BioSCIENCE Original Article
DOI: https://doi.org/10.55684/2025.83.e00026

# Dermatological manifestations in black skin: perception of physicians and medical students

*Manifestações dermatológicas em peles negras: percepção de médicos e estudantes de medicina*

Kátia Sheylla Malta Purim[1], Maria Fernanda Rabelo Thomaz[1], Giulia Tonon[1], Pedro Henrique Pereira Corradini[1]

**ABSTRACT**

Introduction: Brazil exhibits significant ethnic diversity. Understanding the specific ethnic-racial characteristics enables more personalized medical care.

Objective: To analyze the knowledge of physicians and medical students about common skin conditions in Black individuals.

Method: A cross-sectional study was conducted with 2 groups: physicians (G1) and medical students (G2). The study addressed common nail, hair, and skin conditions in the Black population through a self-administered online questionnaire.

Result: The sample included 405 participants: G1 (136 physicians) was predominantly female (80.1%), aged ≤ 40 years (61.7%), and graduated from public institutions (51.4%); G2 (269 students) was predominantly female (71.7%), aged 21–25 years (62.8%), and from private institutions (98.5%). G1 demonstrated greater knowledge, particularly regarding keloids (G1 86.0% vs. G2 58.7%, p < 0.001), hair disorders (G1 22.8% vs. G2 0.0%), nail conditions (G1 19.9% vs. G2 13.8%, p = 0.02), and pigmentary disorders (G1 46.3% vs. G2 32.0%, p = 0.006). Both groups recognized the importance of photoprotection for this population (G1 97.8% vs. G2 92.2%), with differences in recommending the most suitable sun protection factor (G1 69.9% vs. G2 58.4%, p = 0.030).

Conclusion: Physicians and students are familiar with the topic but require further improvement. Reinforcing this knowledge in undergraduate and continuing education programs are essential strategies to encourage greater attention to the health of the Black population.

KEYWORDS: Ethnic groups. Skin pigmentation. Medical education. Dermatology.

**RESUMO**

Introdução: O Brasil apresenta grande diversidade étnica. Conhecer as especificidades étnico-raciais possibilita assistência médica mais personalizada.

Objetivo: Analisar o conhecimento e a percepção de médicos e estudantes de medicina sobre manifestações cutâneas comuns da pele negra.

Método: Estudo transversal com 2 grupos: médicos (G1) e estudantes de medicina (G2). Foram abordadas condições ungueais, capilares e cutâneas frequentes na população negra por meio de questionário online autoaplicado.

Resultado: Amostra foi composta por 405 participantes: G1 (136 médicos) com maioria de mulheres (80,1%), faixa etária ≤ 40 anos (61,7%), formada em instituições públicas (51,4%) e G2 (269 estudantes) com predomínio feminino (71,7%), faixa etária de 21 a 25 anos (62,8%), procedentes de instituições privadas (98,5%). G1 demonstrou maior conhecimento com destaque para queloides (G1 86,0% vs. G2 58,7% p <0,001), distúrbios capilares (G1 22,8% vs. G2 0,0%), ungueais (G1 19,9% vs. 13,8% p = 0,02) e pigmentares (G1 46,3% vs. G2 32% p = 0,006). G1 e G2 consideraram os cuidados de fotoproteção como importantes para esse público (G1 97,8% vs. G2 92,2%), com diferença na recomendação do fator de proteção solar mais adequado (G1 69,9% vs. G2 58,4% p = 0,030).

Conclusão: Médicos e estudantes conhecem o assunto, mas há necessidade de aprimoramento. Reforçar esse conhecimento na graduação e na educação continuada são estratégias para incentivar maior atenção à saúde da população negra.

PALAVRAS-CHAVE: Grupos étnicos. Pigmentação da pele. Educação médica. Saúde Pública. Dermatologia.

**Central message**

*The literature is scarce on black skin dermatoses. This study analyzed the knowledge and perception of physicians and medical students about common cutaneous manifestations of black skin. It highlights some challenges to recognize the peculiarities of lesions in the various ethnic skin tones and their importance in medical practice.*

**Perspective**

*Properly addressing specific ethnic needs can promote more equitable assistance for all. It is important to invest in basic training and continuous updating in ethnic-racial health.*

[1] *Medical School, School of Health, Universidade Positivo, Curitiba, PR, Brazil*

*Conflict of interest: None | Funding: None | Received: 04/07/2025 | Accepted: 18/09/2025 | Publication date: 17/10/2025 | Correspondence: kspurim@gmail.com | Associate Editor: Nerlan Tadeu Gonçalves de Carvalho*

