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ORIGINAL

Morbidity and mortality of pregnant women due to COVID-19 and racial biases: an intersectional analysis

Morbimortalidade de gestantes pela COVID-19 e os atravessamentos da raça/cor: uma análise interseccional

Morbimortalidad de gestantes por el COVID-19 y los cruzamientos con la raza/color: un análisis interseccional

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ABSTRACT

Objective: to analyze racial biases in the context of morbidity and mortality due to COVID-19 of Brazilian pregnant women from an intersectional perspective. **Method:** an ecological, documental study using epidemiological bulletins intended to monitor the novel coronavirus in Brazil. Data were collected in March and April 2021 and analyzed using descriptive statistics mediated by the intersectional theory-based methodology. **Results:** Afro-descendant pregnant women presented an average prevalence rate of 65.18% hospitalizations and 70.85% deaths due to COVID-19 in 2020. On the other hand, the average prevalence rate of hospitalizations and deaths among Caucasian pregnant women was 32.32% and 27.23%, respectively. **Conclusion:** A greater difficulty to access prenatal care, a high prevalence rate of comorbidities, poor working conditions and impossibility to leave work during the pandemic, institutional racism, and necropolitics adopted by the Brazilian government are potential explanations for the vulnerable context faced by this population.
Descriptors: Women, Pregnant; Indicators for Morbidity and Mortality; Coronavirus Infections.

RESUMO

Objetivo: analisar, sob a ótica interseccional, os atravessamentos do quesito raça/cor na morbimortalidade de gestantes pela COVID-19 no Brasil. **Método:** estudo ecológico, documental, desenvolvido a partir dos boletins epidemiológicos de acompanhamento do novo coronavírus no Brasil. Os dados foram coletados nos meses de março e abril de 2021 e analisados através de estatística descritiva, mediada pelo modelo teórico-metodológico da interseccionalidade. **Resultados:** gestantes negras apresentaram taxa média de prevalência de 65,18% das internações e 70,85% dos óbitos por COVID-19 no ano de 2020. Por outro lado, a taxa média de prevalência de internações e óbitos entre gestantes brancas foi de 32,32% e 27,23%, respectivamente. **Conclusão:** A maior dificuldade no acesso ao pré-natal, a alta taxa de prevalência de comorbidades, as precárias condições de trabalho e dificuldade de afastamento durante a pandemia, o racismo institucional e a necropolítica adotada pelo Estado Brasileiro são possíveis explicações para essa expressiva situação de vulnerabilidade.
Descritores: Gestantes; Indicadores de morbimortalidade; Infecções por coronavírus.

RESUMEN

Objetivo: analizar bajo la óptica de la interseccionalidad, los vínculos de la cuestión raza/color en la morbimortalidad de gestantes por el Covid-19, en Brasil. **Método:** estudio ecológico y documental, desarrollado a partir de los boletines epidemiológicos de acompañamiento del nuevo coronavirus, en Brasil. Los datos fueron recogidos en los meses de marzo y abril de 2021 y analizados a través de la estadística descriptiva, mediada por el modelo teórico metodológico de la interseccionalidad. **Resultados:** las gestantes negras presentaron tasa media de prevalencia de 65,18% de las internaciones y 70,85% de las muertes, por COVID-19, en el año de 2020. Por otro lado, la tasa media de prevalencia de internaciones y muertes entre gestantes blancas fue de 32,32% y 27,23%, respectivamente. **Conclusión:** la mayor dificultad en acceder al prenatal, la alta tasa de prevalencia de comorbilidades, las precarias condiciones de trabajo y dificultad del distanciamiento social (durante la pandemia), el racismo institucional y la política de muerte adoptada por el Estado Brasileño, son posibles explicaciones para esa expresiva situación de vulnerabilidad.
Descriptores: Mujeres Embarazadas; Indicadores de morbimortalidad; Infecciones por coronavirus.

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INTRODUCTION

Morbidity and mortality during the COVID-19 pandemic predominate among Afro-descendant individuals and those of mixed race. The reason is that social, ethnic, and gender inequalities worsened and deepened even more worldwide as the disease progressed, but especially among underdeveloped and developing countries[1]. Thus, regardless of the continent, these countries present the worst outcomes for COVID-19 among the Afro-descendant population. According to the World Health Organization (WHO), the pandemic constitutes the most severe phenomenon affecting humanity in this century; i.e., more than 181 million cases and 3.9 million deaths due to Severe Acute Respiratory Syndrome (SARS) and other systemic consequences were confirmed by June 26th, 2021[2].

