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Assisted pregnant patients' knowledge about syphilis and other STIs at Basic Health Units in the city of Zé Doca, State of Maranhão

Conhecimentos de gestantes sobre a sífilis e outras IST atendidas em Unidades Básicas de Saúde do município de Zé Doca, Estado do Maranhão

Conocimientos de gestantes sobre sífilis y otras ITS atendidas en Unidades Básicas de Salud del municipio de Zé Doca, Estado de Maranhão

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ABSTRACT

Objective: To evaluate the knowledge of pregnant women assisted in Unidades Básicas de Saúde (UBS) of a city in the state of Maranhão about syphilis and other Sexually Transmitted Infections (STI). **Methods:** This is a descriptive study with a quantitative approach. The sample was composed of pregnant patients who sought care in the UBS of the municipality. A semi-structured questionnaire was applied on the participants' sociodemographic information and general knowledge of the interviewees about STIs/syphilis. **Results:** Of the 25 pregnant patients interviewed, 84% were 18 years of age or older, 52% had attended high school, 64% reported having an income of less than one minimum wage, 48% knew at least one STI; 48% did not inform about the etiologic agent of syphilis; 40% said that the human organs affected by syphilis correspond to the genitalia; 28% said that the test to diagnose syphilis are the blood screening tests; 72% could not answer what is congenital syphilis; and 60% of pregnant women could not inform about the transmission of congenital syphilis. **Conclusion:** The findings indicated that the investigated pregnant patients demonstrated erroneous knowledge about STD/syphilis.

Keywords: Health education, Pregnant women, Syphilis, Sexually transmitted infections.

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RESUMO

Objetivo: Avaliar o conhecimento de gestantes atendidas em Unidades Básicas de Saúde (UBS) de município do estado do Maranhão, sobre sífilis e outras Infecções Sexualmente Transmissíveis (IST). **Métodos:** Trata-se de um estudo descritivo com abordagem quantitativa. A amostragem foi composta por pacientes gestantes que procuraram atendimento nas UBS do município. Foi aplicado um questionário semiestruturado sobre as informações sociodemográficas das participantes e conhecimento geral das entrevistadas sobre IST/sífilis. **Resultados:** Das 25 pacientes gestantes entrevistadas, 84% tinham idade igual ou superior a 18 anos, 52% cursaram o ensino médio, 64% relataram ter renda inferior a um salário mínimo, 48% conheciam pelo menos uma DST; 48% não informaram sobre o agente etiológico da sífilis; 40% disseram que os órgãos humanos acometidos pela sífilis correspondem aos da genitália; 28% disseram que o exame para diagnosticar a sífilis são os exames de triagem sanguínea; 72% não souberam responder o que é sífilis congênita; e 60% das gestantes não souberam informar sobre a transmissão da sífilis congênita. **Conclusão:** Os achados indicaram que as pacientes gestantes investigadas demonstraram conhecimento errôneo sobre as IST/sífilis.

Palavras-chave: Educação em saúde, Gestantes, Sífilis, Infecções Sexualmente Transmissíveis.

RESUMEN

Objetivo: Evaluar el conocimiento de las gestantes atendidas en Unidades Básicas de Salud (UBS) en un municipio del estado de Maranhão, sobre la sífilis y otras Infecciones de Transmisión Sexual (ITS). **Métodos:** Se trata de un estudio descriptivo con enfoque cuantitativo. La muestra estuvo compuesta por pacientes gestantes que solicitaron atención en las UBS del municipio. Se aplicó un cuestionario semiestructurado sobre información sociodemográfica de las participantes y conocimientos generales de las entrevistadas sobre ITS/sífilis. **Resultados:** De las 25 pacientes embarazadas entrevistadas, 84% tenían 18 años o más, 52% frecuentaban la enseñanza media, 64% relataron tener renta inferior a un salario mínimo, 48% conocían por lo menos una ITS; 48% no informaron sobre el agente etiológico de la sífilis; 40% dijeron que los órganos humanos afectados por la sífilis corresponden a los genitales; 28% dijeron que el examen para diagnosticar la sífilis son los análisis de sangre; 72% no supieron responder qué es la sífilis congénita; y 60% de las embarazadas no supieron informar sobre la transmisión de la sífilis congénita. **Conclusión:** Los hallazgos indicaron que las pacientes gestantes investigadas mostraron un conocimiento incorrecto sobre las ITS/sífilis.

