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ANALYSIS OF THE PRESENCE OF ANATOMICAL ILLUSTRATIONS OF BLACK-SKINNED INDIVIDUALS IN THE MAIN ANATOMY TEXTBOOKS AND ATLASES RECOMMENDED IN BRAZILIAN MEDICAL EDUCATION

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Abstract:

The teaching of human anatomy is fundamental in medical training and its contents can be considered one of the most important grounds of the basic cycle of the medical schools. Human Anatomy discipline involves theoretical and practical classes, preferably using cadavers, and features different methodological approaches, complemented by support material based on

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textbooks and anatomical atlases. In this context, the representation of skin tones diversity in the academic environment - especially in anatomy bibliographical references - is essential for the best training of Brazilian professionals, considering that they will work in a country with a great ethnic and racial variety. Thus, this article aims to survey the main books used in anatomy teaching in Brazilian medical courses that present images of black-skinned individuals. **Methodology**: A survey was conducted on Political Pedagogical Projects of medical courses offered in Brazil, through public consultations on official university websites. The aim was to identify the basic bibliography recommended in Human Anatomy teaching plans. **Results**: The results showed that there are few images representing black-skinned individuals in the bibliography collected, showing that the teaching of Anatomy has a predominantly eurocentric history, with representations of white-skinned (Caucasian) individuals. **Conclusion**: The survey showed that the basic bibliographies used in anatomical studies present few images of black-skinned individuals, revealing a low racial representation in the teaching of Anatomy in Medical courses in Brazil, with a predominance of illustrations of white-skinned (Caucasian) individuals.

Keywords: Anatomy, Black skin, Atlas.

1.INTRODUCTION

The study of anatomy is essential for training in medicine courses, as it serves as a basis for the professional's technical training regarding the human body in its morphological and functional aspects. One of the main support tools for this area of knowledge are textbooks and anatomical atlases, whose purpose is to provide information and images that assist in the study of the collection of anatomical parts of the human body, both in practical classes and in independent study in laboratories or in content reviews at home. This support is essential to ensure that students develop the necessary technical knowledge as a basis for future disciplines involving the morphofunctional aspects of the human body, preparing them for clinical practice, anatomical-clinical and anatomical-surgical reasoning.

In the context of medicine and anatomy history, one of the first books to associate text and images of the human body, with a proposal close to that of actual anatomy atlases, was "De Humani Corporis Fabrica Libri Septem" (1543), written by Andreas Vesalius of Brussels. In his work, the author presents images of dissections of parts of the human body organized into seven chapters: bones,

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muscles, circulatory system, nervous system, abdomen, thorax and brain. After its publication, the production of atlases focused on the study of human anatomy began (KICKHÖFEL, 2003).

With the emergence of surgical procedures, there was a rise of surgical schools, which began to dedicate great attention to the study of the human body anatomy, seeking to improve the effectiveness of interventions. Detailed knowledge of the anatomical structures presented in the patient became essential to ensure that surgeries were performed in the best possible way, promoting effective results for the health of the operated patient.

However, traditional anatomical literature, predominantly produced in Europe, has historically featured almost exclusive images of white-skinned individuals. This predominance not only reflected the social and cultural context of that time, but also consolidated a hegemonic pattern of representation. Since the creation of the first medical anatomical literature, this limited view of the human body has made the ethnic-racial diversity present in global populations invisible, restricting anatomical understanding to a single racial profile.

According to data from the “Pesquisa Nacional por Amostra de Domicílio” (PNAD, 2022) - National Household Sample Survey -, 55.9% of Brazilians declared themselves to be black-skinned. Although the majority of the Brazilian population is non-white, both the teaching staff and teaching materials - whether in elementary, high school or college education - still do not adequately represent this diversity. Several studies in education highlight the importance of teaching materials in the school environment and the need for them to represent all diversity (LAJOLO, 1996; CORRÊA, 2000; MEGID NETO, 2003).

