researched topic. The disagreements were resolved by a third researcher (L.S.).

As referenced in the reviews by Santos et al.[21,22], Méllo et al.[20] and the JBI guidelines[19], the search process followed the operational precepts of the checklist adapted from the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (Prisma) (Figure 1).

**Figure 1.** Flowchart indicating the selection process of studies adapted from Prisma.




Source: the authors.

After the creation of the review corpus, with the studies included by the two independent researchers, both, in a collaborative way, systematized the information of the articles in a standardized form using Excel®; a third researcher was called to resolve doubts. The following data were collected: author/year, country where the study was conducted, journal in which the article was published, addressed topic, method, unit of analysis, strategy for addressing inequity in medical education, perception of health inequity in medical education or in the approach taught. Subsequently, also following the precepts of the review technique[19], the process of creation of the results and discussions was also collaborative, following the stages of data synthesis and thematic organization, based on the analytical categories described below.

The categorization of the studies was constructed based on several concepts from the social and human sciences in health, which address different social markers as indicators of the differential positions and opportunities of subjects and groups in society[14]. These concepts, applied by collective health, allow analyzing the different access and treatment of certain subjects and groups in relation to the social production of the health-disease-care process[23].

Studies categorized as race-related are those that mention characteristics or behaviors differentiated between groups based on or related to supposed biological traits, i.e., physiognomic, phenotype, or genotype. It should be clarified that this argument is currently not considered valid in scientific terms, since the concept of race refers sociologically to a discursive and historically dated construction of the origin and social identities of groups[24,25]. However, the use of the concept allows us to highlight inequities that are not the product of biological differences, but of socio-historical inequalities that can be transformed/fought.

Considering the warning by Santos et al.[26] about the tendency of health research to use the terms race and ethnicity as synonyms, we reserve the latter for studies that focus on cultural and linguistic specificities and traditions of certain groups to the detriment of phenotypic or genotypic aspects, for example, of indigenous populations.

In the gender category, articles that mention roles and values (stereotyped or not) attributed to the feminine and the masculine were grouped[27], while the gender and sexuality category encompasses studies that address the organic specificities of male or female individuals and their consequences on health/disease, as well as the diversity of sexual practices and identities of individuals and groups[28]. Articles that address inequities in general deal with inequalities in the health-disease process without referring to any marker, both in the general population and in specific groups. In addition to the more traditional approaches to inequities, considered as previous categories, the study also sought to identify new categories and emerging approaches, such as the issue of people with disabilities, homeless people, etc.

## RESULTS

### Bibliometric characteristics of the articles

This study included 27 articles distributed in twelve countries and three continents, as shown in Figure 2.

As shown in Table 1, the first mapped article of the corpus is from 2014, and the highest concentration of productions is found in 2018 and 2022 (with 6 publications each year). Regarding the type of study, 19 are qualitative, 07 quantitative and 01 quantitative-qualitative. The data production showed several approaches, such as: the documentary analysis of pedagogical projects, curriculum matrices and slides of classes in medical schools; as well as analysis of interviews/questionnaires with medical school principals or students attending the first to the last year of medical course. It is noteworthy that the first and last years of the medical course concentrated the largest number of studies, with 09 and 06 studies, respectively. The sample size of these studies ranged from 25 to 302 students.