Palabras clave: Educación sanitaria, Mujeres embarazadas, Sífilis, Infecciones de transmisión sexual.

INTRODUCTION

Sexually Transmitted Infections (STIs) are a serious public health problem worldwide. Besides being among the main demands of medical assistance, they are directly related to economic, social and health factors (DA SILVA SEM, CARDOSO SS, LEITE IS, 2021). These infections affect both men and women, have the ability to make the body more susceptible to other diseases, and are directly related to maternal and infant mortality (AZEVEDO LCMM, COSTA MO, 2021).

STIs can be caused by several species of viruses and bacteria, being transmitted mainly through unprotected sexual contact with an infected partner or via vertical transmission (PADOVANI C, DE OLIVEIRA RR, PELOSO SM, 2018). The lack of consistent information, allied with early and unprotected sexual activities, are considered structural factors of vulnerability to STIs (FONTES MB, et al., 2017). Therefore, raising population awareness of the importance of safe sexual practices through sexual education is one of the fundamental basic strategies to reduce and control relevant risk factors.

STIs are very common in pregnant patients, as pregnancy represents a moment of greater biological and social vulnerability to these infections (NONATO SM, MELO APS, GUIMARÃES MDC, 2015). Syphilis, an infection caused by the bacterium *Treponema pallidum*, is one of the most commonly STIs reported during pregnancy (WILLCOX RR e GUTHE T, 1966).

This STI is potentially lethal if not correctly diagnosed and treated, presenting a variety of stages (primary, secondary, latent and tertiary syphilis) related to different clinical manifestations (CO FILDES e CO FIELDS, 2020). Transmission occurs mainly through unprotected sexual contact, but it can also occur via blood transfusion and vertically from mother to child (GASPAR PC, et al., 2021).

Gestational syphilis is a risk at any pregnancy stage, but the risk of vertical transmission is greater in pregnant women diagnosed with primary or secondary syphilis. Therefore, identification of the infection between the first three months of pregnancy and adequate treatment are key factors to prevent congenital syphilis (CS) transmission (BRAZIL, 2022).

Gestational and congenital syphilis are a serious public health problem in Brazil and, when not treated during prenatal care, can trigger spontaneous abortion, congenital malformations, stillbirths or perinatal death (SUTO CSS, et al., 2016). In case of the infant's survival, there may be early, younger than two years old, or late, older than two years old, syphilis manifestations (CAVALCANTE ANM, et al., 2019).

According to the Brazilian 2022 Syphilis Epidemiological Bulletin, the Northeast region of the country recorded the lowest detection rate in the national ranking of syphilis in pregnant patients in 2021, with a rate of 21.7 per 1,000 live births. However, in the same year, it had the second highest CS detection rate, 10.4 per 1,000 live births (BRAZIL, 2022).

Maranhão, the second largest state in the Northeast, had in 2022 one of the lowest syphilis detection rates in pregnant patients (16.0 per 1,000 live births) and the lowest CS detection rate (5.3 per 1,000 live births) when compared to 2021 data records for the region (BRAZIL, 2022).

Given this scenario, it is observed that sexual education and dissemination of scientific and medical knowledge as vehicles of public health information in different social institutions are important allies for raising society's awareness and access to reliable sources of information regarding STIs. Thus, the objective of the present study was to evaluate the level of knowledge of assisted pregnant patients about Sexually Transmitted Infections, especially syphilis, at Basic Health Units in the municipality of Zé Doca, state of Maranhão.

