

# Epidemiological overview of HIV in indigenous and non-indigenous pregnant women in the state of Para

*Panorama epidemiológico do HIV em gestantes indígenas e não indígenas no estado do Pará*

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## ABSTRACT

**Objective:** To analyze the epidemiologic profile of HIV infection in indigenous and non-indigenous pregnant women in the state of Para. **Methodology:** Cross-sectional epidemiologic study based on data from 2010 to 2017 collected from the *Sistema de Informação de Agravos de Notificação* (System for Notifiable Diseases). **Results:** HIV detection rates in pregnant women showed a growth trend in both ethnic groups. Prenatal care proved to be essential in the serological screening of HIV in the populations studied. **Conclusion:** The high rates of HIV among indigenous women point to the need to have culturally appropriate HIV/AIDS prevention policies and guidelines for different ethnic contexts. In addition, HIV prevention and diagnosis measures before pregnancy must be expanded to break the virus chain of infection.

**Descriptors:** HIV Infections; Pregnant Women; Health of Indigenous Peoples; Social Vulnerability.

## RESUMO

**Objetivo:** Analisar o perfil epidemiológico da infecção pelo HIV em gestantes indígenas e não indígenas no estado do Pará. **Métodos:** Estudo epidemiológico, transversal, realizado a partir de dados do Sistema de Informação de Agravos de Notificação referentes ao período de 2010 a 2017. **Resultados:** As taxas de detecção de HIV em gestantes apresentaram tendência de crescimento nos dois grupos étnicos. O acompanhamento pré-natal mostrou-se importante para a triagem sorológica do HIV nas populações estudadas. **Conclusão:** Os elevados índices de HIV em gestantes, especialmente entre indígenas, evidenciam a necessidade de adequação da política e diretrizes de prevenção do HIV/aids de modo a torná-las culturalmente adequadas para os diferentes contextos étnicos. Além disso, torna-se imprescindível a ampliação das medidas de prevenção e diagnóstico do HIV em momentos que antecedem a gestação a fim de interromper a cadeia de transmissão do vírus.

**Descritores:** Infecções por HIV; Gestantes; Saúde de Populações Indígenas; Vulnerabilidade Social.

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## INTRODUCTION

Acquired immunodeficiency syndrome (AIDS) has proven to be a serious public health problem worldwide due to its high rates of morbidity and mortality. In Brazil, the epidemic has spread to different regions, adopting specific epidemiological characteristics in different populations<sup>(1-3)</sup>.

The expansion of the human immunodeficiency virus (HIV), the etiologic agent of AIDS, in the Brazilian heterosexual population has coincided with the increased incidence of infection in the female population. This phenomenon is known as the feminization of the epidemic<sup>(4,5)</sup>.

This change in the epidemiological profile of HIV infection has highlighted the need to broaden the discussions about vulnerability of individuals to this virus, along with redefining the concept of HIV and its paradigms. These include the classification of risk groups, used in the first decade of the epidemic, associated with stereotyping, which therefore reproduced prejudice and stigmatization, which included homosexuals, hemophiliacs and injecting drug users<sup>(3,6)</sup>.

In this context, the concept of vulnerability revealed the complexity of individual, social and political-programmatic aspects associating exposure to HIV and illness due to AIDS, in addition to broadening the understanding of this phenomenon in the task of building more effective public policies<sup>(6)</sup>. In addition, special attention has been paid to the increase in the number of HIV cases in women, especially of reproductive ages, when planning HIV/AIDS prevention and control actions, as this condition can significantly contribute to the increase in vertical transmission rates<sup>(7)</sup>.

Data from the Ministry of Health show that from 2000 and June 2020, there were 134,328 reported cases of pregnant women infected with HIV, suggesting a rate of increase of 21.7% for HIV detection in this population. The North and Northeast regions of Brazil recorded higher rates of increase of 83.3% in the last decade in both regions<sup>(4)</sup>.

