DOI: 10.1590/1413-812320222710.01282022EN

Prenatal care of Brazilian women: racial inequalities and their implications for care

Millani Souza de Almeida Lessa (https://orcid.org/0000-0002-3535-6926) [1]
Enilda Rosendo Nascimento (https://orcid.org/0000-0001-6993-3747) [2]
Edméia de Almeida Cardoso Coelho (https://orcid.org/0000-0001-6718-4922) [2]
Ieda de Jesus Soares (https://orcid.org/0000-0003-4983-2855) [3]
Quessia Paz Rodrigues (https://orcid.org/0000-0003-0762-4679) [4]
Carlos Antônio de Souza Teles Santos (https://orcid.org/0000-0003-0970-0479) [5]
Isa Maria Nunes (https://orcid.org/0000-0002-7392-6088) [2]

Abstract *The study aimed to characterize women that attended prenatal care in Brazil according to ethnicity/skin color and sociodemographic variables and to verify the association between the indicators of the prenatal care process and the women's ethnicity/skin color. This was a population based, cross-sectional study carried out with data from the National Health Survey of 2013. A bivariate analysis was performed using the multilevel logistic regression model, estimating the odds ratio and the respective 95% confidence intervals to test the association between the indicators of the adequate prenatal care process and the women's ethnicity/skin color. The findings showed that black women have a lower chance of starting prenatal care before 12 weeks of gestation, having 6 or more consultations, performing the HIV test, performing the VDRL exam or receiving advice related to care during gestation and childbirth. Inequalities were identified in the healthcare of Brazilian women during prenatal care, related to ethnicity/skin color and other sociodemographic characteristics. It was concluded that being of black ethnicity and living in a socially disadvantaged area entails disadvantages for women regarding access to a prenatal care considered to be adequate according to the criteria established by the Brazilian Ministry of Health.*

Key words *Prenatal care, Women's health, Health of the black population, Racism*

[1] Instituto de Saúde Coletiva, Universidade Federal da Bahia. R. Basílio da Gama s/n, Canela. 40110-040 Salvador BA Brasil. mila.misoual@gmail.com
[2] Escola de Enfermagem, Universidade Federal da Bahia. Salvador BA Brasil.
[3] Escola Bahiana de Medicina e Saúde Pública. Salvador BA Brasil.
[4] Hospital Geral Roberto Santos, Secretaria da Saúde do Estado da Bahia. Salvador BA Brasil.
[5] Centro de Integração e Dados e Conhecimento para Saúde (CIDACS). Instituto Gonçalo Moniz, Fundação Oswaldo Cruz. Salvador BA Brasil.

Introduction

Prenatal care is globally recognized as an intervention that has a great impact on reducing maternal and perinatal morbidity and mortality rates, and its implementation is related to the country's health and social development indicators[1].

Literature highlights the effects of prenatal care on women's lives and health, showing that access to this type of care is closely related to sociodemographic, cultural and economic development factors that mediate access to health services[2-6]. These studies also highlight that in societies characterized by inequalities, gender and racism constitute structuring elements and explain the differentiated and unequal access of black women to health services considered relevant, when compared to white women.

The prenatal care coverage in Brazil has followed a growing trend over the years, reaching approximately 100% when analyzed regardless of maternal characteristics and the quality of care provided[7,8]; however, when evaluated according to the adequacy of care, the levels of coverage drop sharply, showing that prenatal care coverage in terms of effectiveness is still far from the desired situation[9].

Aiming to achieve better results related to the national health indicators, the Program for the Humanization of Prenatal Care and Childbirth (PHPN, *Programa de Humanização no Pré-natal e Nascimento*) was created in 2000 and established criteria related to improving access to, coverage and quality of prenatal care, as well as childbirth and postpartum care.

Many studies have shown, however, that these minimum criteria are not being satisfactorily met for the vast majority of pregnant women, showing an even more limited reach in relation to women under vulnerable circumstances, and may also vary according to the country region and the place where care is being offered[1,6,9-11].

In general, the literature indicates the persistence of low compliance with the set of proposed goals and their correlation with the social determinants of health, among which ethnicity/skin color stands out[9]. Therefore, skin color should be discussed together with the socioeconomic and cultural factors, as these are variables that act synergistically, amplifying negative health outcomes and forming mechanisms that explain racial inequalities in this context[12-14].

Studies with an emphasis on racial inequalities in health have highlighted that black women occupy a position of greater vulnerability, as they experience, at least, the triple discrimination of gender, ethnicity and social class, which directly impacts the pattern of health care access and use in the processes of illness and death[12,15,16].