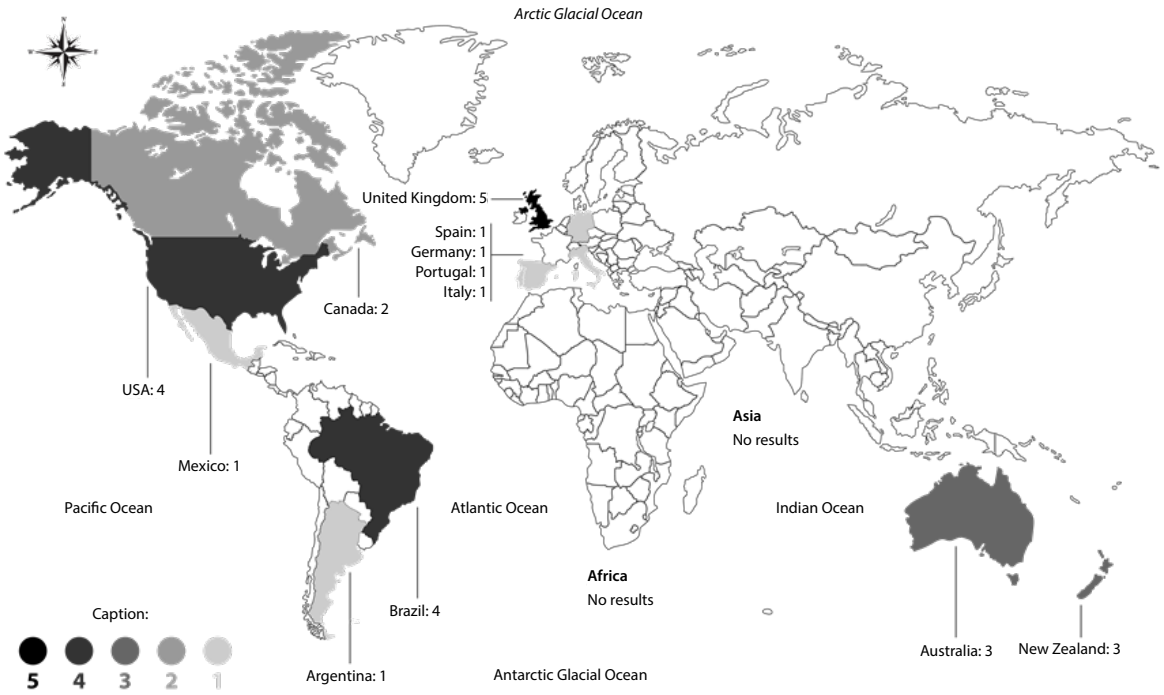
The thematic organization shown in Table 1 demonstrates that the discussions on health inequities in medical education worldwide, in decreasing numbers, depict the following cutting: race (07); ethnicity (05); inequities in general in specific populations, such as people with disabilities (PwD) (05) or homeless populations (01); inequities in general without indicating a specific audience (04); gender (03) and sex/sexuality (2). It is interesting to note that only one research group, led by Trollor et al.[29-31], concentrates three studies related to inequities in PwD in the training of physicians in Australia.

Three journals concentrated approximately 45% of the publications, being in decreasing order: BMC Med Educ. (06) from the United Kingdom[29-34], PLoS One (03) from the USA[35-37] and Rev. Bras. Educ. Med. (03) from Brazil[38-40] (Table 1).

### How are health inequities addressed in medical education?

Health inequities during medical education have been listed in mandatory[29,34,39,40,45,46,50,53], or elective disciplines[29,31,34,39,40,45,50], through clinical simulations[41], in a transversal way to the course[40,44], in lectures, workshops, tutorials[30] or extracurricular actions such as discussion forums[42], book clubs[43], summer internships[51], territorial activities[38] or academic extension programs[40] (Table 2).

**Figure 2.** Overall distribution of studies included in the review, according to country and number of findings.




Source: The authors.

**Table 1.** Overall bibliometric classification according to publication journal, topic, method and focus of data production

