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Ethnoracial Considerations in Pharmacy Education: A Curriculum-Based Review of Brazilian Federal Universities

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Abstract

Integrating ethnic-racial topics into pharmacy education aligns with national educational guidelines that promote holistic care, equity in health services, and skills for advancing social justice. Despite this foundation, such content is still inadequately incorporated into undergraduate pharmacy programs in Brazil, notwithstanding policy efforts and the country's rich ethnic-racial diversity. To examine how ethno-racial topics are integrated into the undergraduate pharmacy programs across all Brazilian federal higher education institutions (IFES). This descriptive research analyzed pharmacy curricula from these institutions. Two investigators independently extracted data, resolving any differences through discussion and agreement. Key elements collected included ethno-racial topics (e.g., African-descended populations, Indigenous groups, health disparities, racism), curriculum document features, course characteristics, and specific content. Textual analysis was conducted using Iramuteq software with Hierarchical Descending Classification (HDC).

Of the 50 curricula reviewed, slightly more than half (56%) featured courses that addressed ethno-racial topics. Among those that did, most courses were required (64.9%), fell within the social and behavioral sciences domain (56%), and did not center exclusively on ethno-racial content (86.5%). The HDC produced a dendrogram with five clusters: clusters 2 and 1 linked closely to regulatory educational standards, whereas clusters 5, 4, and 3 related to anthropological perspectives, public policies for Black and Indigenous communities, traditional knowledge systems, and biologized views of race. In general, few institutional pedagogical frameworks deeply engaged ethno-racial topics, often limiting coverage to brief mentions of policy requirements rather than exploring their deeper historical and societal implications. These findings highlight the importance of targeted institutional initiatives to better enact policies fostering social justice and patient-focused care.

Keywords: Racial groups, Ethnic and racial minorities, Health inequities, Pharmacy education, Curriculum

Introduction

The shift toward biopsychosocial and patient-centered health frameworks underscores the importance of building skills that view ethnic and cultural diversity dynamically, rather than as fixed categories. This need extends to health education programs, policy documents, and professional guidelines [1–4]. Cultural competence in healthcare has advanced to enable respectful and effective interactions with diverse patients, families, and communities, though significant obstacles remain [5–11].

Research shows that ethnocentric approaches in health services impact professional training, care delivery, and policy development [7, 12, 13]. Historically, these approaches have favored white groups, sidelining Afro-descendant, Indigenous, and immigrant populations and worsening health inequalities [10, 11, 14–16]. Ethno-racial dynamics are intricate, influencing various social domains like education, politics, economy, and culture. They involve persistent structural inequalities alongside resistance, identity, and discrimination against racialized communities [17]. Racism and ethno-racial disparities

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are established social determinants of health, appearing in healthcare through institutional policies that heighten vulnerability and individual biases—often unconscious—that affect treatment decisions, creating racial hierarchies in care [1, 2].

Eradicating racism is essential for meeting worldwide public health targets [5]. In the U.S., health professionals are urged to challenge systemic racism in care and collegial interactions [6]. The Accreditation Council for Pharmacy Education (ACPE) stresses that pharmacy students should understand social determinants of health and examine personal biases [7]. Pharmacy training aims to equip professionals for evolving health needs, including recognizing disparities like limited medication access for racialized groups, such as African Americans [7, 12].

Instruction on ethno-racial topics in health training often emphasizes disparity data, cultural competence, and social determinants. While valuable, these methods frequently overlook root causes like structural racism [18], risk reinforcing biological notions of race, and neglect implicit bias or historical contexts [6]. Applying Critical Race Theory (CRT) in pharmacy programs could help learners identify racism's origins, effects, and unjust structures affecting racialized people. CRT examines how societal elements perpetuate subordination of diverse racial groups, asserting that structures are not race-neutral and influence thinking and relationships [6, 19].

In Brazil, since 2003, policies and regulations have mandated coverage of Indigenous, African, and Afro-Brazilian history and culture across education levels, driven by social advocacy [20–22]. Health programs have adapted guidelines to reflect societal needs and diversity [14, 15]. Pharmacy curricula stress training pharmacists who are culturally sensitive, committed to social justice, and attuned to ethno-racial dynamics [15, 16]. Yet, limited research explores actual implementation. This study thus investigates the integration of ethno-racial content in pharmacy programs at Brazilian federal higher education institutions.

Materials and Methods

This descriptive research analyzed undergraduate Pharmacy curricula from September 2021 to July 2022. Brazil has over 750 Pharmacy programs (both public and private) [23], but the study focused exclusively on the 50 programs offered by Federal Higher Education Institutions (IFES). These were selected due to their publicly accessible curricular documents, which stemmed from higher institutional transparency and simplified data retrieval.

The roster of IFES Pharmacy programs was compiled from the National Institute for Educational Studies and Research database in September 2021 [16]. Researchers identified the official websites for each program and downloaded curricular matrices and pedagogical project documents. When documents were unavailable online, they were obtained through direct email requests to the institutions or via the Integrated Ombudsman and Information Access Platform.