Racism operates in the institutions under a dynamic that bestows both privileges and disadvantages based on ethnicity, establishing discriminatory parameters that seek to maintain the hegemony of the racial group that holds the power[17]. Specifically in the field of prenatal care, the findings resulting from national and regional data confirm this statement, as they show that women of black or brown skin color, with low level of schooling and assisted in public services, experience lower adequacy in care[12,18-20]. Therefore, they are the most affected by complications resulting from the absence or inequities of care.

Understanding the importance of scientific research on access to qualified and effective services by the population of women victims of prejudice and discrimination, whether racial or social, and considering the importance of national data for a broader assessment of the provided assistance, this study aimed to characterize the women who received prenatal care in Brazil according to sociodemographic variables and ethnicity/skin color and to verify the association between the indicators of the prenatal care process and the women's ethnicity/skin color.

Method

The present study shows data from the National Health Survey (PNS, *Pesquisa Nacional de Saúde*), carried out in Brazil by the Brazilian Institute of Geography and Statistics (IBGE, *Instituto Brasileiro de Geografia e Estatística*). This is a cross-sectional, population-based study of which main objective is to produce and provide nationally representative data on the health situation and lifestyles of the Brazilian population, as well as on health care, regarding the access to and use of health services, preventive actions, continuity of care, and funding of health care[21].

The PNS is a household survey carried out through conglomerate sampling in three stages, namely: the census sectors or set of sectors, which comprise the primary sampling units; the households, which represent the second-stage units; and the residents aged 18 or over, including women who went through childbirth from 10/28/2011 to 7/27/2013, considering the last delivery.

The study population consisted of 1,851 women who received prenatal care, distributed throughout Brazil. There was a loss of 2.1% related to non-response to specific questions of the research questionnaire, with the analysis being developed based on information from 1,812 women. For peculiar variables such as income and occupation, the percentages computed as non-response, related to the "not applicable" definition, were represented by 59.87% and 58.60%, respectively.

The analyzed ethnicity/skin color variable consisted of two groups (black and white). The definition of ethnicity/skin color used in the present study follows the IBGE criteria, which currently consists of the following skin colors/race/ethnicity: white, black, brown, indigenous and yellow, and for the purposes of this study, the self-declared black and brown women were classified as "black".

The sociodemographic characteristics of the assessed women are considered independent variables and are related to age, marital status, occupation, income, level of schooling, parity and population care coverage. The adequate prenatal process indicators were defined in the study as dependent variables and follow the minimum recommendations proposed by the Brazilian Ministry of Health through the Humanization of Prenatal Care and Childbirth (PHPN, *Programa de Humanização no Pré-natal e Nascimento*) and Technical Manual for Low-Risk Prenatal Care.

The process indicators related to counseling given during prenatal care were included, and originated from the questions in the PNS questionnaire, which were added in order to provide a broader and more realistic analysis of prenatal care.

The prenatal care process indicators were determined taking into account the first consultation up to the 12th week of gestation, a minimum of 6 consultations, laboratory tests (blood count, serology for syphilis – venereal disease research laboratory test – VDRL, anti-HIV test and urinalysis), clinical-obstetric evaluation (blood pressure measurement, weight measurement, measurement of uterine height, assessment of fetal heart rate and clinical examination of the breasts), counseling related to the use of tobacco, alcohol, hair dyes, missing the appointments, healthy eating; and information regarding signs of labor, signs of obstetric risk, advice on breastfeeding and on the referral maternity hospital for childbirth care[22].

The initial analysis was carried out using descriptive statistics, obtaining measures of central tendency (means and medians), standard deviation, frequencies and percentages. A tabular bivariate analysis was performed to verify the homogeneity of the distribution of sociodemographic covariates between the white and black groups, related to the ethnicity/skin color variable, using the chi-square test at a significance level of $p < 0.05$. Subsequently, a bivariate analysis was performed using a multilevel logistic regression model, where the odds ratios (OR) were estimated to verify the association between the indicators of adequate prenatal care and the ethnicity/skin color variable, with the respective 95% confidence intervals.

To avoid spurious associations, the multilevel logistic regression model was adopted in this study, instead of the traditional logistic model, thus treating the census sector as a random effect in the analysis. For this purpose, the intraclass correlation coefficient was estimated, which expresses the degree of homogeneity of the individuals' behaviors and attitudes when they share the same geographic area-census sector[23].

The data used in this study were obtained from a public domain source, and the study was approved by the National Research Ethics Committee - Conep, of the National Health Council – CNS, in June 2013, as a prerequisite for the distribution of data by PNS. Therefore, the present study does not require the evaluation by the Ethics Committee.