| Author/Year | Journal | Topic | Type of study | Unit of analysis |
|---|---|---|---|---|
| Cabral et al., 2022[40] | Rev. bras. educ. med. | Race | Qualitative | Pedagogical projects of 13 Universities in the Northeast |
| Soler-González et al., 2014[41] | FEM (Ed. impresa) | Race | Qualitative | 49 students without specifying the year |
| Bright e Nokes, 2019[42] | PRiMER | Race | Qualitative | 25 first-year students |
| Novak et al., 2022[43] | *AERA Open* | Race | Qualitative | 183 first-year students |
| Carrijo et al., 2022[44] | Int J Environ Res Public Health | Race | Qualitative | Curriculum of a medical course |
| Madeira et al., 2022[36] | PLoS One | Race | Qualitative | 153 students from the first to the last year |
| Tsai et al., 2016[45] | Acad Med. | Race | Qualitative | 350 slides of required preclinical classes from a course |
| Harris et al., 2018[32] | BMC Med Educ. | Ethnicity | Quantitative | 302 last-year students |
| Cormack et al., 2018[35] | PLoS One | Ethnicity | Quantitative | 302 last-year students |
| Pitama et al., 2019[46] | JRSNZ | Ethnicity | Qualitative | 28 students without specifying the year |
| Yeung et al., 2018[33] | BMC Med Educ. | Ethnicity | Quantitative | 129 first-year students |
| Ly and Crowshoe, 2015[47] | Med Educ. | Ethnicity | Qualitative | 38 students from the first to the second year |
| Soledad, 2018[48] | Edumecentro | Gender | Qualitative | 26 learning guides used in the thirteen disciplines corresponding to the initial cycle of medical training |
| Bert et al., 2022[37] | PLoS One | Gender | Quantitative | 430 (294 women and 136 men) students from the fifth to the last year |
| Hernández-Chablé et al., 2016[49] | Rev.fac.med. | Gender | Qualitative | 50 students from the first to the fourth year |
| Tollemache et al., 2021[34] | BMC Med Educ. | Sex and sexuality | Quantitative | Principals of 19 medical schools |

Continue...

**Table 1.** Continuation.

| Author/Year | Journal | Topic | Type of study | Unit of analysis |
|---|---|---|---|---|
| Barber et al., 2023[50] | J Med Educ Curric Dev. | Sex and sexuality | Quantitative | 296 medical students from 28 institutions without specifying the year |
| Bunting and Benjamins, 2022[51] | Prog Community Health Partnersh | Inequities in general | Qualitative | 52 students without specifying the year |
| Hommes et al., 2020[52] | BMJ Open | Inequities in general | Qualitative | Guidance documents for medical training from German associations, catalogue of questions from the national medical licensing examination (893 textual elements were analyzed) |
| Gostelow et al., 2018[53] | Med Teach | Inequities in general | Quali-quantitative | 246 fourth-year students |
| Dixon et al., 2021[54] | Clin Teach | Inequities in general | Qualitative | 10 students from the first to the fifth year |
| Freitas-Júnior et al., 2021[39] | Rev. bras. educ. med. | Inequities in general (person with disability) | Qualitative | Pedagogical projects and syllabi of curricular components of 171 medical courses |
| Ryan e Scior, 2015[55] | J Appl Res Intellect Disabil | Inequities in general (person with disability) | Qualitative | 17 students from the first to the last year |
| Trollor et al., 2020[31] | BMC Med Educ. | Inequities in general (person with disability) | Quantitative | Syllabi of disciplines from 08 medical schools |
| Trollor et al., 2018[30] | BMC Med Educ. | Inequities in general (person with disability) | Qualitative | Syllabi of disciplines from 12 medical schools |
| Trollor et al., 2016[29] | BMC Med Educ. | Inequities in general (person with disability) | Qualitative | Syllabi of disciplines from 12 medical schools |
| Cunha et al., 2020[38] | Rev. bras. educ. med. | Inequities in general (homeless population) | Qualitative | First-year students (not specifying numbers) |