The predominance of white-skinned individuals in teaching materials can have a negative effect, by giving them a sense of deservingness for the place they occupy, while transmitting to those belonging to other ethnic groups the idea that they are, in some way, inferior or different. Social representations, once created, take on a life of their own, circulate, encounter, attract and repel each other, giving rise to new representations, while old representations die (MOSCOVICI, 2004). However, the less aware we are of these representations,

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the greater their influence on us. Race relations in textbooks have been the subject of debates, academic studies and have been part of public policies since 1950 (ROZEMBERG et al., 2003). After the enactment of Federal Law 10.639/03, which makes teaching Afro-Brazilian History and Culture mandatory in Brazilian public and private schools, these discussions became more frequent (BRASIL, 2003). The low representation in the anatomical literature has contributed to the perpetuation of eurocentric medical education, which disregards the morphological and clinical particularities of individuals from different racial groups. This limitation can negatively impact clinical practice and the quality of care for diverse populations, especially in multicultural/racial countries, such as Brazil.

Regarding the representation of black-skinned individuals in medical books that cover anatomy, an important milestone occurred in 1851, when the British surgeon Joseph Maclise published his atlas of human anatomy, in which illustrations of black and white-skinned individuals were displayed (Figure 1). This work represented a revolution in the study of anatomy, since, until then, there were no illustrated books that included black-skinned individuals. Considering the period in which the author lived, Maclise's publication stands out for challenging the prevailing norm, in which anatomical drawings were presumed to be representations of white-skinned (Caucasian) individuals of European origin, even when skin color was not explicitly indicated (KICKHÖFEL, 2003).

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Figure 1. Plates 4 (A) and 24 (B) from Joseph Maclise's Surgical Anatomy, 2nd edition (London: John Churchill, 1856). Collection of the National Library of Medicine, Bethesda, Maryland (public domain).

Considering that human anatomy discipline is mandatory in all curricula of medical schools, and taking into account the diversity of skin tones in our country, as well as the correlation between race and medical semiology, it is essential to analyze how this diversity is represented in teaching. Anatomy disciplines involve theoretical and practical classes, preferably with the use of cadavers, and comprise different methodological approaches, complemented by support materials based on textbooks and anatomical atlases.

In this context, the representation of skin tone diversity in the academic environment - especially in anatomy bibliographical references - is essential for the adequate training of Brazilian professionals, who will work in a country with great ethnic and racial diversity. Maclise's work inspired the authors of this article to conduct a search in the basic bibliography of medical courses to identify which textbooks and anatomical atlases most used in Brazil display illustrations of black-skinned individuals.

Thus, this article aims to survey the main textbooks and anatomical atlases used in the teaching of anatomy in Brazilian medical schools that depict images of black-skinned individuals.

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2.METHODOLOGY

The present study used as method a survey on search platforms such as Google, Bing and/or Firefox, with the objective of accessing the Political Pedagogical Projects (PPP) and/or the basic bibliography of teaching plans (TP) of the disciplines or modules of human anatomy and neuroanatomy available in the public domain on the websites of universities and college institutions that offer the medicine course. After saving and identifying them as public or private, the researchers read the documents mentioned above, based on the basic bibliographic references of the indicated anatomy and neuroanatomy disciplines. Then, they conducted a check in the collections of specialized libraries (physical and virtual) with the objective of identifying in the recommended books the presence of anatomical illustrations of black-skinned individuals. After finding which books were the most used in the documents, each of them was opened and checked for images of black skinned individuals

2.1 Classification criteria for black-skinned individuals

For the purposes of this study, an anatomical illustration was classified as representing a black-skinned individual when it simultaneously met chromatic and phenotypical criteria, based on established dermatological and anthropological references.

Chromatic classification followed the Fitzpatrick skin phototype scale, considering phototypes V and VI, as adopted by the Brazilian Society of Dermatology. Phenotypical markers included the presence of dark skin pigmentation, tightly coiled hair, broader nasal base, and fuller lips, when visible.

Illustrations in which skin color could not be reliably determined—such as schematic drawings without surface pigmentation or images restricted to subcutaneous, visceral, or skeletal structures—were excluded from racial classification.

This combined approach was adopted to minimize misclassification in non-photographic illustrations and to ensure consistency across atlases with heterogeneous visual styles.

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Inclusion criteria: PPP or TP of Medical Degree available for public access, updated between 2015 and 2023, containing the basic bibliography for anatomy and/or neuroanatomy disciplines.

2.2 Image evaluation process

Image assessment was conducted independently by two researchers, both trained in anatomical education and familiar with dermatological skin classification. Each image was evaluated individually according to the predefined criteria.

In cases of disagreement, the image was jointly reviewed and discussed until consensus was reached. Formal inter-rater reliability statistics were not calculated, which constitutes a methodological limitation of the study.