Two researchers (NCC and FCAN) independently extracted data after preliminary discussions to standardize terminology. Variables collected included the document's creation year, presence of ethno-racial content in courses, geographic region of the institution, academic year when the course was offered, course title, credit hours/workload, status (mandatory or elective), and detailed syllabus or content descriptions.

Ethno-racial content was defined based on existing literature about teaching these topics in health professions education, along with national curricular guidelines and regulatory documents [15, 16, 20, 21]. Courses were evaluated for references to terms and concepts such as African-descended populations, Indigenous Peoples, race, ethnicity, racism, cultural competence, health disparities, Afro-Brazilian health, and Indigenous health. Courses were classified as “theme-specific” if entirely devoted to ethno-racial topics or as “addressing the theme” if these elements appeared within wider subjects. Courses were further grouped into three major areas—Social, Behavioral, and Administrative Sciences; Clinical Sciences; and Basic/Other Sciences—using the framework from Nunes-da-Cunha (2016) [24].

Following independent extraction and initial classification by the two researchers, a third investigator (M.R.S.) reviewed the dataset for inconsistencies. Any discrepancies were resolved through group discussions among all three researchers, allowing for iterative refinement of criteria and consensus on interpretations. This process enhanced reliability and uniformity in coding.

Once finalized, descriptive statistics were calculated using absolute and relative frequencies. All syllabi and pedagogical project sections referencing ethno-racial

topics were assembled into a single textual corpus for further analysis.

Textual processing and analysis employed Iramuteq software, which supports quantitative treatment of text through metrics like word frequencies, co-occurrences, and statistical associations (e.g., chi-square tests, χ^2). These are combined with qualitative insights to maintain contextual nuance [25, 26].

The software offers multiple functions, including lexicographic statistics, correspondence analysis, similarity analysis, and word clouds. Here, Hierarchical Descending Classification (HDC) was used. HDC divides the corpus into classes based on shared vocabulary, segmenting text by root-word frequency. Reliable results require retention of at least 75% of text segments [26].

Iramuteq applies correlation principles, using reduced word forms and a built-in dictionary to build a hierarchical class structure grounded in significant word associations (primarily via chi-square tests). Outputs include a dendrogram visualizing the classification, along with class-specific lexicons and representative text segments. These elements were then interpreted in light of supporting literature [25–27].

Results and Discussion

General data

The analysis encompassed all 50 Pharmacy programs at Brazilian Federal Higher Education Institutions. Of these, 28 curricula (56%) contained courses that addressed ethno-racial topics, and 22 (44%) pedagogical projects referenced related content. Most documents (48, or 96%) were created after 2004, with 17 (34%) issued or updated after 2017.

Considering Brazil's large geographic size and regional variations in culture and economy that shape curricula, results were stratified by region. A majority of programs incorporated ethno-racial content in the Central-West (100%), South (62.5%), and Southeast (56.3%) regions. In contrast, less than half did so in the Northeast (46.7%) and North (20%) regions.

Table 1. Characteristics of the disciplines that address ethnic and racial issues at federal pharmacy higher education institutions (n = 74)

	Number of subjects (%)
Classification of subjects	
Mandatory	48 (64.9)
Optional	26 (35.1)
Category	
Specific to the theme	10 (13.5)
Addressing the theme	64 (86.5)
Area	
Social, Behavioral and Administrative Sciences	42 (56.8)
Basic/Other Sciences	17 (23.0)
Clinical Sciences	15 (20.3)
Year or course	
1 st year	17 (23.0)
2nd year	6 (1.38)
3rd year	10 (13.5)
4th year	13 (17.6)
5th year	2 (2.70)
Not specified	26 (35.1)
Workload (hours)	
> 60 h	17 (22.97)
60 h	12 (16.2)

< 60 h	44 (9.5)

Of the 74 courses that incorporated ethno-racial topics, 48 (64.9%) were compulsory. Within this group, 27 (56%) were classified under Social, Behavioral, and Administrative Sciences, and 47 (98%) integrated ethno-racial content, with just one course exclusively devoted to the theme.

Across all subjects, the majority (56.8%) fell within Social, Behavioral, and Administrative Sciences, had a workload of fewer than 60 hours (59.5%), and 26 (35.1%) did not indicate the specific academic year of offering. Among the 48 courses that did specify the year, 17 (23%) were scheduled for the first year of the program. In terms of thematic depth, 64 courses (86.5%) included ethno-racial elements as part of broader content, whereas only 10 (13.5%) were designated as specifically focused on ethnic-racial issues.

Textual analysis

Iramuteq software was used to analyze and cluster, based on similarity, the content from courses and pedagogical projects that addressed ethno-racial topics. The textual corpus consisted of 1,163 distinct words, occurring a total of 4,525 times. The Hierarchical Descending Classification (HDC) — which groups text segments according to shared vocabulary — retained 83.33% of the corpus. After processing word frequencies, HDC produced a dendrogram that identified five thematic classes and illustrated their interconnections.