METHODS

Characterization of the area

The study was carried out in the municipality of Zé Doca, state of Maranhão, located in the northwest region of the state, approximately 325 km from the capital São Luís. The municipality has an area of 2,140.109 km^2 and a population of 52,190 inhabitants. The Human Development Index (HDI) is 0.595, schooling rate of 6 to 14 years of age is 95.3% and GDP per capita is BRL 8,779.7 (IBGE, 2022).

Methodological procedures

This is a descriptive, exploratory study with quantitative approach (PRODANOV CC, DE FREITAS EC, 2013), in which the investigated population was composed of pregnant patients who sought medical care at the Benedito da Luz and Eudineia Veras Alves Cutrim Basic Health Units, both located in the municipality of Zé Doca, state of Maranhão.

A semi-structured questionnaire was applied in the Health Units from August 18 to August 26, 2021. The questionnaire contained 16 questions about the sociodemographic status of the participants and addressed their knowledge about STIs, especially syphilis, including aspects related to transmission, clinical manifestation and prevention, and diagnosis of syphilis/SC. This first evaluation allowed an initial diagnosis about these patients' prior knowledge regarding the pathologies.

After the application of the questionnaire, a lecture on STIs was ministered, and questions and misconceptions were clarified. In addition, during the lecture, a banner was displayed containing the main information about syphilis and an educational folder was distributed to the attendees.

In view of the COVID-19 pandemic, the team of involved researchers adopted preventive health measures during the implementation of activities. In order to prevent the spread of the SARS-CoV-2 virus, both the executing team and participants were required to cover nose and mouth with protective masks and keep a minimum distance of 2 meters from one another.

Subsequently, the data obtained through the questionnaires were organized in Microsoft Excel spreadsheets (Washington, United States of America) and were represented by absolute and relative frequencies.

Statistical analysis

To assess the association between categorical variables, Pearson's chi-square test (χ^2) contingency tables were employed. In the tables, the dependent variables (age group - over 18 years old versus 18 years old or more; education - having attended Elementary School versus having attended High School; and income - less than one minimum wage versus one minimum wage or more) were crossed with the independent variables (having vaccinated against HPV, number of doses taken of the HPV vaccine, knowledge about the main route of transmission of STIs, knowledge about any STIs, source of information about STIs, knowledge about what is the etiological agent of syphilis, knowledge about the organs of clinical manifestation of syphilis, knowledge about the most adequate test for syphilis detection, information about CS and its form of transmission). Statistical analyzes were conducted using the OpenEpi software version 3.0115 (DEAN AG, SULLIVAN KM, SOC MM, 2013), with a significance level of $p \leq 0.05$.

Ethical aspects

This research was approved by the Ethics and Research Committee, with Certificate of Presentation of Ethical Appreciation seem nº 5.130.140, (CAAE) nº. 46888321.3.0000.5554. Pregnant patients over 18 years of age participated in the research and, after receiving clarification on the ethical dimension of the investigation, signed the Free and Informed Consent Form (TCLE).

For those under the legal age of 18 years old, legal guardians signed the Free and Informed Consent Term (TCLE), in addition to the Free and Informed Assent Term (TALE) signed by the minor.

RESULTS

Of the 25 pregnant patients interviewed, 21 (84.0%) were 18 years old or older, had an average age of 20.2 years old, 7 (28.0%) answered that they had started their sexual life at 15 years old, 13 (52.0%) attended high school; 16 (64.0%) reported having an income of less than one minimum wage and 10 (40.0%) were in the 3rd trimester of pregnancy. As for the education of the interviewees' parents, 12 (48.0%) reported that their parents had completed Basic Education.

Regarding vaccination against the Human Papillomavirus (HPV), 12 (48.0%) of the patients reported having taken the vaccine, of which 7 (58.3%) had received the 2nd dose; 19 (76.0%) answered that the main route of STI transmission corresponds to vaginal/oral/anal sex; 12 (48.0%) knew at least one STI, with syphilis being the most cited, followed by Acquired Immunodeficiency Syndrome (AIDS) and HPV; 8 (32.0%) revealed that the school was the main source of information about STIs and 7 (28.0%) mentioned that it was through internet access; 12 (48.0%) did not know what was the etiological agent of syphilis; 10 (40.0%) said that the human organs affected by syphilis correspond to those of the genitalia; 7 (28.0%) said that the most appropriate test for detecting syphilis is the blood screening tests; 18 (72.0%) were unable to answer what CS is; and 15 (60.0%) were unable to inform about CS transmission (**Tables 1**, **2** and **3**).