Exclusion criteria: PPP or TP of non-medical courses , PPP of medical courses published 10 years ago or more, PPP of medical Degree which were not public access.

2.3 Statistical analysis

Descriptive statistics were used to summarize the number of illustrations depicting black-skinned individuals across textbooks and atlas editions. Comparative analysis between successive editions was exploratory in nature, given the small sample size and the discrete distribution of the data.

Student's t-test was applied to assess differences in mean counts between editions of the same work; however, the authors acknowledge that the limited statistical power and potential violation of normality assumptions restrict the interpretability of inferential results.

Therefore, statistical findings were interpreted cautiously and used to complement, rather than determine, the descriptive and qualitative conclusions of the study.

The study did not require approval of the Research Ethics Committee, since the documents used were in the public domain on the Internet and at no moment in the research was identified which medical course adopted the anatomy textbooks and atlases.

3.RESULTS

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A total of 143 medical course Political Pedagogical Projects (PPP) were found, 91 from public universities - state or federal - and 52 from private ones, all with free Internet access. After applying the inclusion and exclusion criteria, 80 PPP were approved and analyzed without distinction between public and private universities.

Tables 1 and 2 present the anatomy textbooks and atlases most used in the analyzed PPP. The works with the highest number of repetitions among all the references cited in the TP were selected.

Table 1 – Textbooks most frequently indicated as basic references in anatomy disciplines in the analyzed PPP.

Position	Textbook	Authors	Number of references
1	Anatomia Orientada para Clínica	MOORE; DALLEY; AGUR	53
2	Anatomia Humana, Sistêmica e Segmentar.	DÂNGELO; FATTINI	26
3	Gray's anatomia para estudantes.	DRAKE; VOGL; MITCHELL.	14
4	Princípios de Anatomia e Fisiologia	GRABOWSKI; TORTORA	13
5	Anatomia: Estudo Regional do Corpo Humano	GARDNER; GRAY; O'RAHILLY	8

The most recommended textbook shows that topographic anatomy occupies a prominent place in medical education, with the book by Moore, Dalley and Agur being the most recommended. This book is widely recognized as a classic among anatomy teachers, due to the quality of its content and its approach focused on future medical practice. Although it is a textbook, it depicts numerous images, including photographs and diagrams of the human body throughout its chapters.

The book "Anatomia Orientada para a Clínica", originally edited as "Clinically Oriented Anatomy", is an international reference work in the area of human anatomy applied to medical practice. Originally published in English, the book (with their respective translations) is widely used in medical courses around

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the world, including Brazil. The work is of Canadian origin, as two of its main authors, Keith Leon Moore and Anne Marie Reet Agur, are affiliated to the University of Toronto, Canada. The third author, Arthur Frederick Dalley II, is from the United States.

Among the most recommended books, according to the table above, the textbook “Anatomia Humana, Sistêmica e Segmentar” (“Human Anatomy: Systemic and Topographic”), written by José Geraldo Dângelo and Carlo Américo Fattini (both Brazilian doctors), stands out. It is widely used in teaching anatomy in Brazil. Characterized as a textbook, only schematic images of the human body are showed throughout the work.

All books listed in Table 1 present extensive textual content, accompanied by images - photographs and/or illustrations - of anatomical structures and/or of the interior of the human body, which allowed researchers to verify the presence or absence of representations of black-skinned individuals.

Table 2 - Anatomical atlases most frequently indicated as basic references in anatomy disciplines in the analyzed PPP.

Position	Atlas	Authors	Number of references
1	Atlas de anatomia Humana	SOBOTTA	51
2	Atlas de Anatomia Humana	NETTER	40
3	Prometheus - Atlas de Anatomia	SCHÜNKE; SCHULTE; SCHUMACHER	9

Regarding anatomical atlases, the three predominantly present a collection of schematic images (drawings) of the human body. These are not cadaveric photographic atlases but illustrations based on these images, in which the artists reproduce the human anatomy. On several pages, it is not possible to identify the skin color in the representations, since organs and cavities are shown. Although it is not included in the basic bibliographies of the analyzed TP, some teachers indicated as a complementary bibliography the “Atlas Fotográfico de Anatomia Sistêmica e Regional”, internationally edited as “Photographic Atlas of Anatomy”, a work widely used by medical students and professionals. Authored by Johannes Wolfgang Rohen, Chihiro Yokochi and Elke Lütjen-Drecoll, the atlas

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stands out for presenting real photographs of human dissections, offering a detailed and authentic view of the anatomical structures. However, there are no photographs of black-skinned individuals.