As for the epidemiology scenario of the North region, the state of Para stood out with an HIV detection rate in pregnant women of 3.7 cases/1000 live births in 2019. A number higher than the national rate of 2.8 cases/1000 live births in the same year<sup>(4)</sup>. Among the 4,148 registered cases of pregnant women with HIV in the country in 2020, 17 (0.4%) were indigenous women<sup>(4)</sup>, however, the high rates of other Sexually Transmitted Infections (STIs) recorded in this population suggest that the available statistics are likely an underestimation of the actual values<sup>(8-10)</sup>.

HIV prevention measures in indigenous populations are a major challenge for the country's public health, as they demand special attention and respect for the cultural specificities of these peoples. There are an estimated 896,000 indigenous people in Brazil, distributed in 305

different ethnic groups, of which 34 live in the state of Para<sup>(11,12)</sup>.

Likewise, the increase in HIV cases in indigenous women reported in the scientific literature<sup>(13,14)</sup>, challenges the Brazilian policies on HIV/AIDS management due to the cultural diversity permeating the different ways of life of these peoples, demanding differentiated and culturally appropriate preventive strategies for each ethnic group<sup>(12)</sup>.

Despite the cultural multiplicity of this specific population, vulnerability of indigenous women to HIV and other STIs is associated with not being allowed to exercise their full sexual and reproductive rights, early sexual initiation, polygamous practices in different ethnic groups, difficulty in accessing health services, low use of condoms, sporadic HIV infection prevention measures in villages, among others<sup>(9,15,16)</sup>.

In this context, the possibilities for vertical HIV transmission increase in indigenous people in contrast to the general population. This is attributed to inequalities in prenatal coverage and births in villages without adequate monitoring by health teams, which is aggravated by breastfeeding without the proper guidelines<sup>(10,16)</sup>.

Studies on HIV infections highlighting the specificities of indigenous populations are scarce in Brazil<sup>(12,14)</sup>. This justifies the need to produce scientific knowledge to minimize gaps related to the dynamics of HIV in this population group. Therefore, this research was aimed at analyzing the epidemiologic profile of HIV infection in indigenous and non-indigenous pregnant women in the state of Para.

## METHODOLOGY

This is an epidemiologic, cross-sectional, descriptive-analytical study based on HIV cases in indigenous and non-indigenous pregnant women in the state of Para that are reported in the *Sistema de Informações de Agravos de Notificações* (System for Notifiable Diseases) (SINAN).

The state of Para is in the North region of Brazil. It is made up of 144 municipalities with an estimated population of 8,690,745 inhabitants in 2020. Indigenous people total 39,081 inhabitants, of which 24,428 are women<sup>(11)</sup>.

Cases of HIV in pregnant women were requested from the *Secretaria de Estado de Saúde Pública* (State Department of Public Health) (SESPA) and were made available in a database format with the following variables: race/color, age, schooling, occupation, laboratory evidence of HIV infection.

The assignment criteria used contemplated the cases of HIV in pregnant women living in the state of Para reported to SINAN between 2010 to 2017. The time frame chosen was motivated by the availability of data from SESPA. Duplicate cases and those with variable inconsistencies due to incorrect data entry were excluded.

The results' analysis was conducted in two stages: in the first stage, the variables of interest were organized in groups by means of Microsoft Office Excel® 2013 according to race/color, and indigenous and non-indigenous populations. Subsequently, the data were submitted to descriptive analysis and the results expressed in relative and absolute frequency.

In the second stage, HIV detection rates were calculated according to the reporting year, using the number of live births in indigenous and non-indigenous populations available in the *Sistema de Informação sobre Nascidos Vivos* (Live Birth Information System) (SINASC) to make up the denominators<sup>(4)</sup>. A simple linear regression model was used for trend analysis, considering the detection rates and the reported years as independent and dependent variables, respectively. This analysis model allowed for visualization of the trend of the HIV detection rate in indigenous and non-indigenous pregnant women over the years, and the linear

association between time (in years) and the HIV detection rate for each ethnic group.