There was no association between the interviewees' age group and the variables verified in the questionnaire (**Table 1**). In relation to education and income, 27.7% of those who had attended high school ($\chi2 = 10.11$; GI = 4; $p = 0.03$) (**Table 2**) and 20.0% of those who declared to have an income equal to or greater than one minimum wage ($\chi2 = 9.54$; GI = 4; $p = 0.04$) (**Table 3**), respectively, appointed the blood screening tests as the most appropriate test for syphilis detection.

Table 1 – Variables related to the level of knowledge of pregnant patients interviewed in the municipality of Zé Docas, state of Maranhão, regarding age (under 18 years versus 18 years or older) (Total responses = 25).

Variables	Less than 18 years of age N (%)	At least 18 years of age N (%)	Statistical analysis
Have you ever been vaccinated against HPV?			
Yes	2 (8.0)	10 (40.0)	$\chi^2 = 1.02$ Gl = 2 p = 0.59
No	2 (8.0)	7 (28.0)	
Not informed	0 (0.0)	4 (16.0)	
If you were vaccinated, how many doses did you take?			
1ª	0 (0.0)	1 (4.0)	$\chi^2 = 0.45$ Gl = 3 p = 0.92
2ª	1 (4.0)	6 (24.0)	
3ª	1 (4.0)	3 (12.0)	
Not informed/Wasn't vaccinated	2 (8.0)	11 (44.0)	
Do you know the main transmission route of sexually transmitted infections?			
Vaginal/oral/anal sex	3 (12.0)	16 (64.0)	$\chi^2 = 0.002$ Gl = 1 p = 0.95
Others (contaminated underwear, contact with wounds, mother-to-child during pregnancy, hugging and shaking hands)	1 (4.0)	5 (20.0)	
Do you know any Sexually Transmitted Infections?			
Syphilis	1 (4.0)	4 (16.0)	$\chi^2 = 4.84$ Gl = 4 p = 0.30
AIDS	2 (8.0)	2 (8.0)	
HPV	0 (0.0)	3 (12.0)	
Candidiasis	0 (0.0)	2 (8.0)	
Not informed	1 (4.0)	10 (40.0)	
Where did you get information about Sexually Transmitted Infections?			
Television	1 (4.0)	4 (16.0)	$\chi^2 = 1.90$ Gl = 4 p = 0.75
Internet	2 (8.0)	5 (20.0)	
Friends	0 (0.0)	2 (8.0)	
School	1 (4.0)	7 (28.0)	
Not informed	0 (0.0)	3 (12.0)	
What is the etiological agent of syphilis?			
Bacteria	0 (0.0)	5 (20.,0)	$\chi^2 = 5.15$ Gl = 3 p = 0.16
Virus	0 (0.0)	7 (28.0)	
Fungi	0 (0.0)	1 (4.0)	
Not informed	4 (16.0)	8 (32.0)	
Which organs are affected by syphilis?			
Genitalia	0 (0.0)	10 (40.0)	$\chi^2 = 6,15$ Gl = 3 p = 0.18
Skin	2 (8.0)	3 (12.0)	
Mouth	2 (8.0)	4 (16.0)	
Gastrointestinal system	0 (0.0)	1 (4.0)	
Not informed	0 (0.0)	3 (12.0)	
What is the most suitable test for detecting syphilis?			
VDRL	1 (4.0)	5 (20.0)	$\chi^2 = 0.26$ Gl = 4 p = 0.99
Pap smear	0 (0.0)	1 (4.0)	
Blood screening	1 (4.0)	6 (24.0)	
Feces and urine	1 (4.0)	4 (16.0)	
Not informed	1 (4.0)	5 (20.0)	
Do you know anything about congenital syphilis?			
Yes	1 (4.0)	5 (20.0)	$\chi^2 = 0.19$ Gl = 2 p = 0.90
No	3 (12.0)	15 (60.0)	
Not informed	0 (0.0)	1 (4.0)	
How is congenital syphilis transmitted?			
Vertical (mother to child)	0 (0.0)	5 (20.0)	$\chi^2 = 3.17$ Gl = 2 p = 0.20
Contact with mother's underwear	2 (8.0)	3 (12.0)	
Not informed	2 (8.0)	13 (52.0)	