Therefore, epidemiological data reveal more than merely the number of people developing the severe form of the disease and dying from COVID-19. The progression of the pandemic has shown a racial profile, revealing that society has not yet recovered from its history of slavery and racial inequality. This situation is reflected in the life cycle of Afro-descendant people, including women, in their unique life process, such as during pregnancy, which makes the problem an essential agenda for global health[3].

Afro-descendant pregnant women with COVID-19 caused by SARS-CoV-2 experience vulnerabilities enhanced by immunological, physiological, and anatomical changes inherent to the gestational period. These changes reduce their tolerance to hypoxia, which, coupled with racism and sexism, function as social determinants of health[4], resulting in higher maternal mortality rates among Afro-descendant women[3].

In Brazil, the world's second-largest epicenter of COVID-19, intense and constant concern with groups in vulnerable situations has become the agenda of social movements – associativism, scientific, and health – to ensure social protection. The vulnerabilities of the Afro-descendant population in the COVID-19 pandemic are related to clinical aspects such as asthma, hypertension, and diabetes mellitus, conditions that worsened SARS and are more prevalent in this population. Additionally, Afro-descendant people present the worse social indicators, face more difficulties to access health services, and are more intensively exposed to stressors such as violence, reinforcing the need to provide integral health care to the Afro-descendant population during the pandemic[5].

Data concerning Afro-descendant pregnant women reveal racial disparities regarding prenatal care[6]. These problems hinder the early diagnosis of various complications during pregnancy and configure a complicating factor in the COVID-19 pandemic. Other epidemic contexts, such as that of the Zika Virus, revealed that poor Afro-descendant women living in the periphery were the individuals most frequently affected[7]. For example, in 2015 and 2016, 91% of the fetuses affected by Congenital Syndrome caused by the Zika Virus reported in Salvador, capital of Bahia, Brazil, were from Afro-descendant women[8].

Considering the high rates of complications, hospitalizations, and deaths during the gestational period associated with respiratory infections caused by H1N1 and other Coronavirus strains, such as SARS-CoV-2 and MERS-CoV, the Brazilian Ministry of Health instituted in April 2020, through Technical Note No. 12/2020, permanent surveillance of pregnant women during the COVID-19 pandemic[9].

Hence, analyzing the ethnic, racial problem within the COVID-19 context from the intersectionality theoretical-political perspective, as proposed by Kimberlé Crenshaw, can be an important operational device to guide professional practices and public civil actions to protect people facing vulnerabilities during pregnancy and also contribute to advance social and critical epidemiology and nursing care. The intersectionality framework is based on the notion that society cannot be understood from a fragmented perspective as certain groups are exposed to various situations that configure vulnerability. In this sense, the proposal is to analyze the epidemiological and racial context of pregnant women affected by COVID-19, considering the Brazilian historical context of inequalities that anchor the intersectional analysis: racial, social, and gender/sexuality inequalities[10].

Despite the almost heroic work of nursing professionals during the pandemic, there is no guarantee that ethnic, racial specificities will be heeded, that is, an epistemological construction of ethnic and racial care from an intersectional perspective, capable of understanding that this social, symbolic, and political marker directly affect human responses and people's situation and/or health condition[11].

Only a single study was identified in Brazil in a search conducted in the PubMed and Scielo databases using the keywords provided in the Health

Science Descriptors (DeCS) *"Pregnant Women," "coronavirus infections,"* and *"racism,"* which were connected with the Boolean operator "and". Additionally, the study did not adopt the intersectionality analytical framework nor addressed nursing workers as co-responsible for providing holistic care to this population. Hence, there is an important gap in the scientific literature, which reveals the novelty of this study.

Therefore, this study's objective was to analyze biases concerning race in the morbidity and mortality of Brazilian pregnant women due to COVID-19.

METHOD

This descriptive, documentary-based ecological study is part of a doctoral project in the Nursing and Health Program of the Federal University of Bahia, Brazil, grounded on STROBE guidelines[12].

