BJOS
Brazilian Journal of Oral Sciences

Volume 24
2025
e254906

Original Research

Influence of the patient's skin color on the choice of dental treatment for caries

Luiz Felipe Búrigo Furlaneto[1], Fernanda Oliveira Meller[1], Micaela Rabelo Quadra[2], Antônio Augusto Schäfer[3*]

[1] Graduate Program in Public Health, University of Southern Santa Catarina. Criciúma, Santa Catarina, Brazil.

[2] Graduate Program in Health Sciences, University of Southern Santa Catarina, Criciúma, Santa Catarina, Brazil.

[3] Medical College, University of Rio Verde. Rio Verde, Goiás, Brazil.

Corresponding author:
Antônio Augusto Schäfer
Graduate Program in Public Health.
University of Southern Santa Catarina.
Adresse: Av. Universitária, 1105.
Bairro Universitário, Criciúma/SC.
CEP 88806-000. Brasil.
Phone: +55 (48) 3431.2609
Email: antonioaschafer@unesc.net

Editor: Dr. Altair A. Del Bel Cury

Received: October 30, 2023
Accepted: June 03, 2024

Aim: The aim was to evaluate the influence of the patient's skin color on the choice of dental treatment by academics from a university in the south of the state of Santa Catarina (SC). **Methods:** This is a randomized trial carried out with undergraduate students in dentistry at the University of Criciúma, Santa Catarina. All academics regularly enrolled in the 5th to 10th phases of the dentistry course were invited to participate. Half of the students, randomly, received the clinical case with white skin color, and the other half, the same clinical case but with black skin color. After the distribution of the cases, the participants self-administered a questionnaire with sociodemographic aspects and with the options for choosing treatment for the caries lesion. Crude and adjusted analyses of the association between the patient's skin color and the choice of treatment were performed through multinomial logistic regression, with a significance level of 5%. **Results:** In total, 159 academics were studied. When using direct restoration with composite resin as a reference, patients with black skin color were 56% less likely to receive indirect restoration with composite resin (*Onlay*) when compared to white skin color (RRR=0.44; 95%CI 0.21-0.93; p=0.032). **Conclusions:** This alarming result showed that the patient's skin color influenced the caries treatment chosen by dental students, which can result in black patients not receiving better treatment.

Keywords: Dental caries. Oral Health. Social discrimination. Racism.

Introduction

Caries is a chronic, progressive, and multifactorial disease that destroys mineral tissues in the teeth. It is considered one of the main causes of tooth loss in all age groups, being the main oral health problem in Brazil[1]. The conventional approach to treating cavitated carious lesions involves removing carious tissue and filling the cavity with a restorative material, usually a composite resin. Currently, new restorative philosophies opt for partial and selective removal, which involve the removal of carious tissue that cannot be remineralized after sealing the cavity, while maintaining the affected tissues that are capable of remineralization, preserving the remaining mineral structure[2].

Health, despite being recognized as a universal human right, reveals racial inequities. In Brazil, this situation is evidenced by morbidity and mortality data, in which, whether due to illnesses linked to the living conditions of a population or due to violence, the most negatively affected population has a specific skin color, black[3]. Racism is a harmful form of social organization, determined by race, which can result in differences in healthcare for these minorities, affecting people's lives and health. Unfortunately, health biases determined by race are still commonly seen. Individuals who experience this experience report a lack of attention to their symptoms and complaints, as well as dismissals without health care and non-participation in decisions regarding their health care. These practices can immensely affect the health outcomes of the ones affected by them[4].

Characteristics such as the sex, age, and social class of the patient should never influence the professional's conduct, as everyone deserves the best treatments available in dentistry. Therefore, differences in dental treatment between patients should not be found in clinical practice[5]. However, this is not always observed in the daily practice of consultations and in the choice of the ideal dental treatment for some racial portions of the Brazilian population[6].

Factors that contribute to the difference in treatment between skin colors are economic and social disadvantages, inadequate health care, and attitudes toward discrimination and racism[7]. Diseases that affect the oral cavity also demonstrate the existence of differences between races. Tooth pain and loss, as well as other oral health diseases in adults, may be associated with factors such as education, age group, income, and racial group[8]. In addition, the oral health condition can reflect the life of these patients, poorer individuals, with low schooling and less insertion in the labor market present more problems related to oral health[9].

Therefore, the objective of the current study was to evaluate the influence of the patient's skin color on the choice of dental treatment by students of a University in the south of the state of Santa Catarina (SC).

