ORIGINAL ARTICLE

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EPIDEMIOLOGY OF TOXOPLASMOSIS IN PREGNANCY AND POSTPARTUM

EPIDEMIOLOGÍA DE LA TOXOPLASMOSIS EN EL EMBARAZO Y POSPARTO

EPIDEMIOLOGIA DA TOXOPLASMOSE NA GRAVIDEZ E PÓS-PARTO

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ABSTRACT
Objective: To evaluate the prevalence of toxoplasmosis in the state of Piauí. Method: Epidemiological study with secondary data, using a retrospective and quantitative analysis of cases of gestational toxoplasmosis in the state of Piauí. The data were obtained from the Health Information System (TABNET), covering the period from 2019 to 2023, and analyzed between May and September 2024. The variables studied included the incidence of toxoplasmosis in pregnant women and demographic characteristics, such as year of notification, age group, education level, race/ethnicity, gestational period, classification and evolution of cases. Result: The state of Piauí recorded 1,097 cases of gestational toxoplasmosis, with the most affected age group being 20 to 39 years old, corresponding to 78.94% of cases. It was observed that 44.30% of pregnant women did not inform their educational level, while 20.78% had incomplete secondary education. Regarding racial self-declaration, 60.53% of pregnant women identified themselves as mixed race. The majority of cases (59.89%) were diagnosed and reported in the 3rd trimester of pregnancy. Conclusion: The data obtained highlight the need to improve the process of notification and monitoring of gestational toxoplasmosis, aiming for a more efficient management of the disease. Despite methodological limitations, this study presents relevant information about the epidemiological profile of gestational toxoplasmosis in Piauí, essential to expand knowledge and guide future interventions in public health.
Keywords: Pregnant Women; Congenital Toxoplasmosis; Diagnosis; Prevalence.

RESUMEN
Objetivo: Evaluar la prevalencia de toxoplasmosis en el estado de Piauí. Método: Estudio epidemiológico con datos secundarios, mediante análisis retrospectivo y cuantitativo de casos de toxoplasmosis gestacional en el estado de Piauí. Los datos fueron obtenidos del Sistema de Información en Salud (TABNET), abarcando el período de 2019 a 2023, y analizados entre mayo y septiembre de 2024. Las variables estudiadas incluyeron la incidencia de toxoplasmosis en mujeres embarazadas y características demográficas, como año de notificación, grupo de edad, nivel educativo, raza/etnia, período gestacional, clasificación y evolución de los casos. Resultado: El estado de Piauí registró 1.097 casos de toxoplasmosis gestacional, siendo el grupo etario más afectado el de 20 a 39 años, correspondiente al 78,94% de los casos. Se observó que el 44,30% de las gestantes no informó su nivel educativo, mientras que el 20,78% tenía educación secundaria incompleta. En cuanto a la autodeclaración racial, el 60,53% de las gestantes se identificaron como mestizas. La mayoría de los casos (59,89%) fueron diagnosticados y notificados en el tercer trimestre del embarazo. Conclusión: Los datos obtenidos resaltan la necesidad de mejorar el proceso de notificación y seguimiento de la toxoplasmosis gestacional, buscando un manejo más eficiente de la enfermedad. A pesar de las limitaciones metodológicas, este estudio presenta información relevante sobre el perfil epidemiológico de la toxoplasmosis gestacional en Piauí, esencial para ampliar el conocimiento y orientar futuras intervenciones en salud pública.
Palabras clave: Mujeres Embarazadas; Toxoplasmosis Congénita; Diagnóstico; Prevalencia.