Table 3 shows the number of images of black-skinned individuals present in the three most recent editions of each of the eight most frequently used works in TP in Brazil. An extremely low number of representations of this segment of the population can be observed, and in most books, there is not even one image representing black-skinned individuals in the entire content.

Table 3: Number of illustrations depicting black-skinned individuals.

Authors	Textbook/Atlas	Edition	Number of black-skinned illustrations
Sobotta	Sobotta: Atlas de Anatomia Humana	25	0
Sobotta	Sobotta: Atlas de Anatomia Humana	24	0
Sobotta	Sobotta: Atlas de Anatomia Humana	23	0
Moore; Dalley; Agur	Anatomia Orientada Para Clínica	8	13
Moore; Dalley; Agur	Anatomia Orientada Para Clínica	7	20
Moore; Dalley; Agur	Anatomia Orientada Para Clínica	6	17
Netter	Atlas de Anatomia Humana	7	3
Netter	Atlas de Anatomia Humana	6	1
Netter	Atlas de Anatomia Humana	5	0
Dângelo e Fattini	Anatomia humana, sistêmico e segmentar	3	0
Dângelo e Fattini	Anatomia humana, sistêmico e segmentar	2	0
Dângelo e Fattini	Anatomia humana, sistêmico e segmentar	1	0
Grabowski e Tortora	Princípios de Anatomia e Fisiologia Humana	14	11
Grabowski e Tortora	Princípios de Anatomia e Fisiologia Humana	12	7
Grabowski e Tortora	Princípios de Anatomia e Fisiologia Humana	10	6
Standring	Gray's Anatomia	41	2
Standring	Gray's Anatomia	40	0
Standring	Gray's Anatomia	39	0
Gardner; Gray; O'Rahilly	Anatomia: estudo regional do corpo humano	4	0
Gardner; Gray; O'Rahilly	Anatomia: estudo regional do corpo humano	3	0
Gardner; Gray; O'Rahilly	Anatomia: estudo regional do corpo humano	2	0

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Schünke; Schulte; Schumacher	Prometheus-Atlas de Anatomia	4	0
Schünke; Schulte; Schumacher	Prometheus-Atlas de Anatomia	3	0
Schünke; Schulte; Schumacher	Prometheus-Atlas de Anatomia	2	0

Correlation coefficient (r): -0.086; p-value: 0.451; Standard error of the estimate: 0.056.

When comparing the number of images of black-skinned individuals, the comparative statistical analysis among the editions above showed that the high p-value (above 0.05) indicates an absence of significant statistical evidence to reject the null hypothesis (H_0), according to which there was no increase in the number of these images over the editions. This reinforces the conclusion that, based on these data, there is no upward trend in the presence of images of black-skinned individuals in the most recent editions of the books.

“Sobotta’s Atlas of Human Anatomy” is a work of German origin. It was created by the anatomist Robert Heinrich Johannes Sobotta, born in Berlin in 1869, and first published between 1904 and 1907, with the original title of “Atlas der deskriptiven Anatomie des Menschen” (“Atlas of Human Descriptive Anatomy).

“Prometheus’ Atlas of Anatomy” is also a work of German origin, written by Michael Schünke, Erik Schulte and Udo Schumacher. The first edition was published by Georg Thieme Verlag. In Brazil, the work is published by Guanabara Koogan, under the GEN Group seal.

“Netter’s Atlas of Human Anatomy” is an American work of art. It was created by Frank Henry Netter, American surgeon and medical illustrator born in Brooklyn, New York, in 1906. His atlas is widely recognized for the detailed and accurate anatomical illustrations, which have become a reference in the teaching of human anatomy. Its first edition was published in 1989 and, since then, the atlas has been constantly updated, and is currently published by Elsevier.

The absence or scarcity of images of black-slinned individuals in the anatomical atlases mentioned above can be justified, in large part, by the predominant racial profile in the countries of origin of these works. For example,

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Sobotta and Prometheus are atlases of German origin, where the population is predominantly Caucasian, with a much smaller presence of black-skinned people. Therefore, the illustrations and photographs in these atlases reflect, for the most part, this local demographic. Netter, on the other hand, originated in the United States, despite the country having a racially diverse population, its academic and scientific publications have historically given preference to images that represent the white-skinned population, reflecting an editorial tradition and cultural bias that was slow to include more racially varied representations.