Considering the ethical precepts contained in Resolution 466/12 of the National Health Council, this research was approved by the *Pesquisa do Curso de Graduação em Enfermagem da Universidade do Estado do Para* (UEPA) under opinion No. 2.997.808.

## RESULTS

In this study, 2,492 cases of HIV in pregnant women in the state of Para were analyzed, seven of which were indigenous women, i.e., 0.3% of cases. Data in Table 1 reveal age group of 20 to 29 years old had a greater proportion of cases in the two populations, corresponding to 59.92% (n=1,489) among non-indigenous women and 57.14% (n=4) among indigenous women.

The age group of 15 to 19 years old was found to be the second most prevalent among indigenous people, with an

**Table 1.** Epidemiological HIV profile in indigenous and non-indigenous pregnant women according to sociodemographic variables. Para, Brazil, 2010–2017.

Variables	Indigenous		Non-indigenous	
	n=7	%	n=2,485	%
Age (old)				
>15	0	0	17	0.68
15 to 19	3	42.86	385	15.49
20 to 29	4	57.14	1,489	59.92
30 to 39	0	0	564	22.70
40 to 49	0	0	30	1.21
Schooling				
Illiterate	0	0.00	19	0.76
Incomplete elementary education	3	42.86	1,043	41.97
Complete elementary education	2	28.57	191	7.69
Incomplete Secondary Education	0	0.00	339	13.64
Complete Secondary Education	0	0.00	447	17.99
Incomplete Higher Education	0	0.00	27	1.09
Complete Higher Education	0	0.00	32	1.29
Not reported	2	28.57	387	15.57
Occupation				
Housewife	4	57.14	1,154	46.44
Maid	2	28.57	373	15.01
Student	0	0.00	130	5.23
Others	0	0.00	259	10.42
Not reported	1	14.29	569	22.90

Source: SINAN/SESPA/CE IST-AIDS, 2019.

expressive percentage of 42.86% (n=3) cases of HIV, while among non-indigenous women, the second most prevalent age group was in older women, between 30 and 39 years old, corresponding to 22.70% (n=564) of reported cases.

In terms of school, incomplete elementary education predominated, and similar percentages were obtained in both populations, 41.97% (n=1,043) and 42.86% (n=3) for non-indigenous and indigenous populations, respectively. It is worth noting that a significant amount of reporting forms collected from both ethnic groups had no information filled in for this question.

Regarding occupation, most indigenous and non-indigenous pregnant women work as housewives, corresponding to 57.14% (n=4) and 46.44% (n=1,154), respectively (Table 1).

With respect to laboratory diagnosis of HIV, the results presented in Table 2 show that 49.7% (n=1,235) of non-indigenous pregnant women discovered their serological condition during prenatal care, and 31.35% (n=779) were already aware of their positive HIV diagnosis before pregnancy. Among indigenous women, prenatal care was decisive for serological identification, with 71.43% (n=5) of the cases reported in prenatal care, and 28.57% (n=2) of the reports with confirmation of positive-HIV diagnosis at the time of delivery (Table 2).

In terms of the evolution of cases, HIV detection rates in pregnant women showed a growth trend in recent years for both groups (Figure 1). Among non-indigenous people, the detection rate went from 1.5 cases/1000 live births in 2010 to 3.4 cases/1000 live births in 2017, i.e., an increase of 126.65% in that period, with an average growth of 0.3 cases/1000 live births per year. The highest detection rate among non-indigenous women occurred in 2017, with a coefficient of 3.4 cases/1000 live births.

As for indigenous people, no cases were reported in 2010 and 2011. The highest detection rate was presented in 2017 with a coefficient of 1.4 cases/1000 live births and average growth of 0.16 cases/1000 live births per year (Figure 1).

**Table 2.** Distribution of HIV cases in indigenous and non-indigenous pregnant women, according to laboratory evidence. Para, Brazil, 2010–2017.