**How to cite**:
*Purim KSM, Thomaz MFR, Tonon G, Corradini PHP. Manifestações dermatológicas em peles negras: percepção de médicos e estudantes de medicina. BioSCIENCE. 2025;83:e00026*

## INTRODUCTION

The black Brazilian population is heterogeneous in its composition and distribution.[1,2] Black skin has certain advantages such as greater protection against ultraviolet (UV) rays, due to its amount of melanin, and greater elasticity, attributed to greater collagen production, which can delay the appearance of wrinkles and signs of aging.[3] However, it shows a tendency to skin dryness, dyschromia (hyper and hypopigmentation), scarring (keloids), nail (melanonychia striata) and capillary disorders (traction alopecia, chemical alopecia, pseudofolliculitis, cicatricial and non-scarring folliculitis).[3,4]

Its clinical evaluation is more challenging with regard to the manifestations of erythema[3] and diseases such as atopic dermatitis, stasis dermatitis, psoriasis, drug eruptions, scarring, pigmentation disorders, and skin cancer.[3-6] Pigmentation disorders are frequent, and may be discrete or exacerbated. Hypopigmentation may be more easily noticed. Post-facial acne inflammatory hyperpigmentation, papulosa nigra dermatosis[7], and melasma[8] can cause discomfort and distress.[6] On the other hand, people with pigmented skin are less likely to use sun protection strategies.[5]

Health professionals need to know the characteristics of different populations to promote health, well-being and quality of life.[6,9] In their training axis, physicians must be trained to work in different ethnic-social contexts and levels of complexity, respecting the singularities of each individual under their care.

Therefore, the objective of this study was to analyze the knowledge and perception of physicians and medical students about common skin manifestations of black skin.

## METHOD

This is a cross-sectional descriptive study conducted with physicians and medical students, from December 2023 to May 2024, previously approved by the Research Ethics Committee of Positivo University (CAAE 75419623.3.0000.0093).

The convenience sample included medical students and physicians, of any gender/race/color/ethnicity, who voluntarily agreed to participate in the research, through a consent form, and who answered at least 80% of the questions in the questionnaire. Children under 18 years of age and incomplete questionnaires were excluded.

The data collection instrument was structured in Google Forms and made available in WhatsApp groups of physicians, residents, professors, and medical students. The aim was to obtain sociodemographic data from the participants, knowledge about the nail, capillary and skin conditions frequent in patients with black skin and the importance given to photoprotection of pigmented skin. Four questions in questionnaire had a template (Figure 1).

| QUESTIONS | CORRECT ANSWER |
|---|---|
| Which of the skin conditions below predominantly affect black skin? | Keloid, dyschromias (hyperpigmentation, melasma) and dermatosis papulosa nigra. |
| Which of the following nail conditions have a higher prevalence in people with black skin? | Melanonychia striatum |
| Which of the following hair conditions have a higher prevalence in people with black skin? | Traction alopecia |
| In your opinion, what is the recommended SPF (sun protection factor) for black skin? | FPS ≥ 30 |

**FIGURE 1** – Answer key of questions present in the questionnaire of this study

The concept of black population or black skin carrier used in this study refers to people who self-declare themselves black and brown in accordance with the Statute of Racial Equality (Law 12.288/2010)10, the ethnic-racial identification recognized by the Brazilian Institute of Geography and Statistics (IBGE)[1,2] and the Ministry of Health.[11]

For analysis purposes, the participants were grouped into G1 (physicians) and G2 (medical students). In group G1, they were grouped according to their professional performance: internal medicine, surgery, gynecology and obstetrics, pediatrics, family and community medicine, and general practitioner. In group G2, according to the phase of the medical course: basic cycle (1º to 4º period), clinical cycle (5º to 8º period) and internship (9º to 12º period).

### Statistical analysis

The data were organized in an Excel spreadsheet and analyzed with the IBM SPSS Statistics v.29.0 computer program. The results of quantitative variables were described as mean, standard deviation, median, minimum and maximum. Categorical variables were described by absolute frequency and percentage. Fisher's exact test or the Chi-square test were used to evaluate the association between 2 categorical variables. To compare the groups (G1 and G2), in relation to the number of items correctly cited for the prevalence of skin conditions affecting black skin, the non-parametric Mann-Whitney test was applied. Values of $p<0.05$ indicated statistical significance.

## RESULT

The sample consisted of 405 participants, 136 physicians (G1) with a mean age of 39.6 years (Table 1) and 269 medical students (G2) with a mean age of 22.[2] years (Table 2).

When comparing the responses of the groups, there was a significant difference in the perception of certain black skin dermatoses (Table 3).