RESUMO
Objetivo: Avaliar a prevalência da toxoplasmose no estado do Piauí. Método: Estudo epidemiológico com dados secundários, utilizando uma análise retrospectiva e quantitativa dos casos de toxoplasmose gestacional no estado do Piauí. Os dados foram obtidos do Sistema de Informações de Saúde (TABNET), abrangendo o período de 2019 a 2023, e analisados entre maio e setembro de 2024. As variáveis estudadas incluíram a incidência de toxoplasmose em gestantes e características demográficas, como ano de notificação, faixa etária, nível de escolaridade, raça/etnia, período gestacional, classificação e evolução dos casos. Resultado: O estado do Piauí registrou 1.097 casos de toxoplasmose gestacional, sendo que a faixa etária mais afetada foi a de 20 a 39 anos, correspondendo a 78,94% dos casos. Observou-se que 44,30% das gestantes não informaram seu nível educacional, enquanto 20,78% possuíam ensino médio incompleto. Em relação à autodeclaração racial, 60,53% das gestantes se identificaram como pardas. A maioria dos casos (59,89%) foi diagnosticada e notificada no 3º trimestre da gestação. Conclusão: Os dados obtidos sublinham a necessidade de aprimorar o processo de notificação e acompanhamento da toxoplasmose gestacional, visando um manejo mais eficiente da doença. Apesar das limitações metodológicas, este estudo apresenta informações relevantes sobre o perfil epidemiológico da toxoplasmose gestacional no Piauí, essenciais para expandir o conhecimento e orientar futuras intervenções na saúde pública.
Palavras-chave: Grávidas; Toxoplasmose Congênita; Diagnóstico; Prevalência

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INTRODUCTION

Attention to the health of pregnant women before, during and after childbirth is essential to reduce and prevent mortality and complications during pregnancy, both for the woman and the fetus[1]. In addition to allowing the identification of risks and the implementation of preventive care, adequate monitoring also allows the diagnosis and treatment of other pathologies, such as HIV and malaria, which are crucial for maintaining maternal and fetal health[2]. This becomes even more relevant considering that pregnancy triggers several physiological, hormonal and immunological changes, requiring specific care[3].

From this perspective, the pathogen Toxoplasma gondii, an intracellular protozoan, is configured as a relevant infection, since it is generally asymptomatic and goes unnoticed, but it can cause irreversible complications during the gestational period and result in sequelae for the infant[4]. In this context, both toxoplasmosis acquired during pregnancy and congenital toxoplasmosis are subject to mandatory investigation and reporting, as established by Brazilian legislation and the Ministry of Health (MS)[5].

Toxoplasma gondii is a protozoan with worldwide geographic distribution and high serological prevalence[6]. The infection persists in several animal species, mainly in mammals, with felines standing out, which act as definitive hosts, while humans function as intermediate hosts. Thus, in urban areas, cats eliminate the infective forms of T. gondii through their feces, maintaining the epidemiological cycle of this parasite[6,7].

In Brazil, the detection, diagnosis and treatment of toxoplasmosis is part of the health care of pregnant women, being included in primary care[8]. Thus, the Ministry of Health (MS) recommends serological screening during prenatal care, through the detection of specific antibodies in the first consultations[8,9]. When fetal infection is suspected, amniocentesis and, subsequently, ultrasound are indicated to assess the presence of alterations that may indicate infection[10].

According to data from the Brazilian Institute of Geography and Statistics (IBGE) from 2021, it is estimated that the state of Piauí has a total population of 3,289,290 inhabitants[1]. Of these, 1,040,201 are women of reproductive age, aged 10 to 49 years, according to the age range recommended by the World Health Organization (WHO)[11,8]. This group is particularly susceptible to gestational toxoplasmosis in the event of pregnancy, which makes it crucial to implement external public health policies for the prevention and treatment of this condition, due to its serious consequences for maternal and child health[12].

Furthermore, preliminary estimates prepared by the Department of Information Technology of the Unified Health System (DATASUS) indicate that the population of children up to 1 year of age in Piauí is 94,628 individuals[13]. This highlights the importance of

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monitoring and caring for the health of this vulnerable age group, ensuring healthy development from the earliest years of age[6].

Therefore, to reduce maternal and infant morbidity and mortality, epidemiological indicators are essential to assess the quality of health care provided to this population[7]. The implementation of surveillance programs between states and municipalities emerges as a decisive factor for the adoption of preventive measures, mobilizing continuous efforts among professionals and managers[6]. In this sense, it is crucial to emphasize that improving primary prevention requires that pregnant women be guided from their first prenatal consultation, aiming to avoid congenital toxoplasmosis and other complications[8]. However, more than half of pregnant women do not receive adequate information from their healthcare teams during prenatal care[6].