The classification began with an initial split that separated Class 2 (20% of the corpus) and Class 1 (13.8%). A subsequent division isolated Class 5 (25%) from the remaining subgroup, which further subdivided into Class 3 (25%) and Class 4 (16.2%). The dendrogram incorporated the top 20 most frequent words; examination of these words within their corresponding text segments verified the inclusion of ethno-racial themes across the documents. Classes were interpreted sequentially from left to right, following the software's recommended order.

Class 2 directly referenced regulatory frameworks governing ethno-racial topics in education, citing relevant laws and resolutions issued by the National Council of Education. Its most representative text segment read: “The Pedagogical Project of the Course takes into account the resolution concerning the National Curricular Guidelines for the Education of Ethnic-Racial Relations and for the Teaching of Afro-Brazilian and African History and Culture.” **Figure 1**

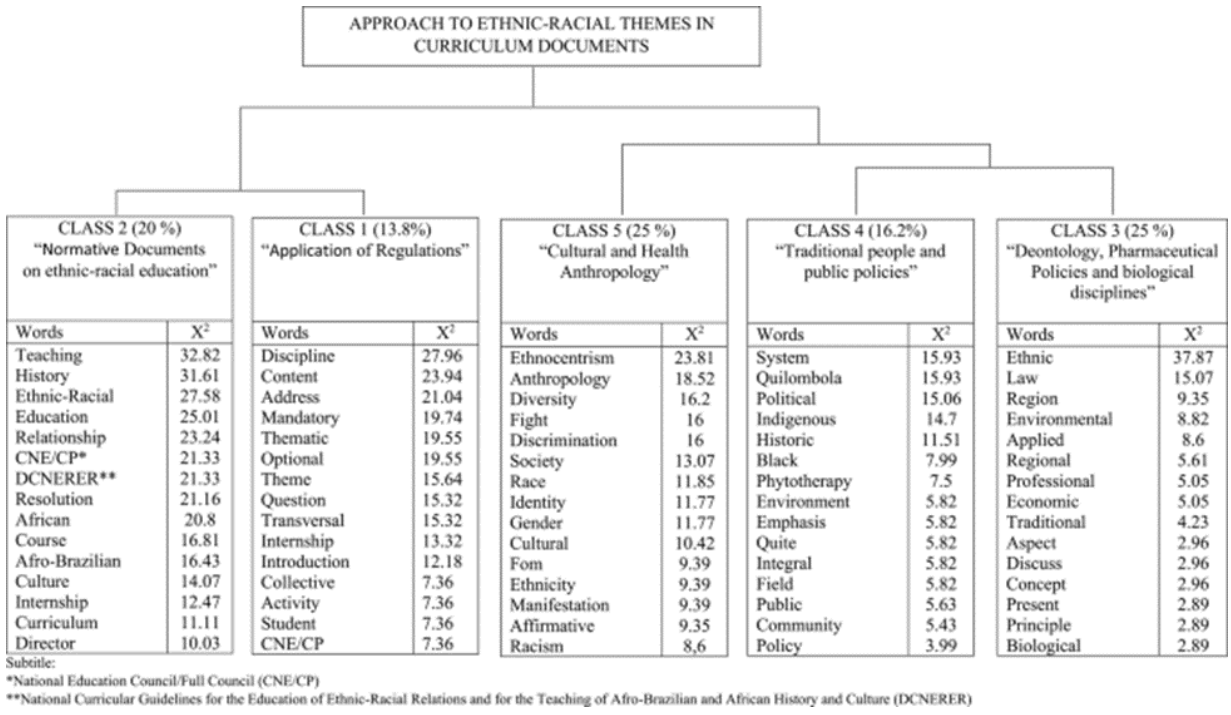

Figure 1. Dendrogram from the Hierarchical Descending Classification (HDC) of the textual corpus derived from pedagogical projects and courses addressing ethnic-racial themes.

Class 1 shares close ties with Class 2 owing to overlapping content, as both emphasize legal and regulatory aspects. Class 1, however, stands out by concentrating on practical strategies for implementing guidelines and ordinances. These include supervised internships, community engagement, undergraduate research initiatives, and theoretical instruction delivered through compulsory and elective courses at both undergraduate and graduate levels. A representative excerpt illustrates this approach: "In the Pedagogical Project of the Course (PPC), topics linked to the national curricular guidelines on ethnic-racial relations education and the teaching of Afro-Brazilian and Indigenous history and culture are integrated transversally through various activities and mandatory/elective subjects, for example, the study of ethnic-racial relations, Afro-Brazilian history, and culture within collective health courses…".

The second major partition yielded three classes that display both thematic connections and distinctions. Together, these classes explore how ethno-racial topics are incorporated into student training.

Class 5 mainly covers anthropological concepts applied to health. A key text segment exemplifies this: "…the approach to ethnic-racial relations will rely on transversality across curricular components, with greater emphasis in specific subjects such as cultural anthropology. This discipline should foster political and historical awareness of Brazilian diversity as a pathway to promoting human equality, valuing the cultural and aesthetic contributions of African-descended peoples, dismantling stereotypes, and combating prejudice and discrimination through critical reflection, investigation, and discussion of the institutional, historical, and discursive foundations of racism…".