Source: The authors

**Table 2.** Strategies of approaches to health inequities and their perceptions in medical education.

| Author/Year | Topic | Strategy for addressing inequity in medical education | Perception of health inequity in medical training or the approach taught |
|---|---|---|---|
| Cabral et al., 2022[40] | Race | 12 pedagogical projects brought curricular components that discussed race in a mandatory way; 09 as an elective subject; 03 as a cross-sectional approach; 02 contemplated some of the characteristics in the syllabus of the internship required for completion of the course, and 02 as extension programs and actions. | Not Informed (NI) |
| Soler-González et al., 2014[41] | Race | Clinical simulation with black and white patients. | Students prioritize some aspects of the anamnesis in a different way, depending on the patient's race. It was noticed that when the case appeared to be that of a black person, fewer tests were ordered, the patient was less likely to be sent to a hospital, and the patient was perceived as prone to exaggerating symptoms for personal gain. |
| Bright and Nokes, 2019[42] | Race | Racial discussion forum at the university addressing race, discrimination and prejudice; stereotypes and self-awareness; racism; and strategies to deal with these issues. | The forum participants mention the need for the university to address greater discussions about race and racism in the curriculum. |
| Novak et al., 2022[43] | Race | Students participate in a book club as an extracurricular activity on racism; read "Fatal Invention: How Science, Politics, and Big Business Re-create Race in the Twenty-first Century," and then discuss race and social inequalities. | It allows the development of anti-racist practices, with the promotion of more equitable health care. |
| Carrijo et al., 2022[44] | Race | The medical curriculum was reformulated guided by domains of competence: Knowledge, Skills and Attitudes. These domains cover health issues of the black population, with the objective of discussing racism as a health condition; epidemiology of health problems in the black population; the role of the family and community doctor in confronting inequities; and anti-racist practices in health. | Students, when prompted to reflect on structural racism, are able to produce critical reviews in which they articulate the content of the classes with health policies, ethical issues, aspects of clinical communication, and subjective experiences. Since 2018, teachers have observed that, during classes and in the final exam, students show that they understand the influence of issues related to the black race in the environmental, organic and genetic domains. |
| Madeira et al., 2022[36] | Race | NI | Students associate black Africans with social traits of promiscuity, less intelligence, irresponsibility, ignorance, carelessness and laziness. |
| Tsai et al., 2016[45] | Race | Compulsory or elective courses | The mention of the race was found in 102 slides. The vast majority suggested biological risk (96%) and only 4% recognized the social determinants of racial disparities of diseases. Regarding methodology, 50% of the slides showed race alongside epidemiology without context; 42% as a risk, diagnosis or treatment factor; 6% as a patient case study. Overall, race is often presented without a context. |
| Harris et al., 2018[32] | Ethnicity | NI | The students have an ethnic bias in their preference for patients and in their cordiality towards European patients to the detriment of indigenous patients. |
| Cormack et al., 2018[35] | Ethnicity | NI | The students have preferences for European patients and believe that these patients are more compliant than indigenous patients. |
| Pitama et al., 2019[46] | Ethnicity | Mandatory course on inequities in indigenous health. | The discipline enabled in the training of students: 1- a space for the defense of rights and social accountability towards indigenous peoples; 2- the knowledge and skills necessary to meet the expectations of the community. |

Continue...

**Table 2.** Continuation.

| Author/Year | Topic | Strategy for addressing inequity in medical education | Perception of health inequity in medical training or the approach taught |
|---|---|---|---|
| Yeung et al., 2018[33] | Ethnicity | NI | Although the health inequities regarding indigenous peoples are recognized, medical students do not consider legitimate conducting their demands through protests.<br>More than three-quarters of the students do not consider themselves adequately prepared to work in an indigenous community. |
| Ly and Crowshoe, 2015[47] | Ethnicity | NI | Medical students recognize that stereotypes are closely related to processes of racism and discrimination. They highlight the medical school as one of the environments in which they are commonly exposed to negative views of the aboriginal people. |
| Soledad, 2018[48] | Gender | NI | Some of the problems discussed in the disciplines reproduce gender stereotypes, relating women to domestic chores, motherhood and care. For men, those associated with strength, the role of family provider and resistance to pain are reinforced. |
| Bert et al., 2022[37] | Gender | Lectures and clinical internships | More than half of the students reported having had contact with gender issues during classes and internships in the wards. Only about half of the sample had the impression that their tutor took into account the sex and gender of patients during clinical practice.<br>Students who had greater contact with gender issues in clinical practice seem more sensitive to patients. |
| Hernández-Chablé et al., 2016[49] | Gender | NI | The students do not perceive gender issues as a public health problem, although they recognize the existence of discrimination and physical and psychological violence against women. They also do not have a critical reflection on the subject that can help them in medical practice. |
| Tollemache et al., 2021[34] | Sex and sexuality | Mandatory or elective disciplines | Teaching about LGBTQ+ mental health, gender identity, sexual orientation, awareness of LGBTQ+ inequalities and discrimination in health were reported by almost all respondents, while maternity and childbirth, chronic diseases, and LGBTQ+ adolescent health were less represented in the curriculum. The median number of reported hours of LGBTQ+ teaching in the courses was 11 hours. |
| Barber et al., 2022[50] | Sex and sexuality | Mandatory or elective disciplines | Only 40.9% of the students reported having any teaching about LGBTQ+ health. 96.6% of them said that they were isolated or very irregular sessions, and teaching was often limited to sexual health. Only 25.3% of the participants reported feeling confident working with LGBTQ+ patients. |
| Bunting 2022 Benjamins - Dates [51] | Inequities in general | Summer internship on health equity, population health, and public health research; visits to immigrant neighborhoods with the help of community health agents to get to know the territory, community organizations, reference points, local businesses and health centers. | NI |
| Hommes et al., 2020[52] | Inequities in general | NI | There are important gaps in the representation of Social Determinants of Health (SDH) in medical education in Germany. Between 3% and 27% of the documents analyzed made brief references to SDH, and only 3% made explicit references. |