We assume the intersectionality theoretical-political concept as a model to analyze data because it enables understanding the object of study based on the intersection of oppressive conditions: race and gender. It also provides an analytical and critical contribution to advancing knowledge on the variables under study[10].

The study was conducted in Brazil, the largest country in Latin America, with an estimated population of 211 million inhabitants. According to the National Household Sample Survey (PNAD) conducted in 2019, 56.2% of the Brazilian population self-reported African descent, followed by 42.7% of Caucasians, while 1.1% were Asian or Indigenous[13]. Note that according to the convention adopted by the Brazilian Institution of Geography and Statistics (IBGE), the Afro-descendant population is composed of individuals who self-report being Afro-descendant or of mixed race[14].

The research team was composed of four nurses: one had a Doctoral degree; one had a postdoc in the nursing field and was experienced in surveys and community actions in the health field directed to the Afro-descendant population; one had a Master's degree, and one had a doctoral degree in the nursing and health field. The research team was developing teaching and research during data collection and was not directly connected to any of the study's participants.

Two researchers collected data online under the supervision of a third researcher. Secondary data were accessed in the official sources made available by the Brazilian Ministry of Health in partnership with the *Secretaria de Vigilância em Saúde Doença pelo Novo Coronavírus – COVID-19* [Secretariat of Health Surveillance for New Coronavirus Disease – COVID-19], which issued special epidemiological bulletins on the disease caused by the novel coronavirus (available at https://www.gov.br/saude/pt-br/assuntos/boletins-epidemiologicos). These special bulletins are official technical/scientific documents that enable monitoring morbidity and mortality caused by COVID-19 in Brazil per epidemiological week, guiding health managers' decision-making[15]. Therefore, these were an important public data source, especially in the pandemic context, and composed this study's sample.

Data were collected in March and April 2021. Initially, all the 44 special bulletins published in 2020 by the Brazilian Ministry of Health were read. A protocol was adopted to collect data to ensure methodological rigor and the quality of this quantitative study. The following criteria were used to select the material that would compose data for analysis: being an official special bulletin providing public accessible secondary data; providing data regarding the morbidity and mortality of pregnant women caused by the COVID-19; stratifying data according to race; and published in 2020. Thus, according to these criteria, eight special bulletins were selected for this study. Figure 1 presents detailed information on the bulletins analyzed.

Number of the Special Epidemiological Bulletin	Epidemiological Week
Bulletin No. 17	21st Epidemiological Week– May 17 to 23, 2020
Bulletin No. 21	27th Epidemiological Week – June 28 to July 4
Bulletin No. 25	31th Epidemiological Week – July 27 to August 1
Bulletin No. 39	48th Epidemiological Week – November 22 to 28
Bulletin No. 40	49th Epidemiological Week – November 29 to December 5
Bulletin No.41	50th Epidemiological Week – December 6 to 12
Bulletin No. 42	51st Epidemiological Week – December 13 to 19
Bulletin No. 43	52nd Epidemiological Week – December 20 to 26

Figure 1 – Epidemiological bulletins used in data collection, 2021
Source: Developed by the authors, 2021.

Data collected from the special bulletins belonged to section "Profile of cases and deaths caused by SARS due to COVID-19 among hospitalized pregnant women". As a result, the following information was extracted: 1) the number of hospitalizations due to SARS/COVID-19 according to race; 2) deaths caused by SARS/COVID-19 according to race; and 3) epidemiological week.

Data concerning the variables (i.e., hospitalization, death, and epidemiological week) were tabulated using software Statistical Package for the Social Sciences (SPSS) version 21 according to self-reported race (i.e., Caucasian, Afro-descendant, Mixed-race, Asian, or Indigenous) to determine the results concerning the Afro-descendant population as established by IBGE.

Data were analyzed using descriptive statistics. Hence, frequency parameters and measures of central tendency were used, means, minimum and maximum intervals, with a 95% confidence interval and dispersion measures through standard deviation. Initially, the simple frequency of hospitalizations and deaths was calculated to determine the prevalence in each epidemiological week. Next, the prevalence obtained for each week was summed and then divided by the total of epidemiological weeks to obtain the average of hospitalizations and deaths[16].