Regarding pigmentation disorders, the average score in G1 was 28.9% and G2 was 20.5%. The groups differed in terms of knowledge of hair conditions (G1 43.4% vs. G2 0.0%) and nail conditions (G1 19.9% vs. G2 13.8%; p = 0.002) prevalent in people with black skin.

Regarding photoprotection, the 2 groups considered it important to guide specific care, but there was a significant difference in the recommendation of the sun protection factor (G1 97.8% vs. G2 92.2% p = 0.030).

**TABLE 1** — Sociodemographic profile of physicians (n = 136)

| Group G1 (physicians) | Classification | n | % |
|---|---|---|---|
| Sex | Female<br>Male | 109<br>27 | 80,1%<br>19,9% |
| Age | 24-30 | 26 | 19,1% |
| | 31-40 | 58 | 42,7% |
| | 41-50 | 26 | 19,1% |
| | 51-60 | 17 | 12,5% |
| | >60 | 7 | 5,2% |
| | Invalid data | 2 | 1,5% |
| Graduation year | 2023-2018 | 28 | 20,59% |
| | 2017-2012 | 36 | 26,47% |
| | 2011-2006 | 24 | 17,65% |
| | 2005-2000 | 15 | 11,03% |
| | 1999-1990 | 21 | 15,44% |
| | 1989-1980 | 6 | 4,41% |
| | <1980s | 2 | 1,47% |
| | Invalid data | 4 | 2,94% |
| Institution training | Toilet | 66 | 48,53% |
| | Public | 70 | 51,47% |
| Professional area | Medical Clinic | 20 | 14,71% |
| | General Surgery | 3 | 2,21% |
| | Gynecology/Obstetrics | 0 | 0,00% |
| | Paediatrics | 34 | 25,00% |
| | Family and Community Medicine | 2 | 1,47% |
| | General Practitioner | 77 | 56,62% |
| Main scenario of acting as a doctor | Private sector (hospitals, health insurance plans | 50 | 36,76% |
| | Public sector (hospital, UBS, etc.) | 71 | 52,21% |
| | Private practice | 14 | 10,29% |
| Weekly workload as a doctor | less than 20 hours/week | 8 | 5,88% |
| | 20 to 40 hours/week | 62 | 45,59% |
| | More than 40 hours/week | 66 | 48,53% |

**TABLE 2** — Sociodemographic profile of medical students (n = 269)

| G2 Group (medical students) | CLASSIFICATION | n | % |
|---|---|---|---|
| Sex | Female<br>Male | 193<br>76 | 71,7%<br>28,3% |
| Age group | ≤ 20<br>21 - 25<br>26 to 30<br>> 30 | 72<br>169<br>23<br>5 | 26,7%<br>62,8%<br>8,5%<br>1,8% |
| Institution training | Public<br>Toilet | 4<br>265 | 1,5%<br>98,5% |
| Phase of the medical course | Basic cycle<br>Clinical cycle<br>Boarding school | 62<br>71<br>184 | 19,5%<br>22,4%<br>58,0% |

**TABLE 3** — Comparison of the answers about the main black skin dermatoses obtained from physicians (G1) and medical students (G2) (n = 405)

| Question Results | Classification (by feedback) | G1 Group (n = 136) | | G2 Group (n = 269) | | p* |
|---|---|---|---|---|---|---|
| | | n | % | n | % | |
| Number of skin conditions predominantly affecting black skin correctly cited | 0 | 17 | 12,5% | 96 | 35,7% | - |
| | 1 | 32 | 23,5% | 75 | 27,9% | |
| | 2 | 43 | 31,6% | 56 | 20,8% | |
| | 3 | 25 | 18,4% | 28 | 10,4% | |
| | 4 | 14 | 10,3% | 13 | 4,8% | |
| | 5 | 5 | 3,7 % | 1 | 0,4% | |
| Median (minimum – maximum) | | 2 (0 – 5) | | 1 (0 – 5) | | <0.001 |
| He cited at least one of the conditions that predominantly affect black skin | No | 17 | 12,5% | 96 | 35,7% | <0.001 |
| | Yes | 119 | 87,5% | 173 | 64,3% | |
| **Skin conditions affecting predominantly black skin correctly cited (cited alone or in association with others) | He mentioned keloid | 117 | 86,0% | 158 | 58,7% | <0.001 |
| | Cited hyperpigmentation | 63 | 46,3% | 86 | 32,0% | 0,006 |
| | He mentioned melasma | 27 | 19,9% | 54 | 20,1% | 1 |
| | He cited dermatosis Papular nigra | 20 | 14,7% | 53 | 19,7% | 0,273 |