In view of the above, maternal health care is essential to prevent complications during pregnancy and childbirth[7]. In this context, toxoplasmosis, a parasitic infection that can be transmitted from mother to fetus, stands out due to the risk of causing serious complications to the newborn[9]. Due to its significant impact on neonatal health, the implementation of effective health policies is essential. These policies should ensure adequate access to care, disseminate information about the risks associated with infection, and promote preventive measures, contributing to safer and healthier gestational outcomes.

In view of this scenario, the present study aimed to assess the prevalence of toxoplasmosis in the state of Piauí, seeking to provide data that can support the formulation of more effective health policies aimed at preventing infection in pregnant women.

METHODOLOGY

This study is an epidemiological study with secondary data, using a retrospective and quantitative analysis to assess the prevalence of gestational and postpartum toxoplasmosis. The data were obtained through the Health Information System (TABNET), which provides access to detailed information on the health situation, vital statistics and population epidemiology, linked to the Department of Information Technology of the Unified Health System (DATASUS) and the Brazilian Ministry of Health[13].

The study sample included all reported cases of gestational toxoplasmosis recorded in the state of Piauí over a five-year historical series, from 2019 to 2023. The analysis was conducted between May and September 2024. The variables of interest included the incidence of gestational toxoplasmosis and demographic characteristics of the affected women, such as year of notification, age group, level of education, race/ethnicity, gestational period, classification of cases, evolution, criteria and outcomes related to pregnancy and postpartum.

The data were analyzed quantitatively, using descriptive statistical methods to calculate

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the prevalence and incidence rates of gestational and postpartum toxoplasmosis over the study period. In addition, regression analyses were performed to investigate associations between the studied variables. The graphs were generated with the help of Microsoft Excel and Microsoft Word, based on the extraction of relevant data from the TABNET system.

The study used only anonymized secondary data, ensuring patient privacy and confidentiality. No additional ethical approvals were required, since the analysis was performed retrospectively, using data already publicly available in the DATASUS database. The authors acknowledge that the use of secondary data may have limitations, such as selection bias and the presence of incomplete or inaccurate information. Since the analysis is retrospective, it is not possible to establish causal relationships between the variables studied, and since it is a study in a public domain database, there was no need to submit the study to the Research Ethics Committee (CEP).

The results of this study contributed significantly to a better understanding of the prevalence and characteristics of gestational and postpartum toxoplasmosis in Brazil. This information is essential for the development of more effective prevention, diagnosis and treatment strategies, aiming to reduce the impact of this disease on the health of women and newborns. It is essential to consider the risks associated with research with secondary data accessed through online databases, such as the potential identification of individuals in small geographical areas. Ensuring the quality and accuracy of the original data is crucial to avoid bias in the results. In addition, strict compliance with ethical and legal standards is essential to ensure the ethical and legal use of the collected data.

RESULTS

Sample characterization

Between 2019 and 2023, 1,097 cases of gestational toxoplasmosis were reported in the state of Piauí, according to data obtained by DATASUS. In 2023, 395 cases were recorded, corresponding to 36% of the total reported. In contrast, in 2020, during the pandemic period, only 95 cases were diagnosed, representing 9% of pregnant women. It is important to note that these data may present discrepancies due to lack of updating or the presence of incomplete information in the system (Graph 1).