Thus, the predominance of white-skinned individuals in anatomical atlases reflects the demographic and cultural reality of the countries of origin, but highlights the need for greater racial inclusion and representation in publications used in multicultural and diverse contexts, such as Brazil.

The following section discusses the educational, historical, and ethical implications of these findings.

4.DISCUSSION

Recent international literature has consistently demonstrated the underrepresentation of darker skin tones in medical imagery and its implications for diagnostic accuracy and health equity (Louie & Wilkes, 2018; Cheng, 2022; Smith et al., 2022; Le et al., 2024). The findings of the present study align with these observations and extend them to the context of anatomical education in Brazil.

The study of anatomy is an essential part of the training of medical professionals, as it allows for a detailed understanding of the shape, size, location, relationships and structure of organs. Therefore, it is essential that medical students receive adequate training in anatomy to act with precision when necessary. Although human bodies are practically identical, regardless of race, it is important to ensure greater representation of races considered minorities, since Brazilian society is extremely plural. This recognition in the academic environment is essential for professionals to know how to deal with possible adversities.

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Research related to racial issues in textbooks focuses, for the most part, on the analysis of images present in these materials, rather than on the textual content itself. Regarding science textbooks, a dissertation entitled “Etnia negra nos livros didáticos do ensino fundamental: transposição didática e suas implicações para o ensino das ciências” (“Black ethnicity in elementary school textbooks: didactic transposition and its implications for science teaching”), analyzed works directed to the 1st to 7th grades of elementary school, used by the municipal school system in the city of Recife. The analysis revealed that, for every ten representations of poor characters, six were black. However, the black characters were portrayed exclusively in situations of medical care by white characters, with no representation of black people as doctors or health professionals. There was also a tendency to present the six black characters in groups, composing scenes of diversity, but without allowing for their individual representation as members of the human species (SILVA, 2005).

Another study related to science books, carried out by Bordini and Soares (2011), analyzed four collections of books intended for the initial years of elementary school and approved by the “Programa Nacional do Livro e do Material Didático” (PNLD, 2007) - “National Book and Teaching Material Program”. A predominance of white characters (85%) was observed compared to black ones (15%). As for family representations, the valorization of the ideal of a white family was observed and, with regard to professions, black characters were often associated with sports, while white characters represented professionals linked to intellectuality.

The study conducted by Mathias (2011) analyzed nine science textbooks selected for the 8th grade of elementary school by the PNLD between 2008 and 2011. The research revealed the presence of images that valued black characters, including using them as representatives of the human figure and professionals linked to intellectuality, unlike previous studies. However, in general, only 20% of the characters were black, compared to 80% of white characters.

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Choppin (2004) argues that textbooks are complex and multidimensional materials with multiple functions, among which ideological and cultural functions stand out. From this perspective, textbooks are a privileged instrument in the construction of identity, as they tend to acculturate and indoctrinate new generations according to the values of the ruling classes. In this way, these materials can become instruments of national, linguistic, cultural and ideological unification and standardization, since they are aimed at young minds, who are highly susceptible to the educational context. Thus, it should be considered that the books used to train medical professionals should be able to demonstrate the plurality that exists in relation to this theme in Brazil. However, since this is not the reality represented, there is, consequently, a detriment to the development of the representation of the races that make up extremely significant portions of the Brazilian population.

In Western, anatomical atlases used in medical education, the issue of race is rarely addressed. Since Andreas Vesalius' "De Humani Corporis Fabrica Libri Septem" (1543), the bodies represented have been of white-skinned individuals, or at least appear to be so. Hammerschlag (2021) highlights that, although anatomical figures are displayed without skin in a representational way, the status of the white European man remains unquestioned in studies on the history of anatomical illustration. This assumption is reinforced by the constant appearance, since the Renaissance, of bodies similar to Greco-Roman figures in anatomy books, as in the illustration by Juan Valverde de Amusco (1560), in "Anatomia del cuerpo humano". Charles Bell (1801), in "Engravings of the Arteries: Illustrating the Second Volume of the Anatomy of the Human Body and Serving as an Introduction to the Surgery of the Arteries", was the first to illustrate a black man in a medical textbook. However, in Bell's illustrations, the black man appears alive, with his eyes and mouth open, resembling a guinea pig in a surgical experiment.