Label: HPV = Human Papillomavirus; VDRL = Venereal Disease Research Laboratory Test; N = number of respondents; % = percentage of respondents; χ^2 = Chi-square value; Gl = degrees of freedom; p = value of p. **Source:** Mendonça AF, et al., 2023.

Table 2 – Variables related to the level of knowledge of the pregnant patients interviewed in the municipality of Zé Docas, state of Maranhão, regarding their level of education (Elementary School versus High School) (Total responses = 18).

Variables	Elementary School N (%)	High School N (%)	Statistical analysis
Have you ever been vaccinated against HPV?			
Yes	2 (11.1)	7 (38.8)	$\chi^2 = 0.52$ Gl = 2 p = 0.76
No	2 (11.1)	3 (16.6)	
Not informed	1 (5.5)	3 (16.6)	
If you were vaccinated, how many doses did you take?			
1ª	1 (5.5)	0 (0.0)	$\chi^2 = 4.04$ Gl = 3 p = 0.25
2ª	1 (5.5)	4 (22.2)	
3ª	0 (0.0)	3 (16.6)	
Not informed/ Wasn't vaccinated	3 (16.6)	6 (33.3)	
Do you know the main transmission route of sexually transmitted infections?			
Vaginal/oral/anal sex	3 (16.6)	10 (55.5)	$\chi^2 = 0.51$ Gl = 1 p = 0.47
Others (contaminated underwear, contact with wounds, mother-to-child during pregnancy, hugging and shaking hands)	2 (11.1)	3 (16.6)	
Do you know any Sexually Transmitted Infections?			
Syphilis	0 (0.0)	3 (16.6)	$\chi^2 = 3.66$ Gl = 4 p = 0.45
AIDS	2 (11.1)	2 (11.1)	
HPV	0 (0.0)	1 (5.5)	
Candidiasis	0 (0.0)	2 (11.1)	
Not informed	3 (16.6)	5 (27.7)	
Where did you get information about Sexually Transmitted Infections?			
Television	0 (0.0)	4 (22.2)	$\chi^2 = 8.03$ Gl = 4 p = 0.09
Internet	1 (5.5)	4 (22.2)	
Friends	0 (0.0)	2 (11.1)	
School	2 (11.1)	3 (16.6)	
Not informed	2 (11.1)	0 (0.0)	
What is the etiological agent of syphilis?			
Bacteria	0 (0.0)	4 (22.2)	$\chi^2 = 2.49$ Gl = 2 p = 0.28
Virus	1 (5.5)	3 (16.6)	
Fungi	4 (22.2)	6 (33.3)	
Which organs are affected by syphilis?			
Genitalia	0 (0.0)	6 (33.3)	$\chi^2 = 6.36$ Gl = 4 p = 0.17
Skin	2 (11.1)	2 (11.1)	
Mouth	2 (11.1)	4 (22.2)	
Gastrointestinal system	0 (0.0)	1 (5.5)	
Not informed	1 (5.5)	0 (0.0)	
What is the most suitable test for detecting syphilis?			
VDRL	0 (0.0)	4 (22.2)	$\chi^2 = 10.11$ Gl = 4 p = 0.03
Pap smear	0 (0.0)	1 (5.5)	
Blood screening	1 (5.5)	5 (27.7) *	
Feces and urine	3 (16.6)	0 (0.0)	
Not informed	1 (5.5)	3 (16.6)	
Do you know anything about congenital syphilis?			
Yes	2 (11.1)	4 (22.2)	$\chi^2 = 0.47$ Gl = 2 p = 0.78
No	3 (16.6)	8 (44.4)	
Not informed	0 (0.0)	1 (5.5)	
How is congenital syphilis transmitted?			
Vertical (mother to child)	1 (5.5)	5 (27.7)	$\chi^2 = 0.88$ Gl = 2 p = 0.64
Contact with mother's underwear	1 (5.5)	1 (5.5)	
Not informed	3 (16.6)	7 (38.8)	