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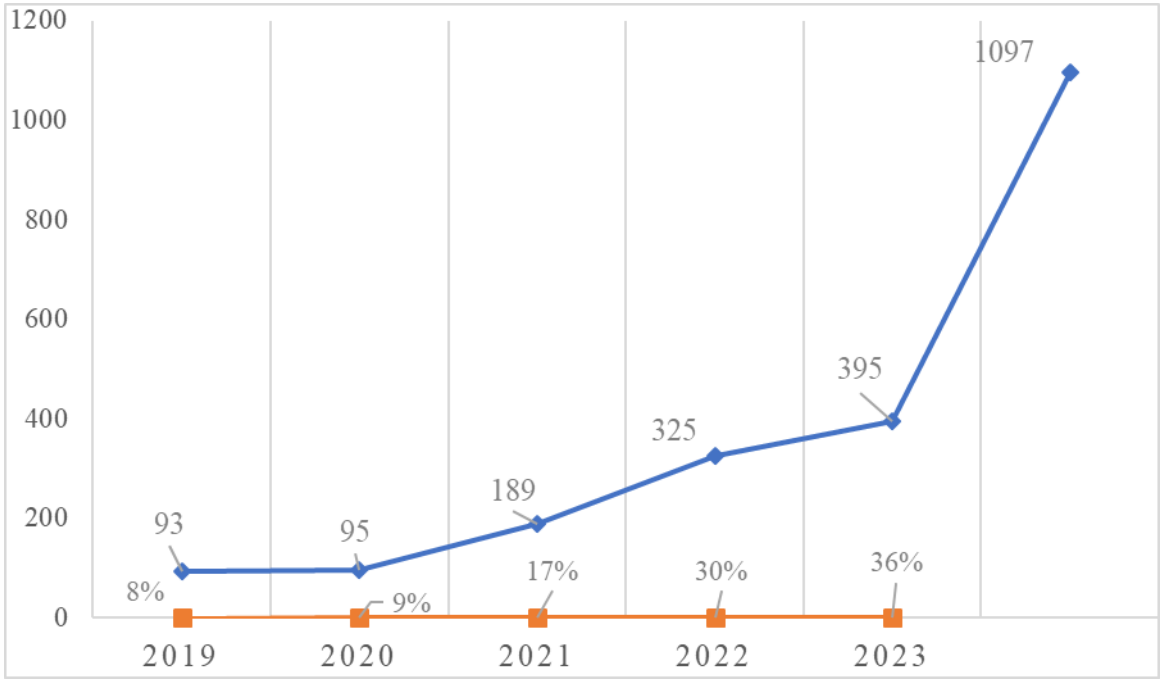
Graph 1 - Confirmed Cases of Gestational Toxoplasmosis by Year of Diagnosis, between 2019 and 2023.



Source: SINAN/DATASUS, 2024.

The analysis carried out by the authors highlighted a relevant fact when observing the monthly period of 2019, which presented the lowest rates of notification of the disease. This trend may be related to the lack of completion of the protocols, possibly due to the high concern about the SARS-CoV-2 virus, resulting in a lack of information. However, in 2021, cases showed an increase in notifications compared to 2020. The same trend of increase in the number of confirmed cases was also observed in 2023, which registered the highest number of notifications in the period analyzed (Table 1).

Table 1 - Confirmed cases of Gestational Toxoplasmosis by month of notification, according to year, between 2019 and 2023.

Year of Notification	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2019	6	11	3	10	9	6	3	8	12	11	11	3	93
2020	10	9	6	5	4	7	12	9	7	9	9	8	95
2021	9	14	9	14	15	15	14	36	13	6	37	7	189
2022	16	13	15	15	36	31	40	40	31	34	28	26	325
2023	41	25	48	37	64	44	37	26	14	26	19	14	395

Source: SINAN/DATASUS, 2024.

The percentages of cases by age group can be seen in Table 2. The occurrence of reported cases was observed among pregnant women aged 10 to 59 years, with emphasis on the age group of 20 to 39 years, which recorded 866 cases, corresponding to 78.94% of the total. In the age groups of 10 to 14 and 15 to 19 years, there was a significant prevalence, representing

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1.37% and 16.77% of cases, respectively, totaling 18.14% of notifications among pre-adolescent and adolescent pregnant women (Table 2).

Table 2 - Epidemiological profile of pregnant women in Piauí infected by age group (10-59 years) with Gestational Toxoplasmosis, 2019-2023.

Age range	Number of pregnant women (N)	Percentage(%)
10-14	15	1,37
15-19	184	16,77
20-39	866	78,94
40-59	32	2,92

Source: SINAN/DATASUS, 2024.

Analyzing the data obtained from the DATASUS platform regarding education, it was found that 5.01% of pregnant women had completed elementary school, while 20.78% had incomplete high school. However, it is important to highlight that, in 44.30% of cases, the educational level was ignored. It was observed that 17.41% of pregnant women had completed high school. In addition, 0.09% of pregnant women were illiterate, a worrying number although relatively low, which may be associated with cases in which there was a refusal to declare the level of education (Table 3).

Table 3 - Epidemiological profile of pregnant women in Piauí with Gestational Toxoplasmosis by level of education, 2019-2023.