*Fisher's exact test or Chi-square test, p<0.05; (-) test not applicable; **Percentages calculated on the number of participants n=136 for physicians and n=269 for students)

## DISCUSSION

The profile of the participants in the sample is compatible with the trend of feminization and juvenilization of Brazilian medicine and of more than one scenario of professional practice.[12] Skin diseases are important in the overall rate of health care and prevalent within the public system.[13,14]

Black skin has peculiarities. The higher amount of eumelanin produces brownish pigments, which makes it more sensitive to blemishes.[3] However, in relation to pigmentation disorders, the present study indicated that knowledge is not well consolidated in both groups (G1 28.9% vs. G2 20.5%). Melasma, for example, was not significantly more identified by most physicians. This could be attributed to the nuances of skin pigmentation itself that can make it difficult for non-dermatologists to identify melasma.

Melasma is chronic and recurrent acquired hypermelanosis, in photoexposed areas, frequent in people with darker skin tones, involving family predisposition and multiple factors such as cumulative exposure to ultraviolet light, pregnancy, exposure to heat and use of contraceptives.[8] The diagnosis of melasma is essentially clinical and hyperpigmentation can extend beyond visible spots, hinder treatment and uniform recovery of skin color, causing significant psychosocial impacts.[8,15]

Papular nigra dermatosis is a variant of seborrheic keratosis. Papules with prominent pigmentation on the face, neck, and back may be mistaken for acrochordons or warts.[3] Although benign and asymptomatic, they cause concern or aesthetic discomfort due to their visual component.

In regard to hair conditions, traction alopecia is more prevalent in black people, especially in the temporal and preauricular regions due to repetitive tension in the hair3 and was identified by physicians. Black patients express discontent with professionals who do not have knowledge about the specificities of skin and hair of their ethnic group.[16] On the other hand, the students as a whole answered the alternative "I don't know/wrong", which may indicate a lack of medical

education in agreement with the literature, which reveals less representation of the black population in textbooks and pedagogical resources.[17,18] It may also reflect insufficient exposure to practice scenarios. This raises concern about the health care that will be provided in the future.

Regarding nail disorders, melanonychia striatum manifests as longitudinal or diffuse pigmentations on the nail, due to melanocytic activation and melanin deposition on the nail plate.[3] The results showed a significant comparison (p = 0.002) between the correct answers of physicians and students, with physicians obtaining more correct answers. The recognition of this condition is essential because one of its differential diagnoses is subungual melanoma, a rare but aggressive neoplasm that can have a fatal outcome.[3,5,6]

When analyzing the photoprotection orientation in the present study, it is possible to infer that the majority recommends the measures. This result is relevant since unprotected sun exposure favors pigmentary disorders and skin cancer. Although less prevalent, skin cancer in people with black skin is diagnosed in more advanced stages, resulting in a worse prognosis. This outcome has been attributed to the lack of awareness and knowledge of physicians and the population about photoprotective measures.[5,6,19]

The higher concentration of melanin in black skin offers intrinsic sun protection[3], but this protection is not enough to filter out all spectrums of ultraviolet radiation, which justifies the need to use additional sunscreens. Currently, it is recommended to use SPF 30 or higher for the prevention of hyperpigmentation and skin cancer in all skin types.[20] Thus, the dissemination of photoprotection behavior can result in more timely diagnoses and treatments, improve awareness, adherence and attention to skin health.

It is worth highlighting the limitations of the present study. Among them, the cross-sectional design that does not allow the establishment of relationships between a condition and its causes. In addition, self-administered questionnaires may present response bias. Multicenter studies would allow for a larger sample size and comparability of results.

However, the findings of the present investigation provoke reflection and show the need to rethink the dynamics of medical education. In the face of a multicultural, complex, and global society, it is necessary to advance in education, professionalization, and medical research that contemplates racial heterogeneity and the specificity of different skin tones.

## CONCLUSION

Physicians and medical students know skin conditions and photoprotection care for black-skinned individuals; However, there are points to be improved. These gaps need to be filled in training and continuing medical education. By adequately addressing specific ethnic needs, more equitable assistance for all can be promoted.