Materials and Methods

This is a randomized trial carried out with undergraduate students of the Dentistry course at the University of Criciúma-SC. Criciúma has approximately 219,393 inhabitants,

a territorial area of 234,865 km², a Human Development Index of 0.788, and a Gross Domestic Product per capita of 36,073.31 reais[10].

All academics regularly enrolled in the 5th to 10th phases (semesters) of the University's dentistry course, who agreed to participate by signing the free and informed consent form, were included in the study.

For the development of the study, all students were distributed into classrooms according to the phases in which they were enrolled. A random draw was then carried out so that half of the students received a clinical case of a person with white skin color and the other half received a clinical case of a person with black skin color. The clinical cases were the same, with only the patients' skin color differing. An extraoral photograph of two individuals of different ethnicity was used to characterize the patients, and the same intraoral photo was used for both cases (Figure 1).

Figure 1. Clinical cases presented to the dentists. Case 1 white patient and case 2 black patient.

The draw was based on the university's class register, where students located with even numbers on the class register received a clinical case and students located with odd numbers received the other clinical case.

After distributing the clinical cases, the participants were also given a questionnaire for self-administration. There were the following treatment options: (A) finishing and polishing of the restoration, (B) direct restoration with composite resin (reference), and (C) indirect restoration with composite resin (*Onlay*). The student should choose one option only.

A researcher was present at the time of application of the questionnaire so that there was no interaction between academics, and to resolve any doubts that might arise during its application.

The questionnaire included sociodemographic information about the students, such as sex (male, female), age (in complete years), skin color (white, black, yellow, brown), marital status (single, married/stable union, separated/ divorced), family income (in minimum wages), and phase of the course (5th, 6th, 7th, 8th, 9th, 10th), as well as the treatment chosen for the clinical case presented (finishing and polishing of the restoration, direct restoration with composite resin, indirect restoration with composite resin (*Onlay*)).

Subsequently, the data were entered into a database in Microsoft Excel version 2010. For the descriptive analyses, absolute (n) and relative (%) frequencies were presented for the categorical variables (sex, skin color, marital status, course phase), and measures of central tendency (median) and dispersion (interquartile range) for numerical variables. The Kolmogorov–Smirnov test was used to assess data normality. To verify whether there was a difference in the characteristics of the students who received clinical case 1 and clinical case 2, the Fisher's exact test and Student's t-test were used, with a significance level of 5%.

Crude analyses of the association between the chosen dental treatment and the students' characteristics were also performed using Fisher's exact test, considering a significance level of 5%. For these analyses, numerical variables (age and family income) were categorized.

To assess the association between the skin color of the clinical case and the dental treatment chosen by the academics, crude and adjusted analyses were conducted using multinomial logistic regression, with a significance level of 5%, and the relative risk ratio (RRR) was presented as an effect measure. Treatment B (direct restoration with composite resin) was used as a reference for this analysis.

A hierarchical model of analysis was constructed for the adjusted analysis, considering the characteristics of the academics: sex, age, skin color, phase of the course, and family income. Variables with a p-value <0.20 were maintained in the analysis as possible confounding factors.

SPSS version 20.0 statistical software was used for the analyses.

The research was approved in June 2019 by the Research Ethics Committee of the University of Criciúma-SC, under opinion number 3,421,854.

Results

A total of 159 dental students were included in the study. Table 1 presents the sociodemographic characteristics of the participants. The majority were female (76.1%) with a mean age of 22.6 (±3.8) years. Most had white skin color (90.6%) and were single (89.9%). The median monthly family income was R$5000.00 (interquartile range: 3200.00-8000.00) and more than a quarter of the students were in the 10th period of graduation (27.0%).

Table 1. Sociodemographic characteristics of dentistry students. Criciúma, SC, 2023. (n=159)

Variables	N (%)
Sex	
Female	121 (76.1)
Male	38 (23.9)
Skin color	
White	144 (90.6)
Black	1 (0.6)
Yellow	1 (0.6)
Brown	13 (8.2)
Marital status	
Single	143 (89.9)
Married/stable union	14 (8.8)
Separated/divorced	2 (1.3)
Phase of the course	
5th	22 (13.8)
6th	32 (20.1)
7th	16 (10.1)
8th	30 (18.9)
9th	16 (10.1)
10th	43 (27.0)

Table 2 presents the skin color of the clinical cases according to the characteristics of the participants. No statistically significant differences were found in the characteristics of the students who received clinical case type 1 and clinical case type 2.