Education level	Number of pregnant women (N)	Percentage (%)
Ign/White	486	44,30
Iliterate	1	0,09
1st to 4th elementary grade	10	0,91
4th elementary grade	10	0,91
5th to 8th elementary grade	59	5,38
Full elementary	55	5,01
Incomplete high school	228	20,78
Full high school	191	17,41
Incomplete University Degree	15	1,37
Full university degree	42	3,83

Source: SINAN/DATASUS, 2024.

In the analysis of the race/ethnicity variable, it was observed that 60.53% of pregnant women self-identified as brown. 6.93% identified themselves as white and 6.20% as black. A relevant fact is that 25.43% of pregnant women chose to ignore or leave blank the question about their race/ethnicity, which may interfere with the accuracy and relevance of the data related to this variable (Graph 2).

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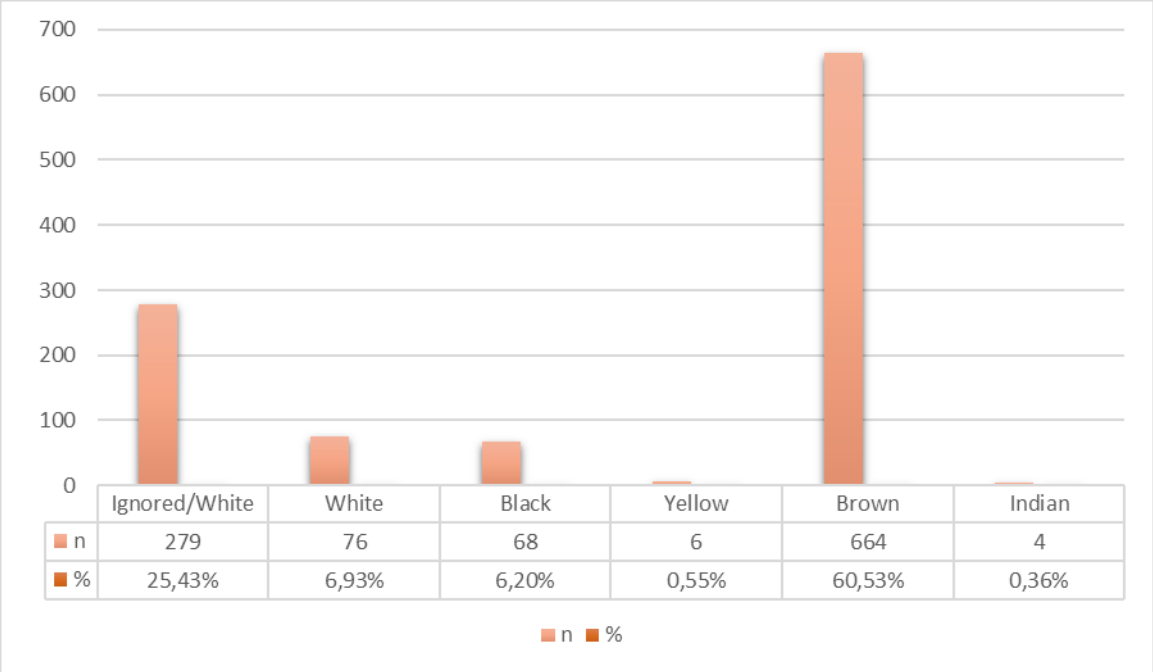
Graph 2 - Epidemiological profile of pregnant women in Piauí by race/ethnicity with Gestational Toxoplasmosis, 2019-2023.



Source: SINAN/DATASUS, 2024.

The analysis of the diagnoses of gestational toxoplasmosis revealed that 59.89% of the cases were identified in the 3rd trimester. In comparison, 22.15% of the cases were diagnosed in the 2nd trimester. In addition, cases diagnosed in the 1st trimester were observed, during the first contact in prenatal consultations, corresponding to 8.57% of the reported cases. Cases with missing data may present inaccuracies in relation to the variables described, which contributed to the robust elaboration of the study (Table 4).

Table 4 - Gestational period observed for gestational toxoplasmosis in Piauí, 2019-2023.

Gestational Trimester	Cases confirmed (N)	Percentage (%)
1st Trimester	94	8,57
2nd Trimester	243	22,15
3rd Trimester	657	59,89
Ignored	103	9,39

Source: SINAN/DATASUS, 2024.