Class 4 focuses on public policies and topics related to traditional and Indigenous knowledge systems, including phytotherapy, ethnobotany, ethnopharmacology, comprehensive Indigenous health policies, pharmaceutical services for Indigenous and quilombola communities, traditional knowledge, and integrative practices. One illustrative segment mentions the "History of Phytotherapy in the World and in Brazil," underscoring the role of plants in Afro-Brazilian and Indigenous cultures and their contributions to the evolution of phytotherapy in Brazil.

Class 3, while overlapping with Class 4 in areas such as environmental concerns and public policies, adopts a narrower lens centered on deontology and pharmaceutical legislation. It addresses ethno-racial issues through biological and pharmaceutical development angles. Examples include: "…in the Genetics course, biological aspects of ethnic similarities and differences are examined in relation to the concept of race and its links to prevalent genotypes in specific populations. In Ethics and Pharmaceutical Legislation, the focus is on the legal framework governing ethics, pharmaceutical practice, and sanitary regulations, alongside respect for human rights and ethno-social and cultural contexts." Overall, this class leans more toward foundational and professional sciences that shape pharmacy practice, providing guidance for pharmacists in their professional responsibilities.

Among the examined curricula, slightly more than half incorporated ethno-racial content. This result points to a systemic shortfall, especially in a country like Brazil, which is home to the world's largest Black population outside Africa. Earlier research has likewise noted that Brazilian health professions education often marginalizes topics related to ethno-racial issues and their effects on the health of racialized groups [14, 15]. Comparatively, in the United States and Canada—where Black or African American individuals comprise 13.6% and 2.5% of the population, respectively—pharmacy programs frequently overlook the socio-political aspects of race and its influence on health outcomes [28, 29]. Consequently, academic institutions must prioritize the integration of content focused on caring for these populations.

Over the past two decades, Brazilian educational laws, assessment tools, and specific metrics have encouraged the cultivation of competencies in Ethnic-Racial Relations, potentially fostering the inclusion of such topics in pharmacy training [16, 20]. Yet, the present analysis reveals that institutions are not fully meeting these expectations. In parallel, the U.S. Accreditation Council for Pharmacy Education (ACPE) stresses that pharmacy students and practitioners should demonstrate awareness of and sensitivity to patients' unique traits, including culture, race/ethnicity, socioeconomic status, gender, diversity aspects, and identity [7]. Although standards mandate coverage of health disparities and

cultural competence, evidence of consistent curricular implementation remains limited [30, 31]. Effective incorporation of these elements is therefore essential to enable pharmacists' technical expertise to enhance care for vulnerable groups [32, 33].

The textual analysis employed Iramuteq software to cluster content segments based on lexical similarities and statistically significant word associations (using chi-square tests). The resulting classes reflect conceptually linked themes across the documents. Class 2 centered on regulatory frameworks, indicating that laws and policies often serve as the primary drivers for introducing ethno-racial topics into pharmacy education. Many documents, however, provided only superficial explanations of how these guidelines are put into practice. The 2015 ACPE standards, for instance, do not treat diversity and equity in healthcare as standalone elements [7] but embed them within wider areas like cultural awareness and professional communication. In Brazil, a survey of health program coordinators on racial equity found that adherence to regulations was more commonly cited as the motive for inclusion than genuine acknowledgment of the topic's importance. True integration of ethnic-racial education should transcend mere compliance; it demands a profound commitment grounded in historical awareness and reparative justice for marginalized communities [15, 34].

Regional data stratification showed greater inclusion of ethno-racial themes in institutional documents from the Central-West, South, and Southeast regions. This pattern is striking, given that Brazil's largest Black and Brown populations are concentrated in the North and Northeast, while Indigenous communities predominate in the Central-West and North. Such discrepancies highlight a misalignment between demographic profiles and curricular priorities [35]. One possible explanation lies in regional variations in regulatory adherence: according to INEP data [23], the South and Southeast demonstrate higher compliance, with the Southeast boasting the most institutions achieving the top score of 5 on the IGC quality index (scale 1–5), and states scoring 4 also largely from these areas. Greater legislative conformity, however, does not automatically translate to deeper engagement with ethno-racial issues. The 2022 Brazilian Annual Public Security Yearbook indicates that these regions record some of the highest incidences of racial crimes and racism, with the Central-West showing the greatest average number of racism cases against Indigenous peoples across federal units [36]. These findings underscore the multifaceted nature of racial dynamics in Brazil, warranting nuanced examination by scholars.

In Class 1, key terms like subject, content, mandatory, optional, and transversal pointed to approaches for enacting ethnic-racial relations policies. As Pearson and Hubball (2012) argue [37], effective integrated pharmacy curriculum design requires horizontal and vertical alignment, supported by structural and pedagogical strategies that foster connected learning. Diverse teaching methodologies and sustained, multilayered integration are vital for dismantling structural racism and its health consequences [38, 39]. Pharmacy educators should thus embed ethno-racial content and its health impacts both horizontally and vertically across didactic and experiential curriculum components.