Label: HPV = Human Papillomavirus; VDRL = Venereal Disease Research Laboratory Test; N = number of respondents; % = percentage of respondents; χ^2 = Chi-square value; Gl = degrees of freedom; p = value of p. **Source:** Mendonça AF, et al., 2023.

Table 3 – Variables related to the level of knowledge of pregnant patients interviewed in the municipality of Zé Docas, state of Maranhão, regarding income (Less than one minimum wage versus one minimum wage or more) (Total responses = 25).

Variables	Less than one minimum wage N (%)	One minimum wage or more N (%)	Statistical analysis
Have you ever been vaccinated against HPV?			
Yes	8 (32.0)	4 (16.0)	$\chi^2 = 0.40$ Gl = 2 p = 0.81
No	6 (24.0)	3 (12.0)	
Not informed	2 (8.0)	2 (8.0)	
If you were vaccinated, how many doses did you take?			
1ª	1 (4.0)	0 (0.0)	$\chi^2 = 0.94$ Gl = 3 p = 0.81
2ª	4 (16.0)	3 (12.0)	
3ª	3 (12.0)	1 (4.0)	
Not informed/Wasn't vaccinated	8 (32.0)	5 (20.0)	
Do you know the main transmission route of sexually transmitted infections?			
Vaginal/oral/anal sex	13 (52.0)	6 (24.0)	$\chi^2 = 0.67$ Gl = 1 p = 0.41
Others (contaminated underwear, contact with wounds, mother-to-child during pregnancy, hugging and shaking hands)	3 (12.0)	3 (12.0)	
Do you know any Sexually Transmitted Infections?			
Syphilis	2 (8.0)	3 (12.0)	$\chi^2 = 3.68$ Gl = 4 p = 0.45
AIDS	4 (16.0)	0 (0.0)	
HPV	2 (8.0)	1 (4.0)	
Candidiasis	1 (4.0)	1 (4.0)	
Not informed	7 (28.0)	4 (16.0)	
Where did you get information about Sexually Transmitted Infections?			
Television	4 (16.0)	2 (8.0)	$\chi^2 = 0.50$ Gl = 4 p = 0.97
Internet	4 (16.0)	3 (12.0)	
Friends	1 (4.0)	1 (4.0)	
School	5 (20.0)	2 (8.0)	
Not informed	2 (8.0)	1 (4.0)	
What is the etiological agent of syphilis?			
Bacteria	3 (12.0)	2 (8.0)	$\chi^2 = 2.58$ Gl = 3 p = 0.46
Virus	4 (16.0)	3 (12.0)	
Fungi	0 (0.0)	1 (4.0)	
Not informed	9 (36.0)	3 (12.0)	
Which organs are affected by syphilis?			
Genitalia	6 (24.0)	4 (16.0)	$\chi^2 = 4.60$ Gl = 4 p = 0.33
Skin	4 (16.0)	1 (4.0)	
Mouth	5 (20.0)	1 (4.0)	
Gastrointestinal system	0 (0.0)	1 (4.0)	
Not informed	1 (4.0)	2 (8.0)	
What is the most suitable test for detecting syphilis?			
VDRL	6 (24.0)	0 (0.0)	$\chi^2 = 9.54$ Gl = 4 p = 0.04
Pap smear	0 (0.0)	1 (4.0)	
Blood screening	2 (8.0)	5 (20.0) *	
Feces and urine	4 (16.0)	1 (4.0)	
Not informed	4 (16.0)	2 (8.0)	
Do you know anything about congenital syphilis?			
Yes	4 (16.0)	2 (8.0)	$\chi^2 = 0.64$ Gl = 2 p = 0.72
No	11 (44.0)	7 (28.0)	
Not informed	1 (4.0)	0 (0.0)	
How is congenital syphilis transmitted?			
Vertical (mother to child)	5 (20.0)	2 (8.0)	$\chi^2 = 1.43$ Gl = 2 p = 0.48
Contact with mother's underwear	1 (4.0)	2 (8.0)	
Not informed	10 (40.0)	5 (20.0)	