Continue...

**Table 2.** Continuation.

| Author/Year | Topic | Strategy for addressing inequity in medical education | Perception of health inequity in medical training or the approach taught |
|---|---|---|---|
| Gostelow et al., 2018[53] | Inequities in general | Clinical discipline in a hybrid format, combining an online class followed by tutoring with a patient simulating important issues of their social history during an exam. | 93% of the students felt the session improved their social history collection skills from patients, 96% agreed that the session was relevant to their training, and 98% agreed that they were likely to use these skills to improve patient care. |
| Dixon et al., 2021[54] | Inequities in general | NI | The students feel unprepared and without skills to work with patients in social vulnerability. |
| Freitas-Júnior et al., 2021[39] | Inequities in general (person with disability) | Mandatory or elective disciplines | In 89 courses (52%), the inclusion of aspects related to care for people with disabilities (PwD) was identified, being more prevalent in public courses (n = 56; 62.9%). The curricular contents identified in 90% of the courses showed an absolute lack of description of the procedural strategies to promote the development of clinical skills related to care for PwD. In 50 (29.2%) of the courses, the teaching of Brazilian Sign Language (Libras) was included. |
| Ryan et al., 2015[55] | Inequities in general (person with disability) | NU | Most students report that caring for a PwD is a challenge and brings anxiety to clinical practice and that, although teaching about PwD enables greater qualification of care, providing students with knowledge and techniques for their professional performance, this is not the perception of their classmates, who devalue this type of teaching and prioritize other clinical issues. |
| Trollor et al., 2020[31] | Inequities in general (person with disabily) | Of the eight schools analyzed, seven offer an elective course on PwD that was taught in the departments of pediatrics, psychiatry, general practice, through lectures and case studies, tutorials, seminars/workshops and other methods (such as staging and clinical demonstrations), lectures. | When comparing the curricula of the eight schools between 1995 and 2014, it is clear that little progress has been made in teaching about PwD. Such situation is not unexpected since each university develops its own medical curriculum and health education for intellectual disability is not mandatory in the country. Thus, it is urgent to think about new efforts to improve the capacity of the workforce in this area and reduce barriers to care, with the aim of reversing the poor health outcomes currently observed for this group of patients. |
| Trollor et al., 2018[30] | Inequities in general (person with disability) | Lecture, workshops, tutorials | 62% of the subjects included some form of lecture, workshop or tutoring. Almost all schools (83%) used some type of problem-based and/or question-based learning.<br>A considerable number of students are still receiving education through limited and poorly reflective methods about PwD. |
| Trollor et al., 2016[20] | Inequities in general (person with disabily) | Compulsory or elective disciplines | Overall, the time spent teaching mandatory and elective content on intellectual disability was minimal, with most schools offering less than six hours of mandatory teaching across the course. The main topics relevant to the health and well-being of people with intellectual disabilities were taught infrequently.<br>There is an incompatibility between the unmet health needs of PwD and inconsistent teaching in the training of doctors. |
| Cunha et al., 2020[38] | Inequities in general (homeless people) | Extension actions with the objective of offering the homeless population comprehensive and contextualized care with spaces for health education and self-care, in partnership with the *Consultório na Rua* team. | The action allows the enhancement of attributes acquired throughout medical training, such as empathy and sensitivity, through a view aimed at minorities. Thus, a critical, reflective and transformative performance is acquired with a sense of accountability for the territory. |