Courses tackling ethno-racial topics were predominantly in social and behavioral sciences, compulsory, and not exclusively dedicated to the theme. The dominance of mandatory offerings in this domain marks an advance. Nunes-da-Cunha (2016) [24, 40] observed that U.S. and Canadian programs feature more social and behavioral science courses than European ones (only 26% of European curricula include them, versus just 6% of North American schools lacking such offerings). In contrast, pharmacy programs in India and Jordan typically omit social, behavioral, and health policy sciences altogether. Within social sciences, incorporating determinants like ethno-racial inequalities and institutional racism can cultivate multicultural viewpoints and foster competent, anti-racist professional interactions [30, 31].

A study of U.S. and Canadian pharmacy schools found that coverage of health disparities, cultural competence, and health literacy often remains introductory, delivered mainly through electives or, in some cases, required elements [15, 39]. No consensus exists on optimal teaching models for these topics in pharmacy. Researchers advocating for equity, social justice, and systemic racism in training stress the value of longitudinal, transversal, and interdisciplinary approaches starting early in the program [14, 37]. Practical courses in Social and Administrative Sciences, as well as Pharmaceutical and Biological Sciences, should incorporate these elements—as demonstrated in a U.S. longitudinal study where curriculum-wide integration of cultural competence improved students' perceptions, comprehension, and application of health literacy [29, 39].

Unlike Classes 1 and 2, which drew from pedagogical projects, the other classes reflected course syllabi content. Class 5 featured concepts like ethnocentrism, diversity, discrimination, race, and racism, primarily in humanities and behavioral sciences courses such as Cultural Anthropology and Health Anthropology. Addressing race and racism's effects in healthcare can be difficult; while anti-racism education in pharmacy is emerging, pedagogical strategies and their influence on student attitudes and actions remain underexplored [30, 39]. Nonetheless, teaching these issues advances ethnic-racial discourse, given that discrimination and racism affect professional practice and patient outcomes—from implicit biases toward Black patients to exclusionary criteria in pharmacotherapy services [28, 41, 42].

Class 4 approached ethno-racial themes with an emphasis on Indigenous populations, via electives like Indigenous Health and Pharmaceutical Care for Indigenous Peoples, as well as broader units covering Indigenous history and culture, traditional knowledge, medicinal plants/phytotherapy, social movements, and public policies. Including these topics is crucial, as Indigenous groups worldwide face disparities tied to limited access to social and health services, deeply rooted in racism and colonialism [43].

An elective course in Canada designed to prepare students for delivering pharmaceutical care to Indigenous peoples underscored the value of compulsory, hands-on courses to enhance comprehension of Indigenous history and its effects on healthcare [44]. Nevertheless, approaches to this population require care to avoid reinforcing stereotypes stemming from insufficient cultural knowledge. Embracing decolonized and Indigenized pedagogy, combined with anti-racism training, could better serve these communities by improving the acceptability and efficacy of pharmaceutical services [45, 46].

Ethno-racial relations also appeared in courses like Genetics and Hematology, as reflected in Class 3. While some curricula highlight diseases with ethnic associations in racialized groups—such as sickle cell anemia, glucose-6-phosphate dehydrogenase deficiency, hypertension, and diabetes mellitus—a critical examination of the biological conceptualization of race/ethnicity is essential. Genomic studies have established that no genetic differences support race as a biological category; rather, it is a social construct [47]. Yet, race persists as a variable in diagnostic algorithms and treatment protocols [48]. Consequently, guidelines relying on this marker face growing criticism for being biased, unscientific, and potentially exacerbating healthcare disparities. That said, certain pharmacokinetic variations, drug efficacy, or safety profiles do differ across groups due to intertwined environmental, social, and pharmacogenetic influences [49, 50]. The link between race/ethnicity and health is complex and multifactorial; underlying factors must be thoroughly explored to prevent racial bias, stereotyping, and the pathologization of racialized communities [49].

Literature consistently identifies social determinants as primary drivers of health inequities, with particular attention to ethno-racial disparities and the role of racism [48]. Racism—manifesting as systemic, cultural, interpersonal, or institutional—sustains these gaps, threatens public health, impedes equity efforts, and obstructs patient care [20, 21]. In the United States, pharmacy education increasingly prioritizes structural and cultural competence to equip students to identify and confront systemic inequalities, though care must be taken to avoid inadvertently perpetuating stigma in clinical settings [31, 39, 48]. Thus, pharmacy training should emphasize profound insight into social, economic, and political determinants of health to eradicate racially biased practices.

The representative terms emerging from this study reveal contrasting forces shaping curricula and the obstacles to developing culturally competent pharmacists. Education is influenced by social, political, economic, and cultural dynamics, encompassing issues like social justice and anti-racist pedagogy. The curriculum serves as a key site for enacting national educational policies and selecting content. In practice, however, curricula are not neutral; they often reflect the interests of dominant groups in determining what knowledge is valued and transmitted [51]. Despite legal mandates and incentives for incorporating ethno-racial content, only some institutions actively support anti-racist efforts and the dismantling of institutional, structural, and implicit racism—elements that undermine patient-centered care delivered by future pharmacists.