Table 2. The skin color of the case study patients according to the sociodemographic characteristics of the dentistry students. Criciúma, SC, 2023. (n=159)

Variables	Patient's skin color		p-value
	White	Black	
	N (%)	N (%)	
Sex			0.711[a]
Female	63 (52.1%)	58 (47.9%)	
Male	18 (47.4%)	20 (52.6%)	
Skin color			0.615[a]
White	75 (52.1%)	69 (47.9%)	
Black	0 (0.0%)	1 (100.0%)	
Yellow	0 (0.0%)	1 (100.0%)	
Brown	6 (46.2%)	7 (53.8%)	

Continue

Continuation			
Marital status			0.281[a]
Single	72 (50.3%)	71 (49.7%)	
Married/stable union	9 (64.3%)	5 (35.7%)	
Separated/divorced	0 (0.0%)	2 (100.0%)	
Phase of the course			0.938[a]
5th	12 (54.5%)	10 (45.5%)	
6th	15 (46.9%)	17 (53.1%)	
7th	7 (43.8%)	9 (56.2%)	
8th	17 (56.7%)	13 (43.3%)	
9th	9 (56.2%)	7 (43.8%)	
10th	21 (48.8%)	22 (51.2%)	
Age (years)			0.722[b]
Mean	22.5	22.7	
Standard deviation	3.6	3.9	
Monthly family income (BRL)			0.452[b]
Median	5000.00	5000.00	
Interquartile range	3500.00-8000.00	3000.00-8000.00	

[a] Fisher's exact test.
[b] Student's t-test.

The choice of treatment for caries according to the sociodemographic characteristics of the students is presented in Table 3. It is possible to see that the majority of female students opted for treatment B (direct restoration with composite resin) (55.4%) followed by treatment C (indirect restoration with composite resin (*Onlay)*) (42.1%), while males mostly chose treatment B (86.9%) (p<0.001). In addition, most students from the 5th to 9th phases opted for treatment B. On the other hand, about two-thirds of students in the 10th phase chose treatment C (62.8%) (p<0.001). There were no significant differences between the choice of treatment and the other variables studied.

Table 3. Choice of treatment for the case study according to the sociodemographic characteristics of students in the dentistry course. Criciúma, SC, 2023. (n=159)

Variables	Treatment A	Treatment B	Treatment C	p-value[a]
	N (%)	N (%)	N (%)	
Sex				<0.001
Female	3 (2.5%)	67 (55.4%)	51 (42.1%)	
Male	1 (2.6%)	33 (86.9%)	4 (10.5%)	
Age (years)				0.262
≤21	3 (3.7%)	55 (67.0%)	24 (29.3%)	
>21	1 (1.3%)	45 (58.4%)	31 (40.3%)	

Continue

Continuation				
Skin color				0.371
White	3 (2.1%)	90 (62.5%)	51 (35.4%)	
Non-white	1 (6.7%)	10 (66.6%)	4 (26.7%)	
Monthly family income (minimum wage)				0.115
≤3	0 (0.0%)	17 (58.6%)	12 (41.4%)	
4 to 6	4 (7.3%)	32 (58.2%)	19 (34.5%)	
>6	0 (0.0%)	51 (68.0%)	24 (32.0%)	
Phase of the course				<0.001
5th	1 (4.5%)	16 (72.8%)	5 (22.7%)	
6th	1 (3.1%)	27 (84.4%)	4 (12.5%	
7th	0 (0.0%)	10 (62.5%)	6 (37.5%)	
8th	2 (6.7%)	22 (73.3 %)	6 (20.0%)	
9th	0 (0.0%)	9 (56.2%)	7 (43.8%)	
10th	0 (0.0%)	16 (37.2%)	27 (62.8%)	

Treatment A: finishing and polishing of the restoration.
Treatment B: direct restoration with composite resin.
Treatment C: indirect restoration with composite resin (*Onlay*).
[a] Fisher's Exact Test.

Table 4 presents the crude and adjusted associations between the patient's skin color and the choice of dental treatment. After adjusting for possible confounding factors and using treatment B as a reference, black-skinned patients were 56% less likely to receive treatment C when compared to white-skinned patients (RRR=0.44; 95%CI 0.21-0.93).

Table 4. Crude and adjusted analysis of the association between the patient's skin color and the choice of dental treatment. Criciúma, SC, 2023.