Results

The mean age of the study population is 27 years (SD: 6.2), mostly of black ethnicity/skin color (65.9%). Women who had a steady partner (78.1%), high school education (44.8%), were employed by a public or private company (26.7%) and had an income between one and three minimum wages (25.9%) predominated. A little over one-third of the women had given birth only once before the pregnancy that investigated the characteristics of prenatal care (37.5%) and 70.8% used the Brazilian Unified Health System (SUS, *Sistema Único de Saúde*) to carry out the follow-up.

Table 1 shows the description of the sociodemographic data of women who received prenatal care in Brazil, stratified by ethnicity/skin color. There was a statistically significant association between age and ethnicity/skin color of women ($p = 0.045$), with a predominance of the age group of 25 to 35 years old, both among black and white women, 56.3% and 52.9% respectively.

There was a higher percentage of white women with a steady partner, 80.6%, compared

to black women. As for the level of schooling, it showed statistical significance regarding the differences in the women's ethnicity/skin color ($p < 0.001$); for this variable, the percentage differences were observed mainly between the illiterate and higher education groups, where in the first group, black women represented 7.8% while white women corresponded to 4.2%; and conversely, there was a predominance of white women at the highest level of education, which corresponded to 27.9%, about 2.40-fold higher than the group of black women for the same level.

Regarding occupation, there was a statistically significant difference in the proportions between the groups ($p < 0.001$), highlighting the percentages related to those employed in the public/private sector and domestic workers; in the latter, black women were 2.03-fold more prevalent than the white women, while in the first, the white women stood out with 32.9%. With regard to in-

Table 1. Comparison between black and white women attended in prenatal care, according to sociodemographic variables. Brazil, 2013.

Sociodemographic characteristics	Self-declared ethnicity/skin color (n = 1,812)		p-value
	White (593) n (32.4%)	Black (1,219) n (65.9%)	
Age group (1,812)			
18 to 24 yrs.	176 (29.7)	430 (35.3)	0.045
25 to 35 yrs.	334 (56.3)	646 (53.0)	
≥ 36 yrs.	83 (14.0)	143 (11.7)	
Marital status (1,812)			
With partner	478 (80.6)	938 (76.9)	0.077
No partner	115 (19.4)	281 (23.0)	
Level of schooling (1,812)			
Illiterate	25 (4.2)	95 (7.8)	
Elementary school	142 (23.9)	430 (35.3)	< 0 .001
High school	260 (43.8)	552 (45.3)	
Higher education	166 (28.0)	142 (11.6)	
Occupation (1,812)			
No payment	7 (1.2)	14 (1.1)	
Autonomous worker	59 (9.9)	90 (7.4)	
Domestic worker	16 (2.7)	67 (5.5)	< 0.001
Public/private employee	195 (32.9)	288 (23.6)	
Employer	9 (1.5)	5 (0.4)	
Not applicable	307 (51.8)	755 (61.9)	
Monthly incomea (1,812)			
≤ 1 minimum wage	39 (6.6)	131 (10.7)	
1 to 3 minimum wages	182 (30.7)	288 (23.6)	< 0.001
≥ 4 minimum wages	58 (9.8)	29 (2.4)	
No payment/not applicable	314 (52.9)	771 (63.2)	
Parity (1,812)			
1 childbirth	260 (43.8)	420 (34.4)	
2 childbirths	193 (32.5)	397 (32.6)	< 0.001
≥ 3 childbirths	140 (23.6)	402 (33.0)	
Type of health care service used (1,786)			
Exclusively public	319 (54.3)	959 (80.0)	< 0.001
Public and private	27 (4.6)	49 (4.1)	
Exclusively private	241 (41.1)	191 (15.9)	

[a] monthly income of R$ 678.00 reais in 2013.

Source: National Health Survey, 2013.

come, black women showed a higher percentage among the women who had a monthly income of less than or equal to 1 minimum wage, when compared to white women; among those earning four minimum wages or more, white women stood out, representing 9.8% instead of 2.8% of the black group.

Parity showed a statistically significant difference between the proportions ($p < 0.001$), highlighting the groups of women who had given birth only once and those who had given birth three or more times. Women who self-declared white predominated among those with fewer children; in contrast, among those who reported having given birth more than two times, there was a predominance of black women, 32.9%. There was no statistical significance between marital status and ethnicity/skin color of women who received prenatal care.

Regarding the type of service used, there was a difference between the proportions with statistical significance between the groups. Black women represented the majority of those who received care in the public sector (79.9%) and only 15.9% of prenatal care performed in the private sector, while for the latter, white women represented 41.1% of care.

Table 2 shows the prevalence of the process indicators in adequate prenatal care according to the women's ethnicity/skin color, and the odds ratio (OR) with their respective confidence intervals of the multilevel analysis models. The intraclass correlation coefficient (Rho), or cluster effect, was used to assess the existence of portions of variability between the areas where the women live, not explained by the variables included in the model, with a minimum value of 0.00 and a maximum of 0.46.