Given the results, no uniform model emerged for integrating ethno-racial topics into pharmacy education. Core concepts—such as racism, discrimination, prejudice, race/ethnicity, whiteness, class, and Brazilian racial dynamics—should be embedded in undergraduate pharmacy curricula. Additionally, the concept of coloniality—a power structure that positioned Europe as the sole legitimate source of scientific knowledge while

marginalizing American, African, and Asian contributions—remains relevant today and warrants attention in pharmacy training. Curricula continue to exhibit Eurocentric bias, dominated by white scholars with limited involvement of Black and Indigenous knowledge producers [52].

Varga [53] suggests addressing ethno-racial issues through topics like the permeation of racism in public policies and Brazilian institutions; the evolution of health policies and practices as social constructs arising from historical interethnic conflicts and domination; and interethnic relations. For Indigenous-specific content, coverage should include ethnology, history, social struggles, health policies, environmental sanitation, epidemiological profiles, and health statistics. Broader topics—such as prevalent diseases in racial groups linked to institutional racism and social determinants; morbidity and mortality patterns by gender, age, region, and race/color/ethnicity; and Black population health as outlined in the National Policy for Comprehensive Health of the Black Population [21]—are also essential. Importantly, these subjects should move beyond theory to include community outreach and research involving rural, Black, Quilombola, and Indigenous populations.

This study has notable strengths and limitations. To our knowledge, it is the first to systematically map the integration of ethno-racial themes in pharmacy education across Brazil's Federal Higher Education Institutions (IFES), offering a basis for critical examination of race and ethnicity in health training. Limitations include the focus solely on documented curricula, which may not reflect actual classroom practices, and the restriction to IFES (only 7% of Brazil's pharmacy programs), reducing generalizability. Future studies should encompass a broader institutional sample to advance knowledge in this field.

Conclusion

This study characterized the integration of ethno-racial topics in undergraduate pharmacy programs at Brazilian Federal Higher Education Institutions (IFES). It found that only about half incorporated such content, mainly through required courses in Social, Behavioral, and Administrative Sciences. Textual analysis indicated heavy reliance on national educational guidelines, prioritizing formal compliance over deeper historical consciousness or reparative approaches for racialized groups.

These insights call for additional research to evaluate pharmacists' preparation regarding race and ethnicity, including the effects of such training on health equity and anti-racism efforts. Pharmacy educators should develop expertise in anti-racist, decolonial, and critical pedagogies to better grasp the historical, social, environmental, and political factors that make race and ethnicity risk markers for disparities, along with their origins and structural impacts. Finally, robust, practical government actions are required to enforce public and educational policies that expose and dismantle racial inequalities, fostering social justice and truly patient-centered pharmacy practice.

"Workload refers to the total number of hours assigned to the subject in the official curriculum."

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References

1. Dehon E, Weiss N, Jones J, Faulconer W, Hinton E, Sterling S. A systematic review of the impact of physician implicit racial bias on clinical decision making. Acad Emerg Med. 2017;24(8):895–904.
2. Hall WJ, Chapman MV, Lee KM, Merino YM, Thomas TW, Payne BK, et al. Implicit racial/ethnic bias among health care professionals and its influence on health care outcomes: A systematic review. Am J Public Health. 2015;105(12):e60–76.
3. Lakshmi N, Adetayo OA. Cultural competence and ethnic diversity in healthcare. Plast Reconstr Surg - Glob Open. 2019;7(5):e2219.
4. Sharma K, Grant D, Parikh R, Myckatyn T. Race and breast cancer reconstruction. Plast Reconstr Surg. 2016;138(2):354–61.
5. Ford CL, Airhihenbuwa CO. Critical race theory, race equity, and public health: toward antiracism praxis. Am J Public Health. 2010;100(S1):S30-5.
6. Rockich-Winston N. Critical race theory for pharmacy diversity curriculum. Am J Pharm Educ. 2018;82(2): 6929.