Laboratory evidence	Indigenous		Non-indigenous	
	n	%	n	%
Before prenatal	0	0	779	31.35
During prenatal	5	71.43	1,235	49.7
During delivery	2	28.57	403	16.22
After delivery	0	0	34	1.37
Not reported	0	0	34	1.37

Source: SINAN/SESPA/CE IST-AIDS, 2019.

## DISCUSSION

From 2010 to 2017, 59,069 cases of HIV-positive pregnant women were reported in Brazil, of which 210 (0.3%) were indigenous women<sup>(4)</sup>. This proportion between the two populations was also observed in this study, indicating an increase in the HIV detection rate among indigenous and non-indigenous pregnant women in the state of Para, with very expressive rates for both ethnic groups<sup>(4)</sup>.

Accordingly, this increase in HIV cases confirms the need to acknowledge the conditioning factors of women's vulnerability to the epidemic in different ethnic contexts<sup>(3,9)</sup>. It is worth highlighting that the impact of HIV infection on the indigenous population cannot be characterized by only absolute numbers and/or rates. The sociocultural, economic, demographic, and geographic dimensions of each ethnicity associated with interactions with the non-indigenous population, expose the indigenous population to unique risk factors which make them more vulnerable when compared to other Brazilian population groups<sup>(2,14,16)</sup>.

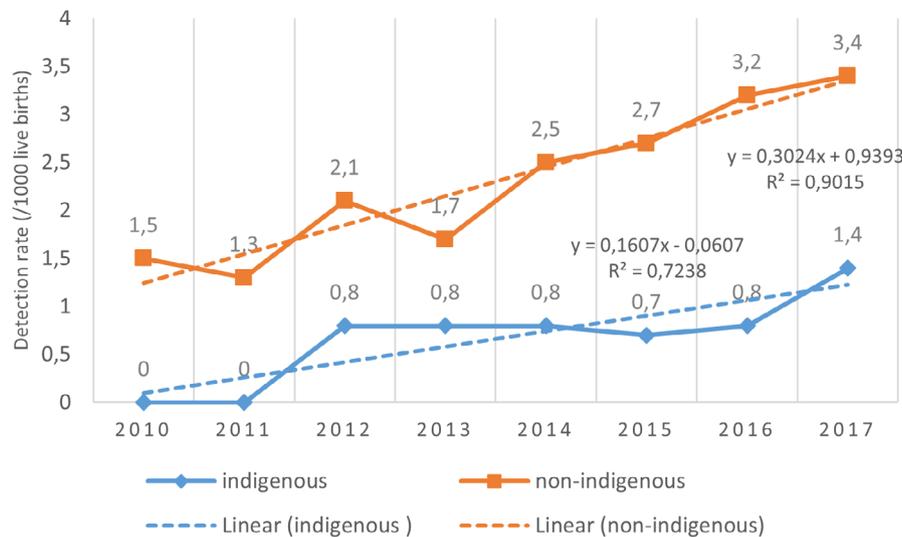
Vulnerability of indigenous women is not only linked to cultural issues; although ethnicity is an important factor, its isolated analysis makes it impossible to understand the phenomenon more broadly; therefore, other significant issues that enhance the susceptibility of indigenous people to HIV infection must be considered<sup>(17)</sup>.

These issues are related to difficulty in accessing health services impeding the adequate knowledge about how to prevent the infection; the unfavorable socioeconomic levels that are peculiar to this population; poor schooling; economic exploitation and expropriation of indigenous lands by third parties; social segregation in health systems; political and cultural subordination preventing them from the full exercise of their rights. All these considerations act synergistically to maintain health inequities and spread HIV among the indigenous<sup>(13,14)</sup>.

The results showed that pregnant women with positive serology belonged predominantly to the age group of 20 to 29 years old in both populations. However, significant number of HIV cases in younger indigenous women can be explained by the premature initiation of sexual activity in this population<sup>(16)</sup>.

A study carried out in 12 different ethnic groups in Peru identified that sexual activity starts among indigenous peoples when they are between 12 and 15 years old, being earlier in women. In this case, sexual life begins immediately after menarche, as it is an important moment for Amazonian indigenous peoples, when young women are prepared to assume the role of wife and mother<sup>(2)</sup>.