Regarding the indicators of adequate prenatal care and the ethnicity/skin color of the women, there was a statistically significant negative association between skin color and the start of prenatal care at 12 weeks or less, the number of consultations equal to or greater than six, HIV test performance, VDRL exam, breast exam in all consultations, information regarding labor, risk signs indicating obstetric emergency and advice on maternal breastfeeding, in addition to recommendations related to the referral maternity.

The results showed that black women had a 35% lower chance of starting prenatal care at 12 weeks or less, when compared to white ones (OR = 0.65; 95%CI: 0.49-0.87. Rho = 0.08). Regarding the HIV test performance during prenatal care, black women showed a 49% reduction in the chance of being tested for the virus during pregnancy, compared to white pregnant women (OR = 0.51; 95%CI: 0.26-1.03. Rho=0.41). Regarding the performance of the test for syphilis (VDRL), being black was constituted an obstacle to perform the test (OR = 0.68; 95%CI: 0.49-0.94. Rho = 0.32).

Regarding the performance of breast exams in all consultations, there was a low prevalence of accomplishment for both black and white women, representing a percentage of 34.4% and 41.3% respectively. However, when comparing the chance of undergoing this anamnesis according to ethnicity/skin color, black women had a 28% reduction in the chance of meeting this indicator (OR = 0.72; 95%CI: 0.57-0.90, Rho = 0.13).

Regarding all indicators related to receiving prenatal recommendations regarding pregnancy, labor and delivery, there was a lower prevalence for the group of black women when compared to the white women. As for the advice related to the characteristics and warnings of labor onset, black women were 23% less likely to have access to this information (OR = 0.77; 95%CI: 0.61-0.97. Rho = 0.03). As for information on risk signs that indicate an obstetric emergency, black women recorded an even lower chance of receiving it, 22% (OR = 0.78; 95%CI: 0.61-0.99. Rho = 0.01). As for advice on breastfeeding, the results showed that black pregnant women were 33% less likely to be counseled on this subject (OR = 0.67; 95%CI: 0.50-0.91. Rho = 0.17).

Data related to the recommendations given to the pregnant women about the referral maternity hospital indicate that there is an association between ethnicity/skin color and this indicator of prenatal adequacy, and in this study, the fact of being black reduced the chance of obtaining this type of recommendation by 55% (0.56; 95%CI: 0.43-0.73. Rho = 0.16).

The study results showed no statistically significant differences between the groups of white and black women regarding the measurement of the woman's height at the first prenatal consultation, having a blood test performed during the follow-up, request of an HIV test, request of urinalysis for the pregnant woman, blood pressure measurement, weight and uterine height in all consultations; advice on not missing appointments, maintaining a balanced and healthy diet, not smoking, not drinking and not using hair dyes.

Table 2. Association and intraclass correlation between indicators of adequate prenatal care and ethnicity/skin color of women who received prenatal care. Brazil, 2013.

Indicators of adequate prenatal care	White		Black		OR (95%CI)	p-value	Rho
	n	%	n	%			
Prenatal start with GA ≤ 12 weeks	512	86.3	983	80.6	0.65 (0.49-0.87)	0.003	0.08
≥ 6 prenatal consultations	528	89.0	935	76.7	0.41 (0.30-0.54)	< 0.001	0.00
Height measurement in the 1st consultation	447	75.4	950	77.9	1.16 (0.89-1.52)	0.279	0.23
Was submitted to blood tests	582	98.1	1,182	97.0	0.60 (0.31-1.19)	0.146	0.00
Request for HIV test	540	93.9	1,080	92.7	0.83 (0.50-1.37)	0.469	0.46
Performed HIV test	526	97.4	1,030	95.4	0.51 (0.26-1.03)	0.059	0.41
Request for urinalysis	578	97.5	1,184	97.1	0.88 (0.46-1.70)	0.713	0.32
Performed VDRL	426	81.6	799	76.1	0.68 (0.49-0.94)	0.020	0.32
BP measurement in all consultations	539	90.9	1,091	89.5	0.83 (0.56-1.22)	0.349	0.32
Weight measurement in all consultations	545	91.9	1,097	90.0	0.79 (0.53-1.15)	0.211	0.28
UH measurement in all consultations	489	82.5	972	79.7	0.83 (0.62-1.11)	0.206	0.24
Breast examination in all consultations	245	41.3	419	34.4	0.72 (0.57-0.90)	0.004	0.13
Advice on not missing appointments	534	90.1	1,108	90.9	1.10 (0.78-1.55)	0.595	0.11
Advice on eating a healthy diet	574	96.8	1,180	96.8	1.00 (0.57-1.75)	0.996	0.00
Advice not to smoke	535	90.2	1,111	91.1	1.12 (0.78-1.62)	0.540	0.23
Advice not to drink alcohol	541	91.2	1,108	90.9	0.96 (0.64-1.42)	0.823	0.32
Advice not to use hair dye	481	81.1	971	79.7	0.90 (0.67-1.21)	0.473	0.27
Recommendation on labor	444	74.9	851	69.8	0.77 (0.61-0.97)	0.027	0.03
Information on risk signs	467	78.7	905	74.2	0.78 (0.61-0.99)	0.037	0.01
Advice on maternal breastfeeding	514	86.7	997	81.8	0.67 (0.50-0.91)	0.011	0.17
Recommendation on referral maternity	475	80.1	859	70.5	0.56 (0.43-0.73)	< 0.001	0.16