7. ACPE. Accreditation standards and key elements for the professional program in pharmacy leading to the doctor of pharmacy degree (Standards 2016). 2015.
8. Culley L. Transcending transculturalism? Race, ethnicity and health-care. Nurs Inq. 2006;13(2):144–53.
9. Sharifi N, Adib-Hajbaghery M, Najafi M. Cultural competence in nursing: a concept analysis. Int J Nurs Stud. 2019;99: 103386.
10. Suh EE. The model of cultural competence through an evolutionary concept analysis. J Transcult Nurs. 2004;15(2):93–102.
11. Liu J, Gill E, Li S. Revisiting cultural competence. Clin Teach. 2021;18(2):191–7.
12. McLaughlin JE, Bush AA, Friedman AD, Lai SK. Immersive research experiences for high school students aimed at promoting diversity and visibility in pharmacy education. Am J Pharm Educ. 2020;84(3): ajpe7589.
13. Shepherd SM, Willis-Esqueda C, Newton D, Sivasubramaniam D, Paradies Y. The challenge of cultural competence in the workplace: perspectives of healthcare providers. BMC Health Serv Res. 2019;19(1): 135.
14. Conceição MC, Da, Riscado JLDS, Vilela RQB. Relações étnico-raciais Na perspectiva Da Saúde Da população Negra no Curso de medicina: análise curricular. Rev Bras Ensino Super. 2018;4(3):34.
15. Santana RAR, Akerman M, Faustino DM, Spiassi AL, Guerriero ICZ. A equidade Racial e a educação Das relações étnico-raciais Nos cursos de Saúde. Interface. 2019. 10.1590/interface.170039.
16. Brasil. Ministério da Educação. Resolução no 06, de 19 de outubro 2017. Diretrizes Curriculares Nacionais do Curso de Graduação em Farmácia. Diário Oficial da União. 2017.
17. Koga D, Sant'Ana RS, Martinelli ML. Questão étnico-racial: desigualdades, lutas e resistência. Serv Soc Soc [Internet]. 2018;(133):399–405. http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0101-66282018000300399&lng=pt&tlng=pt.
18. Edgoose J, Brown Speights J, White-Davis T, Guh J, Bullock K, Roberson K, et al. Teaching About Racism in Medical Education: A Mixed-Method Analysis of a Train-the-Trainer Faculty Development Workshop. Fam Med. 2021;53(1):23–31 https://journals.stfm.org/familymedicine/2021/january/edgoose-2019-0346/.
19. Wusu MH, Baldwin M, Semenya AM, Moreno G, Wilson SA. Racial Justice Curricula in Family Medicine Residency Programs: A CERA Survey of Program Directors. Fam Med. 2022;54(2):114–22 https://journals.stfm.org/familymedicine/2022/february/wusu-2021-0108/.
20. Brasil. Ministério da Educação. Resolução no 1, de 17 de junho 2004. Diretrizes Curriculares Nacionais para a Educação das Relações Étnico-Raciais e para o Ensino de História e Cultura Afro-Brasileira e Africana. Diário Oficial da União (Internet). 2004. Seção 1:11. https://portal.mec.gov.br/cne/arquivos/pdf/res012004.pdf.
21. da Saúde. Secretaria de Gestão Estratégica e Participativa. Departamento de Apoio à Gestão Participativa e ao Controle Social. BM. Política Nacional de Saúde Integral da População Negra: uma política para o SUS / Ministério da Saúde, Secretaria de Gestão Estratégica e Participativa, Departamento de Apoio à Gestão Participativa. Brasília Ed do Ministério da Saúde. 2017;3:44.
22. Brasil. Fundação Nacional de Saúde. Política Nacional de Atenção à Saúde Dos Povos indígenas (Internet). 2nd ed. Brasília: Ministério da Saúde; 2002. p. 40. https://bvsms.saude.gov.br/bvs/publicacoes/politica_saude_indigena.pdf.
23. Instituto Nacional de Estudos e Pesquisas Educacionais Anísio Teixeira (Inep). e-MEC: Cadastro das Instituições e Cursos de Educação Superior(internet). Brasília: Ministério da Educação; 2021. Available from: http://emec.mec.gov.br.
24. Nunes-da-Cunha I, Arguello B, Martinez FM, Fernandez-Llimos F. A comparison of patient-centered care in pharmacy curricula in the United States and Europe. Am J Pharm Educ. 2016;80(5):83.
25. Soares SSS, da Costa CCP, Carvalho EC, Queiroz ABA, Peres PLP, de Oliveira Souza NVD. Teaching Iramuteq for use in qualitative research according to YouTube videos: an exploratory-descriptive study. Rev Da Esc EnfermUSP. 2022;56:e20210334. 10.1590/1980-220X-REEUSP-2021-0396.
26. Camargo BV, Justo AM. Tutorial para uso do software de análise textual IRAMUTEQ [Internet]. 2013. Available from: http://www.iramuteq.org/documentation/fichiers/tutoriel-en-portugais