Regarding the epidemiological profile of the variables regarding the diagnosis and evolution of toxoplasmosis cases during pregnancy, it was possible to obtain important data for considerations about the infection throughout the gestational period and its impacts on maternal and fetal health. However, when diagnosing gestational toxoplasmosis, 89.97% were confirmed through laboratory tests. Regarding the evolution of these cases, 68.09% resulted in cure. The cases ignored due to evolution resulted in 31.81% of the cases, being possible to observe a possible gap in the monitoring or reporting of these cases, making it

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difficult to obtain complete data on the disease in the period under analysis (Table 5).

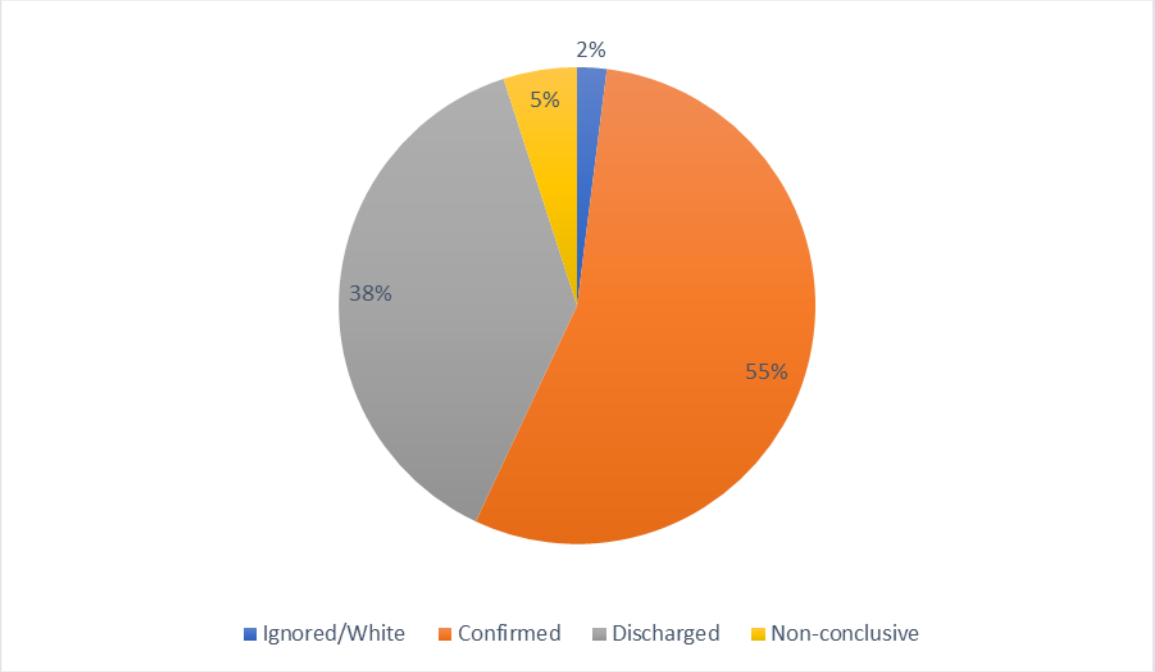
Table 5 - Diagnosis and Evolution of gestational toxoplasmosis cases in pregnant women in Piauí, 2019-2023.

Variables	N	%
Diagnosis		
Laboratory	987	89,97%
Clinical-epidemiological	32	2,92%
Ignored	78	7,11%
Total	1.097	100,00%
Evolution		
Cure	747	68,09%
Ignored	349	31,81%
Deaths from other causes	1	0,09%

Source: SINAN/DATASUS, 2024

Regarding the epidemiological profile of pregnant women in Piauí by case classification, from 2019 to 2023, it was observed that 55% of the cases were confirmed. However, 5% of these data were inclusive in the classification, reflecting the difficulty in reaching a definitive diagnosis. In addition, 38% of the results were discarded, which may indicate failures and inconsistent results in the diagnostic process or in the interpretation of the data (Graph 3).

Graph 3 - Epidemiological profile of Gestational Toxoplasmosis in pregnant women in Piauí by case classification, 2019-2023.



Source: SINAN/DATASUS, 2024.

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Given the data presented, it is clear that the impacts on the process involve significant challenges related to early diagnosis and the collection of accurate data. These difficulties can negatively impact the management of health promotion, affecting monitoring, the quality of information recorded in notification systems, the assessment of the evolution of cases and, mainly, the complications resulting from gestational toxoplasmosis. In addition, the lack of reliable data and late diagnosis can compromise the effectiveness of interventions and prevention strategies, worsening the situation of affected pregnant women.