Source: National Health Survey, 2013.

Discussion

This study shows that self-declared black Brazilian women had a lower chance of receiving adequate prenatal care when the indicators of care considered to be adequate according to the PHPN and the Technical Manual for Low-Risk Prenatal Care are checked. The literature shows that both for specific populations by regions and for the general population in Brazil, skin color has been a marker of inequities regarding access to health services[14,18,19].

Findings related to the adequacy of prenatal care show that women's ethnicity/skin color and sociodemographic factors influence the adequacy of care and discriminatory experiences, so that social settings promote discrimination processes regarding the access to, supply and quality of health care[15-17,21].

Similarly to the present study, a study on the racial approach on morbidity and mortality and peri- and neonatal care, carried out in the city of Rio de Janeiro between 1999-2001, showed that there is a persistent unfavorable situation among black and brown women in relation to white ones, evidenced by younger age, worse income, low level of schooling, lower incidence of being with a steady partner, and higher parity[24].

Other more recent studies confirm these findings by showing the relationship between black ethnicity/skin color and low income, less paid occupations and low level of schooling in the context of access to and quality of health care[9,18], strengthening the discussion on the historical process of inequalities between social groups in Brazil, which generates losses in access to income and fundamental rights such as education, health, housing, information, social security, cultural goods and services.

The obstetric history of women and its association with the use of adequate prenatal care is a widely discussed topic in the national and international literature, with a consensus among most studies that parity is inversely proportional to the

chances of having a prenatal care that meets the pre-established quality standards[10,25].

The association of ethnicity/skin color with the type of service used, identified in this study, is also demonstrated in other investigations that showed that black women are the ones who mostly seeks public health services and also the ones who suffer the most from inequities related to the operationalization of services in the health care network of the Brazilian Unified Health System (SUS) due to overlapping vulnerabilities. In this regard, a national study stated that individuals without private health coverage and with a lower socioeconomic level are less likely to use health services and have a lower average number of consultations, evidencing access barriers related to this profile[26].

When specifically investigating the prenatal adequacy indicators, it was found that black women are less likely to start prenatal care before 12 weeks of gestation and have a minimum of six prenatal consultations, as recommended by the PHPN and the Technical Manual for Low-Risk Prenatal Care. Similarly, a national study carried out with puerperal women highlighted that the assessed black women showed a low proportion of early start of prenatal care and a low number of consultations[18].

In another temporal trend study carried out in the municipality of Niterói, state of Rio de Janeiro, it was found that the percentage of women with seven or more consultations remained constant at 81% between the years 2000 and 2009, an average close to the findings of the present study (80.7%), showing percentage differences according to age, level of schooling and ethnicity/skin color[12].

Regarding the number of consultations performed during prenatal care, the intraclass correlation investigated in this study also pointed out that the difference in the prevalence verified between black and white women occurs homogeneously throughout Brazil, that is, it does not maintain a direct relationship with the local characteristics of the areas where the women live, which is reiterated by studies that indicate the unequal scenario of health care access throughout Brazil, highlighting ethnicity/skin color as an important marker of discriminatory experiences and inequities in health[3,26].

We did not find any differences regarding the request for HIV testing between white and black women; however, they differed in terms of test performance, with the disadvantage falling on the black group, demonstrating that even when there is no difficulty in access, black women face obstacles during the care process[14]. The calculated intraclass correlation is in accordance with the literature, as it demonstrates that the request or not of the exams has a heterogeneous characteristic for Brazilian women, varying according to the region and the context in which the woman lives, as well as the characteristics and location of the health services.

Although most studies do not show a direct association of examination performance with the ethnicity/skin color of women, the assessed populations, in general, are mostly brown and black and have a similar sociodemographic profile, consisting mostly of SUS users.

Studies with these characteristics highlight the difficulties faced by the women who suffer from inequalities and low quality of care, as demonstrated by a study carried out with SUS users in the state of Acre, which showed that among the necessary tests for the first prenatal consultation, only 13.6 % were considered adequate. For the period between 28 and 30 weeks of gestation, there were no cases of adequate laboratory tests[27].