Source: The authors.

Some studies reviewed herein also detail which health inequity elements are debated during medical training in its various approaches. For example, in terms of race, medical courses seem to discuss discrimination and prejudice; stereotypes; racism[42,44], social inequalities[43], health of the black population and epidemiology of their diseases[44]. Regarding sex and sexuality, a specific focus has emerged for the so-called LGBTQ+ population. The topics addressed in the classroom are mental health, gender identity, sexual orientation, and awareness of inequalities and discrimination[34]. Regarding general inequities, without reference to a specific population, one study indicated the development of clinical training to improve patient listening and social history during anamnesis[53]. In inequities focused on PwD, the contents taught are addressed in several departments of Australian schools, such as pediatrics, psychiatry and general practice[31]. Finally, a study demonstrates the operationalization of territorial clinical activities for comprehensive care aimed at homeless populations[38] (Table 2).

### Perceptions of approach strategies or of health inequities in medical education: what do the studies say?

Although studies indicate different approaches to health inequities throughout medical education, the literature has mentioned contradictions in its operationalization with scarce critical contextualization of its relations with the individuals' health-disease process. For instance, we have the race issues in the study by Tsai et al[45], gender in the study by Bert et al[37], sexuality in the study by Barber et al[50] and inequities in general related to PwD in the study by Trollor et al[29].

It is noteworthy that in clinical simulations with white and black patients in the study by Soler-González et al[41] there was an evident predilection for white patients to the detriment of black ones, which even influenced the students' therapeutic and clinical decision-making. The stereotypes involved in the concept of race among medical students are also noteworthy, due to the association between black Africans and social traits of promiscuity, less intelligence, irresponsibility, ignorance, carelessness and laziness[36].

The above considerations also seem to emerge for the ethnic marker of indigenous populations, who are treated by medical students with less cordiality and characterized as less malleable to therapeutic processes, when compared to European patients[32,35]. In turn, the study by Ly and Crowshoe[47] raises a warning about the role of the university in the reproduction of inequities, since the interviewed students mention that they are commonly exposed to negative views of the indigenous population during medical school.

According to Soledad[48], when addressing gender issues in medical education, the disciplines reproduce stereotypes, such as female roles in family care and domestic chores, and male roles as family providers or resistance to pain. The limitations in identifying this social marker as an important cause of public health problems are reproduced in the scarce critical awareness of medical students[49] or in their disregard for the organization of medical practice[37].

Regarding inequities related to PwD, a set of studies carried out with Australian medical schools was identified[29-31]. The first study raises the hypothesis that the non-mandatory teaching about PwD may contribute to the poor health indicators of this population, ultimately resulting from what the authors call inconsistent teaching in the training of doctors[29]. Regarding the approaches to health inequities in this group, the authors mention, in a later study, the scarce progress in relation to the contents taught on the topic of disability between 1995 and 2014[31].

Other studies identified in this review point to gaps in professional training, such as preparation to work in indigenous communities[33], with LGBTQ+[50] people, with people in social vulnerability[54] and with PwD[55], which translates into feelings of anxiety when students come into contact with these realities.

On the other hand, some articles show important gains for the training of physicians when inequities, in their various markers, are efficiently operationalized throughout the course, for example in the acquisition of clinical skills[46,53,55], development of equitable health practices that contextualize the patient in their ways of life[43], critical reflection[43,44], social accountability[46] and empathy and sensitivity to the patients' social history[37, 38,53].