DISCUSSION

It is clear that toxoplasmosis continues to face significant challenges in terms of its epidemiological profile, especially regarding prevention and early diagnosis[12]. According to data from DATASUS, 1,097 cases of gestational toxoplasmosis were recorded in the state of Piauí during the period analyzed. In 2023, a significant increase was observed, with 36% of the total cases recorded during the entire study period. These data are in line with previous studies carried out in several regions of Brazil[13,15,23].

The study carried out in Maceió indicated that the increase in the number of notifications of cases of gestational toxoplasmosis began in 2020, continued in 2021 and reached its peak in 2022, during the height of the COVID-19 pandemic crisis[14]. In the North region, specifically in the state of Amazonas, 435 cases of gestational toxoplasmosis were recorded between 2019 and 2022. In accordance with Figure 1, the study data showed that, in 2022, there was a prevalence of 31% of reported cases[15].

The percentages of cases by age group are represented in Graph 2. The data show that the age group from 20 to 39 years was the most prevalent, concentrating 866 cases, which corresponds to 78.94% of the total[13]. In correlation with another study, it was observed that pregnant women in this age group were the most affected by toxoplasmosis. This group includes women of reproductive age, who may be more exposed to the risk factors associated with the infection[16].

The level of education can significantly influence the prevalence of gestational toxoplasmosis, as it is directly related to behavioral factors and socioeconomic conditions that increase the risk of infection[16]. A study conducted in the state of São Paulo revealed that 66.66% of women affected by the infection had not completed high school, a considerably high percentage compared to a similar study conducted in Pernambuco during the same period, which indicated that only 10.86% of infected women had this level of education[17,18].

However, it was observed that 17.41% of pregnant women in the state of Piauí had completed high school, a finding that is in line with the results of the study conducted in Pernambuco, where 26.61% of infected pregnant women had also completed high school. These results highlight the importance of educational

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level for understanding and preventing gestational toxoplasmosis, especially in regions with similar socioeconomic conditions[13,18].

Based on the information collected, it was observed that the educational level was ignored in 44.30% of cases[13]. This data reveals a significant limitation in the analysis of the relationship between education level and prevalence of gestational toxoplasmosis. This gap in the studies can be attributed to the lack of adequate completion of the related variables.

It is well known that women with lower educational levels often have limited access to information on prevention and health promotion practices[19]. When toxoplasmosis occurs during pregnancy, it is a serious public health problem[9]. In addition, these women usually live in precarious sanitary conditions, which increases exposure to risk factors associated with the infection[20]. Thus, educational level proves to be a crucial factor in protection against toxoplasmosis, highlighting the need for educational interventions and improvements in living conditions to reduce the prevalence of the disease[19].

Considering that 60.53% of pregnant women in Piauí self-identified as brown, this variable can provide relevant data, especially in a context of great miscegenation such as Brazil[13]. A study conducted in a health unit in the Federal District highlighted a significant gap in the collection of information on color or race among pregnant women, revealing that 65.11% of women did not report this variable at the time of notification. Among those who responded, 22.04% declared themselves brown, 7.95% white, 4.08% black, 0.82% yellow and only 0.01% indigenous[21]. These data highlight the importance of improving the collection of this information, since it is essential to develop fairer and more accessible health policies for all[10]. Socioeconomic conditions play a crucial role in determining risk factors; it is important to recognize that the adversities faced by pregnant women who self-identify as brown and black may contribute to the greater number of cases observed[20,13].

As shown in Table 3, in the state of Piauí, 59.89% of cases of gestational toxoplasmosis were detected in the third trimester, while only 8.57% were identified in the first trimester[13]. This discrepancy is worrying, as it indicates the possibility of late initiation of prenatal care or the absence of adequate examinations in the early stages of pregnancy[22]. Early detection of toxoplasmosis is essential for effective intervention, ensuring adequate control of the infection and significantly reducing the risk of transmission to the fetus[12].