Similarly to the HIV serology test, the VDRL test has different distributions according to ethnicity/skin color in this study. Research carried out with data from the National Notifiable Diseases Information System (SINAN) and the National Information System on Live Births (SINASC) in Niteroi, state of Rio de Janeiro, highlights a high and growing incidence of syphilis in the municipality, although it occupies the seventh position in the HDI ranking in Brazil and have good primary care coverage. These authors reiterate the association between the occurrence of syphilis and social, economic, infrastructure factors, as well as factors related to access and quality of care in health services, drawing attention to the hazard of a low percentage of diagnosis and timely treatment for pregnant women and their partners[28].

Regarding congenital syphilis, other studies have pointed out the vulnerability profile of the affected women, highlighting the low level of schooling, black and brown ethnicity/skin color, low income and single marital status[29,30]. Our findings are in line with these studies, which emphasize the importance of good quality prenatal care in preventing unfavorable outcomes by pointing out that women diagnosed with syphilis, but without a congenital syphilis outcome, had a higher proportion of serology for syphilis performed during pregnancy (one or two tests), and women with congenital syphilis had a low-

er record of positive serology for syphilis in the prenatal card, reiterating the limitations of care to which black women are submitted and the consequences for their health, as well as for the health of their families.

The performance of clinical-obstetric procedures during prenatal care is extremely important to ensure the quality of care. Regarding the pregnant woman's measurement of blood pressure, weight, uterine height and auscultation of fetal heart beats in all prenatal consultations, the study by Reis[31] shows a high prevalence of performance of these measurements, showing approximately 100% of performance in all consultations.

Our findings agree with the published investigations; however, they show a slightly lower prevalence, ranging from 82.5% to 91.9% among the aforementioned procedures. It is worth mentioning that although in this study there were no statistical differences between the black and white groups for the performance of these procedures, the prevalence of white women who received care was higher than black women in all clinical-obstetric evaluations.

One of the least performed clinical-obstetric exams during prenatal care was the breast examination. Our findings corroborate these results, as they point to the low prevalence of this procedure in both assessed groups, with black women experiencing the lowest percentages regarding this procedure. The literature highlights percentages of breast examination performance ranging from 17% to 64%, demonstrating advantages for women assisted in the private sector[32-34].

When investigating the routine recommendations offered in the prenatal consultations, studies reveal that adequacy is more often observed for women with white skin color, with a higher level of schooling, from a higher socioeconomic class, with paid occupation, assisted in private services, residing with a partner and primiparous ones[3], which corroborates our findings. Although they show a growing trend, the recommendations are still very restricted and fragmented, showing lower quality as the women's level of schooling decreases[18].

Information on signs of obstetric risk and advice on breastfeeding were highlighted in the study by Viellas et al.[18], with data at the national level as frequently addressed topics, albeit with an unsatisfactory percentage. The recommendations on labor and beneficial practices during this period were even more restricted and showed a difference of 30% less when compared to the percentage values found in our study.

The greatest percentage difference between the groups regarding the recommendations was related to the information about the referral maternity, and although it reached rates that were higher than in other studies[3,6], it corroborates the findings that highlight the greater probability of pilgrimage during childbirth among black women and those of low socioeconomic status[18].

Final considerations

The results of the present study indicate that being black and occupying an unfavorable social position entail disadvantages for women in terms of access to prenatal care considered to be adequate. Our findings highlight that there is a statistically significant negative association between skin color and the start of prenatal care at 12 weeks or less, the number of consultations equal to or greater than six, HIV testing, VDRL exam, breast examination in all consultations, recommendations regarding labor, signs of risk indicative of obstetric emergency and maternal breastfeeding, in addition to information related to the referral maternity. Moreover, all indicators related to the recommendations /advice given in prenatal care show a lower prevalence for the group of black women when compared to white ones.

The potential limitation of the study is related to the use of secondary data to establish the process indicators pre-established by the PHPN and by the Technical Manual for Low-Risk Prenatal Care, which may lead to the lack of some information not collected during the application of the National Health Survey questionnaire, from which our database originates. We highlight the need for new studies that explore information regarding the repetition of laboratory tests at the 30th week of pregnancy, puerperal consultation and application of vaccines in pregnant women.

These analyses allow us to outline intervention strategies focused on reducing racial/skin color inequities in prenatal care among the SUS user population.