All data addressed in this study were public domain; hence, this study did not need to be submitted to an Institutional Review Board. Nevertheless, we complied with all Brazilian guidelines currently in force regulating research involving human subjects, such as Resolution No. 466/2012, Brazilian Council of Health. Therefore, according to the aspects addressed by the Brazilian Data Protection Law, we complied with the data criteria' reliability, quality, and veracity[17].

RESULTS

The *corpus* of analysis consisted of eight epidemiological bulletins; most were published in the second half of 2020 (75%). A total of 4,773 hospitalizations and 247 deaths caused by COVID-19 were recorded among pregnant women up to December 26th, 2020, when the last special bulletin was issued. Of these, 3,922 (82.17%) hospitalizations and 208 (81.78%) deaths presented data concerning race. Data were organized into two categories: 1) morbidity due to SARS/COVID-19 according to race, and 2) Mortality due to SARS/COVID-19 according to race.

Category 1: Morbidity due to SARS/COVID-19 according to race

This category describes the cumulative total of hospitalizations of pregnant women due to SARS/COVID-19 and reports the progression of prevalence according to self-reported race.

Table 1 describes the total hospitalizations among pregnant women due to SARS/COVID-19 in 2020 and the average prevalence rate in the bulletins according to race.

Table 1 - Total hospitalizations and average prevalence of hospitalizations among pregnant women due to SARS/COVID-19 according to race in 2020. Guanambi, Bahia, Brazil, 2021

Race	Total hospitalizations in 2020 (n)	Average prevalence rate in the epidemiological weeks included (%)	95%CI (lower limit - upper limit)	Standard Deviation
Caucasian	1298	32.32	30.91 – 33.74	1.69
Afro-descendant	2505	65.18	63.45 – 66.91	2.06
Asian	44	0.98	0.80 – 1.16	0.21
Indigenous	75	1.48	0.95 – 2.00	0.62

Source: developed by the authors, 2021.

Figure 2 presents the progression of the prevalence of hospitalizations among pregnant women with SARS according to race and epidemiological week.

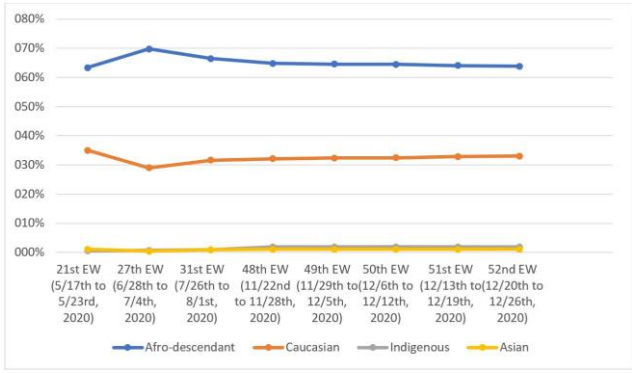

Figure 2 – Progression of the prevalence of hospitalizations due to SARS/COVID-19 according to race, 2020. Source: developed by the authors, 2021.

Category 2: Mortality due to SARS/COVID-19 according to race

This category describes the cumulative total deaths among pregnant women due to SARS/

COVID-19 and reports the prevalence progression according to self-reported race.

Table 2 presents the cumulative total deaths among pregnant women due to SARS/COVID-19 and the average prevalence rate per bulletin, according to race.

Table 2 - Total deaths and the average prevalence of mortality among pregnant women due to SARS/COVID-19 according to race, 2020. Guanambi, Bahia, Brazil, 2021

Race	Total deaths in 2020 (n)	Average prevalence in the epidemiological weeks included (%)	95%CI (lower limit – upper limit)	Standard Deviation
Caucasian	63	27.23	23.75 – 30.70	4.15
Afro-descendant	140	70.85	66.72 – 74.98	4.93
Asian	4	1.59	1.02 – 2.15	0.67
Indigenous	1	0.30	0.09 – 0.52	0.25

Source: developed by the authors, 2021.

Figure 3 presents the progression of the prevalence of deaths among pregnant women due to SARS/COVID-19 according to race and epidemiological week.