Label: HPV=Human Papillomavirus; VDRL=Venereal Disease Research Laboratory Test; N=number of respondents; %=percentage of respondents; χ^2=Chi-square value; Gl=degrees of freedom; p=value of p.
Source: Mendonça AF, et al., 2023.

DISCUSSION

The present study analyzed the knowledge of pregnant women who underwent prenatal care at a UBS in the municipality of Zé Doca, state of Maranhão. Aspects about the profile of the interviewees and their knowledge regarding the characterization of STI/syphilis, such as transmission, place of clinical manifestations, prevention and diagnosis were analyzed.

In this study, it was identified that the average age of the interviewees was 20.2 years of age, which may be related to the fact that, in Brazil, being a mother at a young age is culturally accepted. According to data from the United Nations Population Fund (UNFPA), in 2021 approximately 40% of live births in Brazil were children of mothers aged up to 24 years old (UNFPA, 2022).

We found that most of the investigated participants had started their sexual life at 15 years old (28.0%). It is important to emphasize that according to data from the Observatório Nacional da Família [(ONF) – Portuguese for National Family Observatory], the average age of sexual life initiation for Brazilians in 2020 was 12.7 years old for men and 13.8 years old for women (ONF, 2022). Early sexual initiation is configured as a risky behavior, as the teenager may become vulnerable to acquiring an STI once it has a greater chance of being exposed to an increasing number of sexual partners during life (SILVA ASN, et al., 2015).

As for education, most pregnant patients reported having attended high school (52.0%). It is worth noticing that access to health is directly linked to the individual's level of education, meaning that those with a higher level of education tend to have greater access to knowledge and self-care practices (SUTO CSS, et al., 2016). Most of the interviewees reported having a family income of less than one minimum wage (64.0%). Low family income is considered a social determinant of health and vulnerability to STIs, especially in pregnant patients, as this risk factor during pregnancy is directly associated with lower income. The intersection between poverty, reproduction and some STIs has been a major problem for health agencies, especially in view of the guarantee of women's reproductive rights (XAVIER RB, et al., 2013).

As for the gestational period, most pregnant patients were in the second trimester of pregnancy (40%). This fact highlights the importance of adequate prenatal care, as it is fundamental in the prevention and/or early detection of both maternal and fetal pathologies, allowing a healthy development of the baby and reducing the risks for the mother (BRAZIL, 2022).

Regarding the education of the interviewees' parents, the largest number of pregnant patients reported that their parents had completed Basic Education (48.0%). It is important to emphasize that the educational deficit can hinder the prevention of several pathologies, which may favor the development and progression of diseases (SUTO CSS, et al., 2016).

Regarding vaccination against the HPV virus, most reported that they had already taken the vaccine (48.0%). Vaccination is a very efficient and cost-effective method to prevent pathologies and possible complications during pregnancy (CARVALHO NS, et al., 2021). The quadrivalent HPV vaccine is effective against HPV 16 and 18, significantly reducing the chances of development of cervical cancer (MOURA LL, CODEÇO CT, LUZ PM, 2020).

This vaccine is provided free of charge by the Sistema Único de Saúde [(SUS) – Portuguese for Unified Health System] for girls and boys aged between 9 and 14 years old and for immunosuppressed patients aged between 9- and 45-years old living with HIV/AIDS, solid organs or bone marrow transplants, and cancer patients (BRAZIL, 2022).