Collaborations

MSA Lessa: study conception and/or design; analysis and interpretation of data; writing and/or critical review of the manuscript; approval of the final version to be published. ER Nascimento: study conception and/or design; critical review of the manuscript; approval of the final version to be published. EAC Coelho: writing and/or critical review of the manuscript and approval of the final version to be published. IJ Soares: writing and/or critical review of the manuscript and approval of the final version to be published. QP Rodrigues: writing and/or critical review of the manuscript and approval of the final version to be published. CAST Santos: writing and/or critical review of the manuscript, support for the analysis and interpretation of data and approval of the final version to be published. IM Nunes: writing and/or critical review of the manuscript and approval of the final version to be published.

Funding

Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CNPq).

References

1. Paiz JC, Ziegelmann PK, Martins ACM, Giugliani ERJ, Giugliani CF. Fatores associados à satisfação das mulheres com a atenção pré-natal em Porto Alegre, Rio Grande do Sul, Brasil. *Cien Saude Colet* 2021; 26(8):3041-3051.
2. Feijen-de Jong EI, Jansen DE, Baarveld F, Van Der Schans CP, Schellevis FG, Reijneveld SA. Determinants of late and/or inadequate use of prenatal healthcare in high-income countries: a systematic review. *Eur J Public Health* 2012; 22(6):904-913.
3. Domingues RMSM, Viellas EF, Dias MAB, Torres JA; Theme-Filha MM, Gama SGN, Leal MC. Adequação da assistência pré-natal segundo as características maternas no Brasil. *Rev Panam Salud Publica* 2015; 37(3):140-147.
4. Dias-da Costa JS, Cesar JA, Haag CB, Watte G, Vicenzi K, Schaefer R. Inadequação do pré-natal em áreas pobres no Nordeste do Brasil: prevalência e alguns fatores associados. *Rev Bras Saude Matern Infant* 2013; 13(2):101-109.
5. Joshi C, Torvaldsen S, Hodgson R, Hayen A. Factors associated with the use and quality of antenatal care in Nepal: a population-based study using the demographic and health survey data. *BMC Pregnancy Childbirth* 2014; 14:94.
6. Guimarães WSG, Parente RCP, Guimarães TLF, Garnelo L. Acesso e qualidade da atenção pré-natal na Estratégia Saúde da Família: infraestrutura, cuidado e gestão. *Cad Saude Publica* 2018; 34(5):e00110417.
7. Brasil. Ministério da Saúde (MS). Datasus. Indicadores de cobertura. *Cobertura de consultas pré-natal* [Internet]. 2012. [acessado 2015 dez 14]. Disponível em: http://tabnet.datasus.gov.br/cgi/tabcgi.exe?idb2012/f06
8. Livramento DVP, Backes MTS, Damiani PR, Castillo LDR, Backes DS, Simão MAS. Percepções de gestantes acerca do cuidado pré-natal na atenção primária à saúde. *Rev Gaucha Enferm* 2019; 40:e20180211.