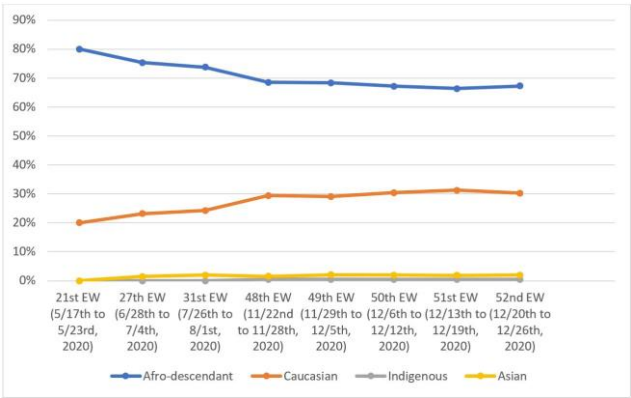

Figure 3 – Progression of the prevalence of deaths among pregnant women due to SARS/COVID-19 according to race, 2020. Source: developed by the authors, 2021.

DISCUSSION

This study reveals a higher prevalence of morbidity and mortality among Afro-descendant women with SARS/COVID-19 in Brazil in 2020. Hospitalizations and deaths among Afro-descendant women due to SARS almost doubled in comparison to their Caucasian counterparts.

It is noteworthy that Afro-descendant women were more frequently affected and died due to COVID-19 since stratified data concerning morbidity and mortality started to be published according to race in Brazil, considering that Caucasian individuals with high purchasing power[5] were initially affected by the disease. Thus, it reflects the situation of vulnerability to which Afro-descendant women are exposed.

We verified that the Brazilian Epidemiological Bulletins provide little data on pregnant women. Of the 44 epidemiological bulletins published in 2020, only eight provide data concerning the morbidity and mortality of pregnant women stratified according to race, revealing negligence in updating data regarding this population. Even though the WHO classified COVID-19 as a pandemic virus on March 11th, 2020[18], data concerning pregnant women started being disseminated only on the 21st epidemiological week (May 17th, 2020 to May 23rd, 2020), with special bulletin 17.

As for hospitalizations due to SARS, Afro-descendant pregnant women presented an average prevalence of 65.18% in 2020, with a peak in the 27th epidemiological week (June 28th to July 4th, 2020), with 69.78% of hospitalizations. In turn, Caucasian women presented an average of 32.32% of hospitalizations, with a peak of 35.07% in the 21st epidemiological week. The rates concerning Indigenous and Asian pregnant women remained stable throughout 2020, not surpassing 2% in any bulletins.

Regarding mortality, reports remained stable throughout 2020, though with a worse outcome for Afro-descendant women. Afro-descendant women presented an average prevalence rate of 70.85%, with a peak of 80% in the 21st epidemiological week. However, Caucasian women presented an average prevalence of 27.23%, reaching 20% in the 21st epidemiological week, the lowest prevalence. As for Indigenous and Asian pregnant women, similar to morbidity rates, their mortality rates remained below 2% in all the epidemiological weeks addressed here.

The results show that Afro-descendant women infected with COVID-19 are more likely to die than their Caucasian counterparts. The reason is that epidemiological bulletins report mortality rates higher than hospitalizations, revealing their more intense vulnerability.

As reported by the WHO, a higher prevalence of underlying diseases is a risk factor for the more severe forms of COVID-19. For instance,

Afro-descendant women are more frequently affected by maternal hypertensive disorder and preeclampsia[19] and gestational diabetes[20]. Additionally, Afro-descendant women experience restricted access to health services and attend fewer prenatal consultations than Caucasian women, hindering the monitoring of their pregnancies and identifying the signs of the disease severity early on[21].

Note that the impact of the pandemic on Afro-descendant women goes beyond morbidity and mortality rates. The COVID-19 pandemic has numerous psychological repercussions, considering that women are exposed to anxiety and a higher risk of depression. In a study conducted in Philadelphia (USA), afro-descendant women are more concerned with the risk of losing their jobs or having their wages lowered, in addition to knowing more people who died from COVID-19[22].

This condition is due to enormous social and racial inequality that disproportionately affects society in different countries, making Afro-descendant women experience worse employability conditions[23], lower incomes, and restricted access to goods and services[24], which results in the development of anxiety and risk of depression due to outcomes worse than that of their counterparts.