**Authors' contributions**

*Conceptualization: Kátia Sheylla Malta Purim*
*Methodology: All authors*
*Writing (original draft): Kátia Sheylla Malta Purim*
*Writing (proofreading and editing): All authors*

## REFERENCES

1. Instituto Brasileiro de Geografia e Estatística (IBGE). Censo demográfico 2010. Available from: https://censo2010.ibge.gov.br/.
2. Instituto Brasileiro de Geografia e Estatística (IBGE). População no Censo 2022. Available from: https://agenciadenoticias.ibge.gov.br/agencia-noticias/2012-agencia-de-noticias/noticias/38719-censo-2022-pela-primeira-vez-desde-1991-a-maior-parte-da-populacao-do-brasil-se-declara-parda.
3. Alchorne MMA, Conceição KDC, Barraza LL, Milanez Morgado de Abreu MA. Dermatology in black skin. An Bras Dermatol. 2024;99(2):123-456. https://doi.org/10.1016/j.abd.2023.10.001
4. Marcos-Pinto A, Ortins-Pina A, Borges-Costa J. Dermatoses in Africans. Acta Med Port. 2018;31(9):501-8. https://doi.org/10.20344/amp.10287
5. Buchanan Lunsford N, Berktold J, Holman DM, Stein K, Prempeh A, Yerkes A. Skin cancer knowledge, awareness, beliefs, and preventive behaviors among Black and Hispanic men and women. Prev Med Rep. 2018;12:203-9. https://doi.org/10.1016/j.pmedr.2018.09.017.
6. Hutchinson E, Yoseph R, Wainman H. Skin of colour: essentials for the non-dermatologist. Clin Med (Lond). 2023;23(1):2-8. https://doi.org/10.7861/clinmed.2022-0335
7. Cartwright MM, Alexis AF, Burgess CM, Desai SR, Draelos ZD, Grimes PE, et al. Understanding the gaps: knowledge, perceptions, and behaviors of skin of color consumers. J Drugs Dermatol. 2023;22(10):1027-33. https://doi.org/10.36849/JDD.7713
8. Gan C, Rodrigues M. An update on new and existing treatments for the management of melasma. Am J Clin Dermatol. 2024;25(5):717-33. https://doi.org/10.1007/s40257-024-00863-2
9. Alexis AF, Woolery-Lloyd H, Williams K, Andriessen A, Desai S, Han G, et al. Recommendations in skin of color. J Drugs Dermatol. 2021;20(9):932-8. https://doi.org/10.36849/JDD.6312
10. Brasil. Secretaria Especial de Políticas de Promoção da Igualdade Racial da Presidência da República (SEPPIR). Estatuto da Igualdade Racial: Lei nº 12.288 de 20 de julho de 2010. Available from: https://legislacao.presidencia.gov.br/atos/?tipo=LEI&numero=12288&ano=2010&ato=e4eoXSq1keVpWT31d.
11. Brasil. Ministério da Saúde. Secretaria de Gestão Estratégica e Participativa. Departamento de Apoio à Gestão Participativa e ao Controle Social. Política Nacional de Saúde Integral da População Negra: uma política para o SUS. 3ª ed. Brasília: Editora do Ministério da Saúde; 2017. 44 p.
12. Scheffer M, Cassenote A, Guerra A, Guilloux AGA, Brandão APD, Miotto BA, et al. Demografia Médica no Brasil 2023. São Paulo: FMUSP, AMB; 2023. 344 p. ISBN: 978-65-00-60986-8.
13. Brasil. Ministério da Saúde. Secretaria de Políticas de Saúde. Departamento de Atenção Básica. Dermatologia na Atenção Básica. 1ª ed. Brasília: Ministério da Saúde; 2002. 142 p.
14. Ferreira IG, Godoi DF, Perugini ER. Nosological profile of dermatology diseases in primary care and dermatology secondary care in Florianopolis (2016-2017). An Bras Dermatol. 2020;95(4):428-38.
15. Ikino JK, Nunes DH, Silva VP, Fröde TS, Bonamigo RR. Melasma and assessment of the quality of life in Brazilian women. An Bras Dermatol. 2015;90(2):196-200. https://doi.org/10.1590/abd1806-4841.20152771
16. Gorbatenko-Roth K, Prose N, Kundu RV, Patterson S. Assessment of Black patients' perception of their dermatology care. JAMA Dermatol. 2019;155(10):1129-34. https://doi.org/10.1001/jamadermatol.2019.2063
17. Louie P, Wilkes R. Representations of race and skin tone in medical textbook imagery. Soc Sci Med. 2018;202:38-42.
18. Lester JC, Taylor SC, Chren MM. Under-representation of skin of colour in dermatology images: not just an educational issue. Br J Dermatol. 2019;180(6):1521-2.
19. Song H, Chien AL, Xu S. Sunscreen recommendations for patients with skin of color in the popular press and in the dermatology clinic. Int J Womens Dermatol. 2020;7(2):165-70.
20. American Academy of Dermatology. How to select sunscreen. Available from: https://www.aad.org/public/diseases/a-z/melasma-causes