Patient's skin color	Treatment A				Treatment C			
	Crude analysis	p-value	Adjusted analysis*	p-value	Crude analysis	p-value	Adjusted analysis*	p-value
	RRR (CI95%)		RRR (CI95%)		RRR (CI95%)		RRR (CI95%)	
		0.253		0.163		0.035		0.032
White	1.00		1.00		1.00		1.00	
Black	0.26 (0.03-2.61)		0.14 (0.01-2.20)		0.49 (0.25-0.95)		0.44 (0.21-0.93)	

Treatment A: finishing and polishing of the restoration.
Treatment B: direct restoration with composite resin.
Treatment C: indirect restoration with composite resin (*Onlay*).
Reference: treatment B.
RRR: relative risk ratio.
* Analysis adjusted for the student's sex, age, skin color, course phase, and family income.

Discussion

This study, which aimed to assess whether the skin color of patients influenced the choice of dental treatment by students of the dentistry course at a university, found relevant results. Even after adjusting for confounding factors, the choice of treatment by dental students differed according to the patient's skin color. Individuals with white skin color were more likely to receive treatment C (indirect restoration with composite resin - *Onlay*) than those with black skin color.

The gold standard for the clinical case presented in this study, was the direct restoration with composite resin (treatment B), which aims to preserve the maximum amount of healthy tooth structure since the tooth had dental caries[11]. *Onlays* (indirect restorations) are restorations used in the partial reconstruction of the tooth, when it presents great destruction, thus restoring its aesthetic form and function[12]. On the other hand, the direct technique requires only one appointment to be made[13].

Among the restorative possibilities found to reconstruct a dental element affected by caries, professionals should always opt for the best treatment plan, thus obtaining a greater perspective to achieve the greatest possible longevity of the treatment performed[13]. From a practical point of view, the choice between direct and indirect restorative techniques (*Onlays*) should be based on the principle of minimally invasive dentistry, reducing an unnecessary risk to the patient's tooth[14]. In addition, the immediate costs of performing an indirect restoration are higher compared to a direct restoration[15].

None of the patient's characteristic, whether physical, sex, age, color or social, should change the professional conduct. However, studies show that the patient's skin color can interfere with the chosen treatment. Cabral et al.[6] (2005) indicated a high rate of extractions for extremely decayed teeth in patients with black skin color. Chisini et al.[16] (2019) found similar results when evaluating the treatment performed in patients with an amalgam restoration. The study found that patients with white skin color were more likely to receive indirect restoration with composite resin (Onlay) as treatment. Furthermore, according to some authors, more complex and expensive treatments, such as *Onlays*, are provided to patients with white skin color because they have a better socioeconomic status than patients with black skin color[17,18].

Racial discrimination means any distinction, exclusion, restriction, or preference based on race, color, descent, or national or ethnic origin[19], and it can be reproduced and imperceptibly through the way people around us are treated. Discriminatory manifestations do not always occur explicitly, leading to difficulty in identifying these practices, both for the victims and for the people who practice these acts. The non-perception of racial discrimination is, in part, a consequence of the ideological construction around the myth of racial democracy, which shows Brazil as a country where relations between racial groups are harmonious and, therefore, racism is non-existent[19,20].

The existing institutional racism in public health reinforces the myth of racial democracy since health professionals often demonstrate a lack of critical attention to the ethnic-racial problem and its implications for health in the population, instead of pro-

moting equity in access to health services and the quality of health care received by the black population[21]. In this way, health professionals end up replicating, encouraging, and involuntarily inducing racial discrimination[17].

Thus, knowing how race/color, social class, and sex are structured in our society, it is possible to show that this fact interferes with health outcomes. One of the strategies to address these inequalities is the advancement of the promotion of equity policies within a systemic and universal health system[19,20]. Another fundamental aspect is related to the posture of those who teach. Teachers must reflect and develop critical skills capable of leading their students to discuss about social problems and difficulties, that exist in everyday in the professional life, thus reporting the reality of their functions[22].

The findings of this study are worrying, since, even if unconsciously, dental professionals and students may spread racial discrimination in their appointments, by indicating and performing unnecessary treatments in black patients, instead of offering and opting for minimally invasive treatments[20]. Considering this, the whiteness in health courses constitutes an important topic of discussion. Whiteness can be defined as a term that places the white race as the majority or in top of a social hierarchy. It can be observed in health courses and is characterized by biases and beliefs that can harm, consciously or unconsciously, people with other skin colors, thus perpetuating inequities in healthcare[23,24].