The literature indicates that the rate of transmission of toxoplasmosis during pregnancy is approximately 15% in the 1st trimester, and can reach up to 70% in the 3rd trimester[23]. These numbers are in line with the results of other studies, which also identified a higher incidence of diagnoses in the 2nd and 3rd trimesters[22,14]. This reinforces the need for early and continuous monitoring throughout pregnancy, especially in the early stages, when the risk of transmission is significantly higher[7].

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It is important to highlight that screening, guidance, clinical and laboratory diagnosis and treatment for pregnant women and their children exposed to the risk of T. gondii are offered free of charge by the Unified Health System (SUS), through the prenatal program of the Ministry of Health[24].

The analysis of the diagnoses revealed that 89.97% of the cases of gestational toxoplasmosis were confirmed by laboratory tests, of which 68.09% evolved to cure[13]. These results are consistent with previous studies: in the southern region of Brazil, specifically in the states of Paraná, Santa Catarina and Rio Grande do Sul, 89.8% of the registered cases were also confirmed by laboratory tests[25]. In the northeast region, in the state of Ceará, 87.1% of the cases reported between 2019 and 2023 were diagnosed using the same method. These data highlight the importance of laboratory tests for accurate and reliable detection of the disease[26].

Diagnosing toxoplasmosis can be challenging, making it difficult in many cases to differentiate between acute and chronic infection[27]. Early detection of the disease is essential to promote health[12]. Prenatal care acts on the front line, contributing to the development of effective strategies to reduce the risk of infections during pregnancy[17,28].

It is vital to emphasize the importance of correctly completing the notification forms, classifying the cases as confirmed, inconclusive or discarded. As illustrated in Graph 4, 55% of the cases were confirmed, 5% inconclusive and 38% discarded. These data highlight the need for rigorous monitoring and accurate documentation to improve the effectiveness of public health strategies [13,27].

Given the context presented, it is worth highlighting that pregnant women have the right to quality care from the beginning of pregnancy. Therefore, increasing the positive outcomes of health promotion actions is of utmost importance to reduce harm during pregnancy. Effective communication between prenatal care and Primary Health Care (PHC) is essential for early identification of pregnant women, adequate prenatal monitoring, continuous reassessment of gestational risk and referral to reference services, whenever necessary[28].

CONCLUSION

This study analyzed the incidence of gestational toxoplasmosis in Piauí between 2019 and 2023, revealing a significant increase in notifications, especially in 2023, after a reduction observed during the COVID-19 pandemic. Most of the affected pregnant women were in the age group of 20 to 39 years, and the disease was detected predominantly in the third trimester, with a cure rate of 68.09%. However, the quality of the data was compromised by errors in registration, making it difficult to effectively monitor the situation.

The results show that prenatal care is essential for the early identification of gestational toxoplasmosis and for promoting the health of the pregnant woman and the baby. The implementation of health policies that improve

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the management of this condition is essential to mitigate the associated risks and ensure adequate care during pregnancy.

Although the study has methodological limitations, such as the lack of consistent data on the educational level of pregnant women due to inadequate completion of this variable, these issues highlight the urgent need to improve data collection and strengthen maternal-fetal health strategies in Piauí. However, this does not diminish the relevance of the information obtained, which is crucial for understanding the situation.

The evidence from this study is fundamental for building knowledge about gestational toxoplasmosis, serving as a basis for formulating more effective interventions in public health practices. The information obtained can guide future research and the development of efficient methods for the prevention and control of toxoplasmosis in pregnant women.

It is recommended that future research explore the relationship between gestational toxoplasmosis and other socioeconomic factors, in addition to evaluating the effectiveness of the public health interventions implemented. Investigating pregnant women's perceptions regarding prenatal care and toxoplasmosis prevention can provide valuable information for improving health strategies.

In summary, gestational toxoplasmosis is a public health issue that requires ongoing attention and integrated actions to ensure the health of pregnant women and their babies. Improvements in health practices and data collection are essential steps to effectively address this challenge.

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The authors followed the criteria required by the Journal in relation to the construction of the study.

Adriana Quaresma de Souza Carvalho: Study planning, analysis and interpretation of data, and critical review of the article.

Naara Quaresma de Carvalho: Data collection and processing, statistical analysis.

Andreza da Silva Fontinele: Structuring of the article and contribution to writing and editing the text.

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Declaration of conflict of interest

Nothing to declare.

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