Early sexual activity has been described in the literature as a relevant factor contributing to risk of exposure to HIV infection and other STIs among indigenous people, especially in ethnic groups that admit to extramarital sexual practices,



Source: SINAN/SESPA/CE IST-AIDS, 2019.

**Figure 1.** HIV detection rate in indigenous and non-indigenous pregnant women, according to the reporting year. Para, Brazil, 2010–2017

and that carry out festive rituals in which extramarital relations can occur<sup>(2,9,12)</sup>.

Low level of schooling is another aspect related to the increased risk exposure to HIV. Studies have shown the increase of infection cases in individuals with lower levels of education and who belong to disadvantaged societal groups. This phenomenon is known as pauperization<sup>(1,6,18)</sup>. From this perspective, the results of this study are similar to those described in the literature, which report the occurrence of HIV in people with predominantly low levels of schooling.

In this sense, similar results were found in a study conducted in the state of Alagoas<sup>(1)</sup>, in which 31.2% of pregnant women with HIV reported between five and eight years of schooling. However, a study carried out in Spain revealed that most women infected with HIV (75.2%) claimed to have the equivalent of secondary education<sup>(19)</sup>. This divergence can be justified by the fact that high-income countries invest more in education compared to low- or middle-income countries<sup>(20)</sup>.

Another relevant aspect is the low schooling profile of the indigenous population, which is lower than the non-indigenous population<sup>(21)</sup>. Associated with sociocultural barriers, this can undermine the prevention of HIV infection as the understanding of prevention guidelines provided by the health team is compromised, reflecting negatively on the reduction of risk behaviors and, consequently, on the health quality of this ethnic group<sup>(14,15)</sup>.

Education is an important social marker, therefore its analysis is essential to identify the profile of some health concerns, such as HIV/AIDS. Thus, the failure to

fill out this field in HIV notification forms for pregnant women, in the two groups studied, is worrisome as the incompleteness or absence of records in information systems hinders more in-depth analyses on the dynamics of health problems, jeopardizing the planning of prevention actions and coping strategies<sup>(18)</sup>.

Regarding the occupation of pregnant women with HIV in both populations studied, most of them were not engaged in any remunerated activity. This is a frequent finding in studies carried out in other states of the country, in which pregnant women reported performing activities restricted to the home or low-income functions<sup>(1,6,22)</sup>.

Historically, domestic activities are female roles, which, along with the difficulty of entering the labor market, contribute to maintaining women financially dependent on their spouses and, consequently, to the reduction in their negotiation power with regard to the use of condoms during sexual intercourse<sup>(6)</sup>.

Indigenous communities are predominantly reluctant to use condoms during sexual intercourse. In general, this population does not recognize condoms as a prevention method for sexually transmitted infections, associating it with birth control<sup>(9)</sup>.

Furthermore, in some communities the use of condoms has been discouraged under the claim of reducing pleasure during sexual activity. The cosmogonies of other indigenous groups advise against using this method, stating that the flow of fluids will bring strength to the body. These aspects reinforce the vulnerability of indigenous peoples to HIV/

AIDS, as safe sexual behavior is essential for breaking the chain of HIV infection in different ethnic contexts<sup>(13,17)</sup>.

In addition to the sociodemographic factors, according to the data analyzed, the identification of the serological condition of HIV in the two populations under study was identified during prenatal care. This confirms the relevance of serological screening in pregnant women for identification of cases, early antiretroviral treatment, and reduction of the risks of vertical transmission to the child<sup>(18,23,24)</sup>.

In this scenario, the nurse plays an important role as he/she actively participates in the health care of these women during the prenatal appointments, advising them on maternal antiretroviral therapy, breastfeeding cessation, lactation inhibition, and newborn care, thus, contributing to the minimization of risk factors for vertical transmission<sup>(18)</sup>. Therefore, the socio-cultural particularities of individuals must be known, especially vulnerable groups such as indigenous people, and intercultural skills should be developed to promote health education focused on HIV prevention measures<sup>(12)</sup>.