Based on this racial disparity, it is necessary to reformulate (which is already taking place slowly) the training process of academics and health professionals, encouraging the training of professionals capable of dialogue with the society, and of discussing and rethinking practices in health. These practices are essential to foster respect between the people involved, and also to create an understanding between academic interest and the patient's needs, without prioritizing one over the other[25].

It is important to point out some limitations. This study portrayed only one dental condition for which treatment may be influenced by the patient's skin color, among many other aspects related to oral health that can and should be analyzed. In addition, the research evaluated the conduct of academics from only one university. Despite this, the representativeness of the theme is a strength of this study, which can be a starting point for the investigation of the influence of skin color in different dental treatments and professionals and academics in training at other locations. Furthermore, although there was no statistical difference regarding the students' skin color, the fact that the majority of students in this study were white may bias the results.

In conclusion, the results of this study showed that the patient's skin color influenced the caries treatment chosen by dental students, which can result in black patients not receiving better treatment. In addition, academics with a higher level of education opted for the less conservative treatment in relation to those who did not have as much scientific knowledge.

The racial issue should never influence the choice of treatment for patients, since everyone deserves to be treated in the same way and receive the best and most

modern treatments available in dentistry. For this reason, the results of this study can be considered alarming and should encourage discussions in the academic field so that future professionals assist all patients in the best possible way and without any distinction.

Data availability

Datasets related to this article will be available upon request to the corresponding author.

Conflict of interest

None.

Author Contribution

Luiz Felipe Búrigo Furlaneto and **Antônio Augusto Schäfer** worked on the conception and design, analysis, and interpretation of the data. **Fernanda Oliveira Meller** contributed to the study design, data analysis, and interpretation of results. **Micaela Rabelo Quadra** wrote and revised the final version of the article. All authors wrote the article and approved the version to be published.

References

1. Wong A, Subar PE, Young DA. Dental caries: an update on dental trends and therapy. Adv Pediatr. 2017 Aug;64(1):307-30. doi: 10.1016/j.yapd.2017.03.011.
2. González-Cabezas C, Fernández CE. Recent advances in remineralization therapies for caries lesions. Adv Dent Res. 2018 Feb;29(1):55-9. doi: 10.1177/0022034517740124.
3. Lages SRC, Silva AM, Silva DP, Damas JM, Jesus MA. [Racial prejudice as determing social health - the invisibility of sickle cell anemia]. Rev Interinst Psicol. 2017;10(1):109-22. Portuguese.
4. Hamed S, Bradby H, Ahlberg BM, Thapar-Björkert S. Racism in healthcare: a scoping review. BMC Public Health. 2022 May 16;22(1):988. doi: 10.1186/s12889-022-13122-y.
5. Canalli CSE, Silveira RG, Miasato JM, Chevitarese L. [Humanization in the relationship between the dentistry professional and his/her patient]. Rev Odontol Univ Cid São Paulo. 2012;24(3):220-5. Portuguese.
6. Cabral ED, Caldas Ade F Jr, Cabral HA. Influence of the patient's race on the dentist's decision to extract or retain a decayed tooth. Community Dent Oral Epidemiol. 2005 Dec;33(6):461-6. doi: 10.1111/j.1600-0528.2005.00255.x.
7. Brazilian Ministry of Health. Secretariat for Strategic and Participatory Management. Department of Interfederative Articulation. [Panel of SUS Indicators; v. 7, n. 10. Thematic Health of the Black Population]. Brasília: Ministry of Health; 2016 [cited 2022 May 6]. Available from: https://www.gov.br/saude/pt-br/composicao/saps/equidade/publicacoes/populacao-negra/painel-de-indicadores-do-sus-no-10-tematico-saude-da-populacao-negra-vol-vii.pdf/view. Portuguese.
8. Bastos J, Gigante DP, Peres KG. Toothache prevalence and associated factors: a population based study in southern Brazil. Oral Dis. 2008 May;14(4):320-6. doi: 10.1111/j.1601-0825.2007.01379.x.
9. Moreira TP, Nations MK, Alves MS. [Inequality and damaged teeth: oral sequelae from living in poverty in the Dendê community, Fortaleza, Ceará, Brazil]. Cad Saude Publica. 2007 Jun;23(6):1383-92. Portuguese. doi: 10.1590/s0102-311x2007000600013.