## DISCUSSION

Health inequities are addressed in some way and through various strategies in medical education worldwide. However, criticisms and limitations have been shown about the way they are approached[29,33,37,45,50,54,55]. In principle, it is worth calling attention to the fact that, although many of the strategies reported contemplate elements of race, ethnicity, gender and sexuality, they do not contextualize these markers in the social and historical reality of individuals, thus running the risk of reinforcing an essentialist, reductionist or uncritical view of them. In other words, there seems to be no problematization of the way in which our societies understand, explain and treat social differences, translating them into hierarchies and asymmetries of power and opportunities between certain subjects and groups[1,2].

Considering the classic analytical categories applied to the analysis of social inequities in health, it is worth highlighting the lack of studies that addressed the teaching

of health inequities in medical courses from the concept of social class. This concept is recognized by the World Health Organization as a structuring element of the processes of social determination of health[14], in addition to being an analytical construct that is especially relevant to health, which has been previously discussed by pioneering studies based on historical materialism[4], as well as in the theses by Georges Canguilhem[56], who, although he did not systematically use the concept of social class, asserted that human norms are not simply functions of an organism linked to a physical environment, but expressions of the ways of living in social situations, including nutrition, working conditions, economic situation, and the education of different classes.

It is also noteworthy the absence of studies that address health inequities from an intersectional perspective. The theory of intersectionality postulates that general analytical categories, such as gender, race, or social class, when applied alone, are limited to account for specific social identities and internal differences in societies[57]. To overcome this obstacle, this perspective, absent from the studies reviewed herein, addresses the articulation or intersection of social identities and systems of oppression in different realities[58,59].

Thus, our results converge on a critical node of health education previously pointed out by Figueiredo and Orrillo[60]. These authors comment that the theoretical frameworks of health education in higher education have been based on uncritical cognitive domains supported by assumptions of the hegemonic medical model that dissociate and fragment individuals into specialties and subspecialties, disregarding their historicity. In this sense, the formative process ends up "without the expanding capacity to question and reflect on the human condition, which permeates scientific and humanistic knowledge necessary for the understanding of man, who is a biological being, but also a social and cultural one"[61(287)].

Given the negative perceptions that students project on patients, exemplified by some studies discussed here[32,35,36,41], it is necessary that the teaching-learning process of the medical course be disarticulated from retrograde ideas that construct the figure of a totally verticalized health professional with knowledges and practices that are not very affective and with authoritarian practices. Thus, attributing to the patient only a role of passivity and unquestionable adherence in a therapeutic path devoid of bond and autonomy[62] within a power structure that is built, above all, inside the classroom[63].

If classrooms reflect power structures[63], the characteristics of the teaching staff become important to influence the direction of students' professional projects. As emphasized by Rios and Schraiber[64], in the educational model of medicine, teachers are references in the students' imagination. However, if this is not articulated with humanistic development with alterity, students reproduce behaviors that are "cold, distant, disinterested in the patient, even if technically interested in their disease" [64(40)], issues that are considered historical in the medical field and work[6-10].

The positive experiences of addressing health inequities in the process of medical education are signs of a capacity for medical social transformation that needs to be stimulated and enhanced, because from the perspective of the participants of the reviewed studies, these activities and experiences provide a medical practice that is more focused on an effective, comprehensive and humanized type of care[37, 38,43,44,46,53,55].

As an alternative to the negative scenario of approaches and perceptions, it is pointed out the need for medical schools to stimulate a practice and a teaching profile that is also clothed with humanity, beyond the academic productivism expressed in the titles and numbers of published articles, and the hyper-specialization of care. In addition to the pedagogical, cognitive and social skills highlighted by Ribeiro and Medeiros[62], political skills are expected for the twenty-first century, especially when thinking of health as a human right.