9. Mario DN, Rigo L, Boclin KLS, Malvestio LMM, Anziliero D, Horta BL, Wehrmeister FC, Martínez-Mesa J. Qualidade do pré-natal no Brasil: Pesquisa Nacional de Saúde, 2013. *Cien Saude Colet* 2019; 24(3):1223-1232.
10. Prudêncio PS, Mamede FV. Avaliação do cuidado pré-natal na atenção primária a saúde na percepção da gestante. *Rev Gaucha Enferm* 2018; 39:e20180077.
11. Polgliane RBS, Leal MC, Amorim MHC, Zandonade E, Santos Neto ET. Adequação do processo de assistência pré-natal segundo critérios do Programa de Humanização do Pré-natal e Nascimento e da Organização Mundial de Saúde. *Cien Saude Colet* 2014; 19(7):1999-2010.
12. Fonseca SC, Monteiro DAS, Pereira CMSC, Scoralick ACD, Jorge MG, Rozario S. Desigualdades no pré-natal em cidade do Sudeste do Brasil. *Cien Saude Colet* 2014; 19(7):1991-1998.
13. Carvalho PI, Pereira PMH, Frias PG, Vidal SA, Figueiroa JN. Fatores de risco para mortalidade neonatal em coorte hospitalar de nascidos vivos. *Epidemiol Serv Saude* 2007; 16(3):185-194.
14. Fonseca SC, Kale PL, Silva KS. Pré-natal em mulheres usuárias do Sistema Único de Saúde em duas maternidades no estado do Rio de Janeiro, Brasil: a cor a importa? *Rev Bras Saude Matern Infant* 2015; 15(2):209-217.
15. Theophilo RL, Rattner D, Pereira EL. Vulnerabilidade de mulheres negras na atenção ao pré-natal e ao parto no SUS: análise da pesquisa da Ouvidoria Ativa. *Cien Saude Colet* 2018; 23(11):3505-3516.
16. Santos LAV, Lara MO, Lima RCR, Rocha AF, Rocha EM, Glória JCR, Ribeiro GC. História gestacional e características da assistência pré-natal de puérperas adolescentes e adultas em uma maternidade do interior de Minas Gerais, Brasil. *Cien Saude Colet* 2018; 23(2):617-625.
17. Almeida S. *O que é racismo estrutural?* Letramento: Belo Horizonte: MG; 2018.
18. Viellas EF, Domingues RMSM, Dias MAB, Gama SGN, Theme Filha MM, Costa JV, Bastos MH, Leal MC. Assistência pré-natal no Brasil. *Cad Saude Publica* 2014; 30(1):85-100.
19. Silva FS. *Mulheres negras e brancas: análise do acesso às consultas de pré-natal no Estado do Rio Grande do Sul, 2016.* Porto Alegre: UFRGS; 2018.
20. Santos B. *Iniquidades raciais na atenção pré-natal: estudo de coorte materna.* Porto Alegre: UFRGS; 2020.
21. Freitas MPS. Instituto Brasileiro de Geografia e Estatística (IBGE). Diretoria de Pesquisas e Coordenação de Métodos e Qualidade. *Pesquisa Nacional de Saúde Plano Amostral.* Rio de Janeiro: IBGE; 2014.
22. Brasil. Ministério da Saúde (MS). Secretaria de Atenção à saúde. Departamento de Atenção Básica. *Atenção ao pré-natal de baixo risco.* Brasília: MS; 2012.
23. Leeuw J, Meijer E. *Handbook of multilevel analysis.* Los Angeles: Springer; 2008.
24. Leal MC, Gama SGN, Cunha CB. Desigualdades raciais, sociodemográficas e na assistência ao pré-natal e ao parto, 1999-2001. *Rev Saude Publica* 2005; 39(1):100-107.
25. Gonçalves MF, Teixeira EMB, Silva MAS, Corsi NM, Ferrari RAP, Pelloso SM, Cardelli AAM. Pré-natal: preparo para o parto na atenção primária à saúde no sul do Brasil. *Rev Gaucha Enferm* 2017; 38(3):e2016-0063.
26. Mallmann MB, Boing AF, Tomasi YT, Anjos JC, Boing AC. Evolução das desigualdades socioeconômicas na realização de consultas de pré-natal entre parturientes brasileiras: análise do período 2000-2015. *Epidemiol Serv Saude* 2018; 27(4):e2018022.
27. Arruda RA, Pereira TM, Delfino BM, Mantovani SAS, Marques JO, Lima LFM, Silva-Nunes M. Realização e adequação do pré-natal em Assis Brasil, Acre. *Scientia Naturalis* 2020; 2(1):160-176.
28. Heringer ALS, Kawa H, Fonseca SC, Brignol SMS, Zarpellon LA, Reis AC. Desigualdades na tendência da sífilis congênita no município de Niterói, Brasil, 2007 a 2016. *Rev Panam Salud Publica* 2020; 44.
29. Domingues RMSM, Leal MC. Incidência de sífilis congênita e fatores associados à transmissão vertical da sífilis: dados do estudo Nascer no Brasil. *Cad Saude Publica* 2016; 32(6):e00082415.
30. Reis GJ, Barcellos C, Pedroso MM, Xavier DR. Diferenciais intraurbanos da sífilis congênita: análise preditiva por bairros do Município do Rio de Janeiro, Brasil. *Cad Saude Publica* 2018; 34(9):e00105517.
31. Reis PAGD, Pereira CCA, Leite IC, Theme Filha MM. Fatores associados à adequação do cuidado pré-natal e à assistência ao parto em São Tomé e Príncipe, 2008-2009. *Cad Saude Publica* 2015; 31(9):1929-1940.
32. Cesar JA, Mano OS, Carlotto K, Gonzalez-Chica DA, Mendoza-Sassi RA. Público *versus* privado: avaliando a assistência à gestação e ao parto no extremo sul do Brasil. *Rev Bras Saude Matern Infant* 2011; 11(3):257-263.
33. Cesar JA, Sutil AT, Santos GB, Cunha CF, Mendonza-Sassi RA. Assistência pré-natal nos serviços públicos e privados de saúde: estudo transversal de base populacional em Rio Grande, Rio Grande do Sul, Brasil. *Cad Saude Publica* 2012; 28(11):2106-2114.
34. Zanchi M, Gonçalves CV, Cesar JA, Dumith SA. Concordância entre informações do Cartão da Gestante e do recordatório materno entre puérperas de uma cidade brasileira de médio porte. *Cad Saude Publica* 2013; 29(5):1019-1028.

Article submitted 28/03/2022
Approved 20/05/2022
Final version submitted 22/05/2022

Chief editors: Romeu Gomes, Antônio Augusto Moura da Silva