10. Brazilian Institute of Geography and Statistics. Brasil / Santa Catarinha / Cricúma. Rio de Janeiro: IBGE; 2021. [cited 2021 Aug 20]. Available from: https://cidades.ibge.gov.br/brasil/sc/criciuma/panorama. Portuguese.

11. Silva EL, Januário MVS, Vasconcelos MA, Vasconcelos RG. [Therapeutic approach to carious lesions: when and how to treat]. Rev Bras Cienc Saude. 2017;21(2):173-80. Portuguese. doi: 10.22478/ufpb.2317-6032.2017v21n2.24321.

12. Goyatá FR, Veludo FL, Fonseca MFL, Lanza CRM, Barreiros ID, Novaes Júnior JB, et al. [Restoring posterior teeth with composite resin associated with fiberglass: a case report]. Arch Health Invest. 2017 Set;6(9):431-4. Portuguese. doi: 10.21270/archi.v6i9.2225.

13. Albino LGB, Perillo MV, Texeira TR, Gunter JM, Decurcio RA. [Indirect composite resin for posterior teeth: a safe and extremely conservative option]. Clínica Int J Braz Dent. 2015;11(3):300-8. Portuguese.

14. Laegreid T, Gjerdet NR, Johansson AK. Extensive composite molar restorations: 3 years clinical evaluation. Acta Odontol Scand. 2012 Jul;70(4):344-52. doi: 10.3109/00016357.2011.603355. Epub 2011 Jul 25.

15. Fennis WM, Kuijs RH, Roeters FJ, Creugers NH, Kreulen CM. Randomized control trial of composite cuspal restorations: five-year results. J Dent Res. 2014 Jan;93(1):36-41. doi: 10.1177/0022034513510946. Epub 2013 Oct 23.

16. Chisini LA, Noronha TG, Ramos EC, Dos Santos-Junior RB, Sampaio KH, Faria-e-Silva AL, et al. Does the skin color of patients influence the treatment decision-making of dentists? A randomized questionnaire-based study. Clin Oral Invest. 2019 Mar;23(3):1023-1030. doi: 10.1007/s00784-018-2526-7. Epub 2018 Jun 23.

17. Freire MC, Reis SC, Figueiredo N, Peres KG, Moreira RS, Antunes JL. Individual and contextual determinants of dental caries in Brazilian 12-year-olds in 2010. Rev Saude Publica. 2013 Dec;47 Suppl 3:40-9. doi: 10.1590/s0034-8910.2013047004322.

18. Paradies Y. Whither anti-racism? Ethn Racial Stud. 2016 Jan;39(1):1-15. doi: 10.1080/01419870.2016.1096410.

19. Heringer R. [Racial inequalities in Brazil: a synthesis of social indicators and challenges for public policies]. Cad Saude Publica. 2002;18 Suppl:S57-65. Portuguese. doi: 10.1590/S0102-311X2002000700007. Epub 2003 Jan 21.

20. Werneck J. [Institutional racism and black population health]. Saude Soc. 2016 Jul-Sep;25(3):535-49. Portuguese. doi: 10.1590/s0104-129020162610.

21. Williams DR, Priest N. [Racism and health: a growing body of international evidence]. Sociologias. 2015 Sep-Dec;17(40):124-74. Portuguese. doi: 10.1590/15174522-017004004.

22. Finkler M, Caetano JC, Ramos FRS. [Ethics and values in professional training in health: a case study]. Cienc Saude Colet. 2013 Oct;18(10):3033-42. Portuguese. doi: 10.1590/S1413-81232013001000028.

23. Hantke S, St. Denis V, Graham H. Racism and antiracism in nursing education: confronting the problem of whiteness. BMC Nurs. 2022 Jun 10;21(1):146. doi: 10.1186/s12912-022-00929-8.

24. Vanidestine T, Aparicio EM. How social welfare and health professionals understand "race," racism, and whiteness: a social justice approach to grounded theory. Soc Work Public Health. 2019;34(5):430-43. doi: 10.1080/19371918.2019.1616645.

25. Baumgarten A, Bastos JL, Toassi RFC, Hilgert JB, Hugo FN, Celeste RK. Discrimination, gender and self-reported aesthetic problems among Brazilian Adults. Community Dent Oral Epidemiol. 2018 Feb;46(1):24-9. doi: 10.1111/cdoe.12324. Epub 2017 Jul 24.