The worse working conditions experienced by Afro-descendant women make us wonder how many women are benefited from Brazilian Law 14.151/2021. It was enacted on May 12th, 2021, to ensure pregnant women take leave from face-to-face work during the pandemic in Brazil[25]. However, only women with formal job contracts can work remotely; informal workers are mostly Afro-descendant[26]. Precarious jobs often impede these women from effectively comply with social distancing, even when supported by law, so that these women are exposed to a higher risk of being infected with the virus.

Additionally, Afro-descendant women were more concerned with prenatal care, childbirth, and child-care during the pandemic than their counterparts, which may be explained by the historical racial inequality in terms of care provided to women[22]. Evidence shows that Afro-descendant women are more frequently subject to obstetrical violence, less frequently receive anesthesia during labor, and more often experience unnecessary interventions than Caucasian women due to the social imaginary that Afro-descendant women are more tolerant to pain[27,28].

In addition to issues related to childbirth care, evidence also shows that Afro-descendant women present higher maternal mortality rates[29], abandon exclusive breastfeeding earlier[30], and their children are more frequently impacted by prematurity[31] and child mortality[32], revealing that pregnancy is a more significant challenge to be faced by Afro-descendant women.

The results show that Afro-descendant women in the gestational period more intensively experience vulnerabilities than the Brazilian Afro-descendant population in general. The Afro-descendant population, in general, presented a hospitalization rate of 49.33% and death of 52.68% in 2020, whereas Afro-descendant pregnant women presented a hospitalization rate of 63.87% and death of 67.3% in the last epidemiological week of 2020, the 52nd.

Therefore, these rates need to be considered from an intersectional perspective, considering that this situation results from the accumulation of three vulnerable situations: being a woman, Afro-descendant, and pregnant. In Brazil, racism and gender oppression work together, subjecting and determining the conditions in which these individuals are born, live, gestate, and die[28,33]. Therefore, even though Brazilian slavery was extinguished more than 200 years ago, institutional racism remains and impacts individuals differently, producing the worse outcomes for Afro-descendant and Mixed race women.

Note that this context is enhanced by the necropolitics adopted by the Brazilian government during the pandemic, which relativized the severity of the COVID-19 pandemic, naturalized and trivialized deaths, contributing to the functioning of the capitalist machine that determines who lives and who dies, penalizing the most vulnerable groups[34].

Even though this study presents limitations inherent to any study accessing secondary data (e.g., health workers sometimes fail to report a patient's race when completing health files), it reveals alarming results. These results can support public managers in developing public policies intended to decrease the morbidity and mortality of Afro-descendant women during the gestational period due to COVID-19.

These findings are expected to support understanding of the impact of the disease in different ethnic, racial groups, showing health managers the need for social protection and to expand the

access of pregnant women experiencing greater vulnerability to health services.

Considering the epidemiological indicators that exposed a significant ethnic, racial inequality among people affected by COVID-19, nursing workers should develop competencies to provide respectful and inclusive care adapted to the Afro-descendant population. Additionally, there is a need for nursing workers to overcome unfavorable contexts permeated by racism, social, racial, and gender inequalities and inequities[35].

CONCLUSION

This study revealed a higher rate of morbidity and mortality among Afro-descendant pregnant women affected by COVID-19. The results are of concern because the prevalence of hospitalizations and deaths among Afro-descendant pregnant women is approximately twice higher than among Caucasian women. Additionally, Afro-descendant pregnant women affected by COVID-19 are more likely to die than their Caucasian counterparts, considering that mortality rates are higher than hospitalization rates.

Having great difficulty accessing prenatal care, the high prevalence rate of comorbidities, precarious working conditions, and difficulty to get a leave from work during the pandemic, institutional racism, and necropolitics adopted by the Brazilian government are potential explanations for this population's vulnerable context.

In this sense, this study reveals the need for Brazilian health managers (at the city, state, and federal levels) to develop specific policies to protect Afro-descendant women during the gestational period. Additionally, nursing workers need to acquire and develop competencies to provide care and support the fight against racism and gender inequalities.

Additionally, the Brazilian Ministry of Health should increase the frequency of epidemiological bulletins, providing data on pregnant women stratified by race, income, age, and place of residence to deepen analyses of morbidity and mortality among pregnant women.

CONFLICT OF INTEREST

The authors have declared that there is no conflict of interest.

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