The British physician and anatomist Joseph Maclise (1813-880) pioneered the illustration of black-skinned individuals in his work "Surgical Anatomy" published in 1851. He was the first author to explicitly depict a dissected black

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body in an anatomical publication, which represented a significant break with the dominant eurocentric patterns of 19th century medical iconography. However, in later editions published in the United States, this black body was whitened, being depicted with white features and skin coloration - a notable example of the erasure and whitening of racial difference in scientific materials.

Even in the face of this "erasure," the original edition of the work remains a landmark. As Biernoff (2012) notes, "Maclise's Surgical Anatomy is unusual in its inclusion of black-skinned individuals, depicted with the same anatomical detail and artistic care as white subjects." His innovative approach not only enriched the iconographic diversity of anatomy, but also highlighted the persistent racial absences and biases in contemporary editions of anatomical books and atlases widely used in medical education.

Classic medical textbooks, such as anatomy textbooks, are essential in preparing students for the variety of roles they will assume in caring for a highly diverse population. Furthermore, viewing images and graphics of diverse skin tones is essential for the transition from theory to clinical practice, providing knowledge to minimize disparities and improve equity of care (Louie; Wilkes, 2018).

"Visual racism" refers to both the underrepresentation and inadequate representation of black-skinned individuals in medical education. Because medical students and residents are not taught to recognize common conditions in people of colored skin, biases that contribute to health care disparities between specific racial and ethnic groups are perpetuated (Le et al, 2024).

According to James (2017), physicians treat patients with identical symptoms differently based on race, which shows that race influences the way the pathophysiology of diseases is understood and approached. For this reason, research into the role of the "hidden curriculum" in medical education is necessary. The so-called "hidden curriculum" refers to the interpersonal relationships that develop in the academic environment, especially those that emerge from everyday situations and are not included in the body of knowledge covered by the formal curriculum (Gupta et al., 2016). This hidden curriculum

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includes a vast set of unintentional educational and professional experiences, mainly related to the development of values and attitudes, and can be considered as the backdrop to the learning process (Silva, 2004). Regarding skin color, even though the formal curriculum emphasizes equality in health care, this goal is compromised when the majority of the population is underrepresented in lectures, textbooks, case studies, and clinical training.

In 2021, an image went viral on social media pages in Brazil and around the world, showing a black fetus being created in the womb of a black woman. The viral image is part of a set of anatomical illustrations and diagrams of the physiology of diseases involving black persons. In posts on his social media, the Nigerian doctor and illustrator responsible for the post, Chidiebere Ibe, points to the relationship between medical racism and the lack of representation of black-skinned individuals in academic books, especially in medical courses. In some of his posts, he denounces the fact that doctors are not trained to identify skin diseases in black persons, since the illustrations and photographs in dermatology books are mostly of white ones. Consequently, the thousands of shares of the image were accompanied by comments filled with astonishment and, often, indignation from students who realized that they had never come across an illustration of a black person in a didactic diagram of human anatomy during their academic careers.

The presence of illustrations of black-skinned persons in semiology, pathology, and dermatology textbooks is essential for adequate and equitable medical training. This is because clinical signs such as erythema, cyanosis, jaundice, petechiae, scaling, and dermatological lesions can present distinct visual manifestations in different skin tones. The absence of these representations in teaching materials compromises the ability to make accurate differential diagnoses, especially in black patients, which contributes to racial disparities in medical care. As Artis (2022) points out, “the lack of diverse clinical images in textbooks contributes to delays in diagnosis and clinical errors, particularly in skin conditions that manifest differently in people with darker skin.” The conscious inclusion of images of different skin colors is, therefore, not only a

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matter of representation, but an ethical and technical requirement for clinical teaching that reflects the reality of the population served.

In this sense, Castro (2015), in the article “Black skin, white coats: racism, body and aesthetics in anthropological fieldwork”, published in the Revista de Antropologia, presents a revealing account of a black doctoral student and her experience of clinical monitoring with an anthropological focus in a medical field research center. The author describes and analyzes her daily life as a black researcher, facing situations that led her to reflect on how gender racism affected her work, as well as her conclusions about pharmaceutical research, medicine and anthropology itself. By wearing the white coat, she observed “the field of medicine as a space marked by whiteness, extending this critique to anthropology”.