27. Vieira CL, da Silva VB, Parmejiani EP, Cavalcante DFB, do, Nascimento Souza MH, Stipp MAC. Community Health Agents and child health care: implications for continuing education. Rev Esc Enferm USP. 2022;56. 10.1590/1980-220X-REEUSP-2021-0544.
28. Avant ND, McGee HY. The past, present, and futurist role of the pharmacy profession to achieve black health equity. Am J Pharm Educ. 2021;85(9): 8610.
29. Onyoni EM, Ives TJ. Assessing implementation of cultural competency content in the curricula of colleges of pharmacy in the United States and Canada. Am J Pharm Educ. 2007;71(2):24.
30. Armbruster AL, Henson BN, Alsharif NZ. A call to action for a programmatic approach to addressing health disparities and cultural competency in pharmacy education. Am J Pharm Educ. 2022;86(3): 8412.
31. Drame I, Gibson CM, Nonyel NP, Addo-Atuah J, Butler L, Riley A, et al. Strategies for incorporating health disparities and cultural competency training into the pharmacy curriculum and co-curriculum. Am J Pharm Educ. 2022;86(3): 8631.
32. Cutler TW, Stebbins MR, Smith AR, Patel RA, Lipton HL. Promoting access and reducing expected out-of-pocket prescription drug costs for vulnerable medicare beneficiaries. Med Care. 2021;49(4):343–7.
33. Sepp K, Volmer D. Experiences and expectations of ethnic minorities and majorities towards community pharmacy medicines-related services in Estonia. Int J Environ Res Public Health. 2022;19(8): 4755.
34. Pinheiro BCS. Como ser um educador antirracista (livro). São Paulo: Planeta; 2023. p. 160
35. IBGE. Desigualdades Sociais por Cor ou Raça no Brasil. Estudos e Pesquisas. Informação Demográfica e Socioeconômica. 2019.
36. Ribeiro RB. O racismo contra os povos indígenas: panorama dos casos nas cidades brasileiras entre 2003 e 2019. Mana [Internet]. 2022;28(2):1-30. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0104-93132022000200204&tlng=pt.
37. Pearson ML, Hubball HT. Curricular integration in pharmacy education. Am J Pharm Educ. 2012;76(10):204.
38. Nonyel NP, Wisseh C, Riley AC, Campbell HE, Butler LM, Shaw T. Conceptualizing social ecological model in pharmacy to address racism as a social determinant of health. Am J Pharm Educ. 2021;85(9): 8584.
39. Chen AMH, Cailor SM, Wicker E, Harper NG, Franz TT, Pahl B. Integrating health literacy and cultural competency concepts across the doctor of pharmacy curriculum. Am J Pharm Educ. 2020;84(10): ajpe7764.
40. Alefan Q, Alsmadi MM. Pharmacy education in Jordan: updates. Int J Pharm Pract. 2017;25(6):418–20 https://academic.oup.com/ijpp/article/25/6/418/6096979.
41. Wang J, Qiao Y, Shih YCT, Spivey CA, Dagogo-Jack S, Wan JY, et al. Potential effects of Racial and ethnic disparities in meeting medicare medication therapy management eligibility criteria. J Pharm Heal Serv Res. 2014;5(2):109–18.
42. Santee J, Barnes K, Borja-Hart N, Cheng AL, Draime J, Edwards A, et al. Correlation between pharmacy students' implicit bias scores, explicit bias scores, and responses to clinical cases. Am J Pharm Educ. 2022;86(1): 8587.
43. Reid P, Cormack D, Paine SJ. Colonial histories, racism and health—The experience of Māori and Indigenous peoples. Public Health. 2019;172:199–24 https://linkinghub.elsevier.com/retrieve/pii/S00335061930126X.
44. Leung L, Min J, Medgyesi N, Soon J. An Indigenous health elective– Perspectives of pharmacy undergraduate students and alumni. Curr Pharm Teach Learn. 2022;14(5):647–54 https://linkinghub.elsevier.com/retrieve/pii/S1877129722000855.
45. Swidrovich J. Decolonizing and indigenizing pharmacy education in Canada. Curr Pharm Teach Learn. 2020;12(2):237–43.
46. Fazelipour M, Leung L, Min J, Ryan T. (Sm'hayetsk). Building practice-informed Indigenous health curricula: A systematic review of pharmacy services for Indigenous peoples. Curr Pharm Teach Learn. 2022;14(11):1448–60.
47. Brasil. Ministério da Saúde. Secretaria de Políticas de Saúde.. Manual de Doenças Mais Importantes, Por Razões Étnicas, Na População Brasileira Afro-Descendente (Internet). Brasília: Ministério da Saúde; 2001. p. 72.

https://bvsms.saude.gov.br/bvs/publicacoes/doencas_etnicas.pdf.

48. Okoro ON, Arya V, Gaither CA, Tarfa A. Examining the inclusion of race and ethnicity in patient cases. Am J Pharm Educ. 2021;85(9): 8583.
49. Bakkum MJ, Verdonk P, Thomas EG, van Rosse F, Okorie M, Papaioannidou P, et al. A clinical pharmacology and therapeutics teacher's guide to Race-Based medicine, inclusivity, and diversity. Clin Pharmacol Ther. 2023;113(3):600–6.
50. Venkatakrishnan K, Brown KE, Giacomini KM, van der Graaf PH. Diversity. equity, and inclusion: translating clinical pharmacology for all. Clin Pharmacol Ther. 2023;113(3):457–61.
51. de Souza PCA, Fortunato I. O currículo e as relações étnico-raciais: Um território Em disputa. Rev Exitus. 2019;9(5):130.
52. Gaudio ES, Passos JC. dos. Decolonialidade e relações raciais: um olhar sobre o ensino de História no currículo do curso de Pedagogia da UFRGS. Intellèctus [Internet]. 2021;20(1):1-19. Available from: https://www.e-publicacoes.uerj.br/index.php/intellectus/article/view/57817.
53. Varga IVD. Saúde e sociedade. Saúde e sociedade. 2016;2(3):100–12 https://laplageemrevista.editorialaar.com/index.php/lpg1/article/view/270.