To avoid reinforcing stereotypes, curricula should promote exposure to diversity and reflection on attitudes and beliefs, as well as awareness of the participation of medicine and medical education institutions in structures of power and privilege[65]. Thus, medical schools will enable the production of socially accountable, sensitive, and competent professionals to deal with diversity, breaking with a conservative medical education that is alienated from political and social struggles and with health practices that are far from the values of health promotion, solidarity, and empathy[60,66]. One of the direct results would be to emphasize and legitimize the individuals' social struggles in guaranteeing their health and rights, avoiding the limited political understanding of health, as evidenced in the study by Yeung et al[33] on indigenous issues in Australia.

It should be noted that although the approach to inequities in health education is recommended by international organizations such as the WHO[67], it is not mandatory, varying according to the laws, guidelines and recommendations of the regulatory bodies and institutions of each country. Thus, depending on the country, such discussions may vary in their degree of implementation in medical courses, and within the curricula, which are generally closed, without inter, trans or multidisciplinary contact during the training of students, with strong characteristics of early specialization[66].

It is recognized that an undergraduate curriculum is also a political territory that can be hegemonic and regressive or a place of resistance and subversion. It can be identified objectively, explicitly, in pedagogical projects[39,40], in curricula

or syllabi[28-30,44], in discipline slides[45], learning guides[48] or in guidance documents for medical training from official associations[52]; or indirectly, through more hidden elements related to norms, beliefs and values, which are reproduced by students and teachers in the classroom[60], as demonstrated in other studies of this review[32-37,41-43,46,47,49,50,51,53,54].

Our findings also indicate that in the conjuncture reviewed herein, there is a lack of preparation or little desire by medical students to work with vulnerable populations or those with special conditions[33,50,54,55], evidencing a medical project that is not oriented towards the production of equitable health practices aimed at expanding and enforcing the populations' right to health. In this sense, paraphrasing Almeida-Filho[68], what would be the role of medical schools and future professionals, to serve the elites or to serve the people? It is necessary to rethink globally a medical education project that breaks with the historical ideal of profit and social privilege, whose main objective is financial return and not human care[69].

## FINAL CONSIDERATIONS

Specific markers of health inequities such as race, ethnicity, sexuality and gender are addressed in medical education, but the vast majority of studies point to a certain fragility and superficiality in their performance, which ends up contributing little to a critical perception of the individuals' health-disease process.

On the other hand, studies have pointed to important gains in clinical, behavioral and affective skills for future physicians during their training when exposed to educational practices that enabled dialogical, contextualized and social-historically referenced discussion.

It is urgent to advance in the reorientation of medical courses towards care capable of recognizing the general and specific needs of individuals and social groups in their different life trajectories, maintained by the theoretical and political supports of health inequities. Here, we highlight the importance of including Human Sciences disciplines in medical education. The so-called "Medical Humanities" are not absent from the curricula of health schools, but their relevance is often contested and the content of these subjects is often diluted in expressions closer to technical rationality. The defense of the history, philosophy and sociology of medicine not as optional disciplines, but as an essential part of medical education, is not recent, and in recent decades these medical humanities have been recognized as a method for clinical decision-making[70].

Far from having exhausted the discussions around the topic, with the intention of instigating other studies, we make the following suggestions: I- in the global distribution of the articles mapped here, a predominance of studies in middle and high-income countries, with a low prevalence of studies in the Global South, was noticeable; thus, the following question arises: what is the perspective of health inequities in medical courses in low-income countries or in the Global South? Latin America has an important tradition in the field of social medicine with discussions about health inequities, so the scarcity of studies in this geographical location draws attention. II- What is the influence of the colonization process, and the intersections that coloniality has influenced in the very conceptions of health and in the medical training model?

The limitations of this article are expressed in the lack of contextualization of the social protection and health systems of the addressed countries with their educational system, as they reflect the very conception of health and care exercised by medical professionals which, without a doubt, converge to a project of society in dispute.

## AUTHORS' CONTRIBUTIONS

Liliana Santos, Romario Correia dos Santos, Juliana Lima Ferreira, Ana Maria Rico and Tiago Santos Almeida contributed equally to the study conception, data analysis, writing and critical review of its content, and approval of its final version.

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## CONFLICTS OF INTEREST

The authors declare no conflicts of interest

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