As Becker (2008) shows, in American society it is assumed, albeit informally, that a doctor possesses certain auxiliary traits: most people expect him to be upper-middle class, white, male, and Protestant. Otherwise, the impression is created that he somehow does not fully meet the expected requirements. Similarly, although skin color is the main trait for determining who is black and who is white, black persons are also informally expected to present certain status traits and abstain from others. Thus, the presence of a black person in positions such as that of doctor or professor is surprising and seen as an anomaly.

This perception is aligned with Fanon’s analysis (2008) who, in his work “Black Skin, White Masks”, investigates racism as a mechanism that establishes hierarchical positions, in which black persons are constituted as “non-beings”, while white ones are recognized as the full form of the human being. From this perspective, the racial, gender and class tensions that permeate medicine represent not only social manifestations, but also instruments of producing and updating racial boundaries that are simultaneously professional and ontological.

In this context, the negative perception is articulated that medicine is a field where black professionals are seen as an exception, while medicine is positively associated with whiteness (Gonçalves, 2017). Thus, black persons who wear

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white coats are positioned as outsiders (Becker, 2008) and, even within the field of medicine, they are expected to be ready to be put in their supposed “rightful place”.

Historically, this “rightful place” is found in various subordinate positions, such as patients, research subjects, and objects of medical training (Castro & Villanueva, 2020; Lima, 2011; Washington, 2006; Fanon, 1965). In these roles, black persons are represented as objects of medical action, not as subjects of knowledge, professional performance, or public respect. The experience of racism, therefore, functions as a fixating element of these hierarchical positions, which dehumanize black individuals while associating the positive attributes of Western medicine to white ones.

In addition to the social and professional impact, this lack of representation has real clinical consequences. Cheng (2022) demonstrates that inadequate diversity of dermatologic images is associated with delays in diagnosis and worse prognoses in areas such as ophthalmology, rheumatology, urology, and even during the COVID-19 pandemic. Similarly, Smith et al. (2022) conclude that the scarcity of representative images in medical education tools reinforces implicit biases that, in turn, fuel broader racial disparities in health care.

The basic bibliographies found in the PPP for human anatomy and neuroanatomy disciplines were not up-to-date in many documents, indicating old editions of textbooks or atlases. This probably occurs because, when indicating the books in the TP, the teacher must check whether the copy is available in the library of higher education institutions and whether they are available for students. We observed, for example, that “Clinically Oriented Anatomy”, by Moore, Dalley and Agur, had its 9th edition published in 2024, and in it 31 images of black-skinned individuals were observed. We highlight that this work was the most indicated as a textbook and, even though it is not an anatomical atlas, it is the one that presents the largest number of images of black-skinned persons among all types of analyzed books, in addition to progressively incorporates these illustrations throughout the most recent editions.

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The data obtained in this study demonstrated that there is currently no significant increase in the number of images of black-skinned individuals in anatomy textbooks or atlases used in medical education in contemporary Brazil. This finding is worrying, considering that Brazilian society is highly mixed and that a large part of the population is black-skinned. The lack of representation in these works can hinder medical diagnoses and access to more comprehensive knowledge.

4.1 Limitations

This study has several limitations. First, racial classification of illustrations involves visual assessment, which inherently includes a degree of subjectivity, particularly in schematic drawings. Second, inter-rater reliability was not formally quantified. Third, the analysis focused exclusively on textbooks and atlases recommended in Brazilian medical curricula, which may not reflect the full range of materials used informally by students.

Additionally, the statistical analysis was limited by small sample sizes and low statistical power, restricting the ability to detect temporal trends. Finally, the study did not assess the pedagogical impact of image representation on learning outcomes, which should be addressed in future research.

Given the above, it`s essential to develop anatomy textbooks and atlases that promote a more diverse representation of skin tones, reflecting the ethnic-racial plurality of the Brazilian population. This diversity in images not only contributes to equity in medical education, but also enables future health professionals to develop essential skills to recognize all anatomical morphological variations, regardless of skin color. By expanding this representation, more inclusive and culturally sensitive medical education is promoted, which translates into greater diagnostic accuracy and quality in clinical care. Therefore, this study reaffirms the need to review and update teaching materials, aiming to overcome the existing gap and ensure medical education that adequately addresses the social and racial complexity of Brazil.

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