However, the training of nurses to work in this intercultural context has been incipient and unfavorable to sensitive practices oriented to the health needs of indigenous peoples, who have different conceptions of health, disease, cure and treatment in relation to the non-indigenous population. These particularities can compromise HIV prevention measures in the indigenous population and contribute to increase infection rates<sup>(8)</sup>.

Also noteworthy is the significant percentage (71.43%) among indigenous women for whom HIV was identified in prenatal care. This demonstrates fragility in proactive search initiatives in the primary care of the *Subsistema de Atenção à Saúde Indígena* (Indigenous Health Care Subsystem) and reinforces the need to expand HIV prevention and diagnosis measures prior to pregnancy to break the virus chain of infection.

Indigenous health care is structured internally through the *Distritos Sanitários Especiais Indígenas* (Special Indigenous Sanitary Districts) (DSEI), which is a differentiated health care model that should value ethnic and cultural environments, as dynamic spaces, promoting health with the uninterrupted supply of services in the villages, and carrying out strategic measures of the national programs for the prevention and control of diseases.

However, scientific literature shows the gap between the envisaged model and models of health care available to the indigenous population<sup>(14,22)</sup>. Structural and organizational problems are described as factors that hinder the problem-solving measures related to the control and prevention of HIV/AIDS and other STIs, among which the following stand out: the absence of regulatory criteria for indigenous patients in medium and high complexity health services, a weak agreement among the different health districts, poor

articulation among the DSEI and municipal and state managers for the prevention of HIV infection, and unavailability of rapid tests for the detection of HIV hindering the timely tracking of new cases<sup>(10,15)</sup>.

Late HIV diagnosis has been one of the main barriers to prevent infection in different populations, contributing to the spread and maintenance of the epidemic<sup>(5,16)</sup>. Timely identification of HIV favors early treatment, preventing illness and enabling a higher survival rate for people living with HIV and AIDS (PLHA)<sup>(25)</sup>.

Another worrying finding is the number of HIV cases confirmed during delivery in both populations. Late diagnosis impedes starting the antiretroviral therapy on time and, consequently, suppresses the viral load, which is considered a more significant predictor of vertical transmission of HIV<sup>(18,25)</sup>.

Studies report insufficient adherence to treatment being the main cause for non-suppression of HIV before delivery, reinforcing that late identification of the virus is averse to the implementation of effective and safe prophylactic measures, to ensure an undetectable viral load at the time of delivery and, therefore, reduce the risk of transmission to rates below 2%<sup>(8,22,25)</sup>.

The results depict social disparities being determiners of different vulnerabilities to HIV in different population segments. In this context, recognizing interethnic specificities is essential for the implementation of public health policies aimed at priority populations, e.g., those more vulnerable to HIV/AIDS, such as indigenous populations<sup>(9,14)</sup>.

The limitations of this study are in relation to the use of a secondary source, which imposes obstacles to the quality of information due to incomplete data and underreporting in the information system.

## CONCLUSION

The state of Para presents high rates of HIV detection in pregnant women, with emphasis on indigenous women, whose detection rate was shown to be expressive and growing over the years studied. The results highlight the urgent need for culturally appropriate HIV/AIDS prevention policies and guidelines for the different ethnic groups.

Prenatal care proved to be relevant for diagnosing infection in most reported cases. However, HIV testing must be expanded to identify HIV before the gestational period to obtain an early diagnosis and adopt the necessary measures to break the virus chain of infection, promoting the health of women and their children.

This study also points to the need for more resoluteness of health services for the indigenous population, as well as more investments in the training of nurses to enable their active participation in HIV prevention measures, aiming

to enhance their performance and ensure the provision of resolutive care in view of the cultural diversity of this specific population.

Finally, the analysis and discussion of HIV infection in pregnant women can provide support for the planning and implementation of strategic health measures to tackle the HIV/AIDS epidemic, considering the profile of more vulnerable populations to infection in different ethnic contexts.

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