Most participants (48%,0) mentioned that they knew at least one STI, for which they mentioned AIDS, syphilis and HPV. It is worth noticing that these STIs are the most common in Brazil, compromising the health of millions of Brazilians annually. Also, it should be noted that the mention of syphilis and HPV may have occurred due to the mention of these STIs in the questionnaire, since it contained some specific questions about these infections. When asked about the main transmission routs of STIs, a considerable part of the participants claimed that it would be the sexual, vaginal, oral, and anal route (76.0%). Therefore, they demonstrated knowledge about how STIs are transmitted, which is extremely important for infections

prevention and control, allowing self-care practices and working towards breaking the chain of transmission (KNOLL C e GEIGER J, 2019). The study participants pointed out that they prior knowledge about STIs was acquired mainly in schools (32.0%) and through internet access (28.0%). It is known that schools are a very important environment for promoting knowledge related to sexual health, especially STIs, contributing to prevention and making students aware of the health problems that can be caused by these pathologies (SILVA CLA, et al., 2021). The internet also presents itself as an important tool in the dissemination of knowledge, since it is possible to find free pages that offer very didactic and detailed content on various diseases (NEVES VNS, et al., 2021).

Almost half of the pregnant patients claimed not knowing the etiological agent of syphilis (48.0%). However, they claimed that the manifestation of this infection occurs mainly in the genitals (40.0%). In this regard, the interviewees had a knowledge considered to be satisfactory, because when syphilis is symptomatic, the first symptoms tend to appear in the genital region where the pathogen was inoculated, with the appearance of a wound popularly known as chancre durum (CO FIELDS, CO FIELDS, 2020). As for the syphilis diagnosis, 28.0% of the pregnant patients mentioned that the blood screening test would be the main exam. Consequently, they showed a lack of knowledge about this aspect, since the diagnosis is made through laboratory tests, such as treponemal tests (rapid tests) and non-treponemal tests (VDRL) (GASPAR PC, et al., 2021; SATYAPURA F, et al., 2021).

When evaluating whether there was a statistical association between the categorical variables, it was observed that there was an association between education and income. The highest percentage of interviewees who had completed high school (27.7%) and those who have declared having an income equal or greater than one minimum wage (20.0%), indicated that the blood screening test would be the most appropriate test for the diagnosis of syphilis. Thus, it was noted that even the pregnant patients who indicated having a higher level of education and higher income demonstrated an erroneous knowledge about syphilis, since the main diagnostic test for this STI is the VDRL.

It is worth noticing that the Brazilian Ministry of Health recommends that diagnostic tests for syphilis should be performed in two stages, one for screening (treponemal tests) and another for confirmation (non-treponemal tests) (BRAZIL, 2022).

In pregnant patients, it is recommended that syphilis screening should be carried out during prenatal care, where the patient needs to undergo testing in the first prenatal consultation, at the beginning of the third trimester and during hospitalization for childbirth. In case of reactive treponemal tests, the patient should be considered positive to the infection and the treatment is to be immediately started in order to prevent vertical transmission (BRAZIL, 2022).

When asked if they had any knowledge about CS, a very significant number answered that they did not know anything about it (72.0%). These results corroborate to the data previously observed in a similar study carried out in a municipality in the state of Minas Gerais, which pointed out that 32% of the participants also did not have knowledge about CS (ATTANASIO JCO, et al., 2021).

Pregnants' lack of knowledge about CS can negatively influence the irregular use of condoms during sexual intercourse and the non-assiduity of prenatal consultations, issues that are considered a potential risk for transmission and vertical transmission (PALHARES, et al., 2020).

Regarding the CS transmission route, most of the interviewees were also unable to answer (60.0%). Their lack of knowledge about the transmission of CS can be considered a major contributor to the number of cases of vertical transmission that occur annually, since without proper knowledge, people will not know how to prevent it. It should be noticed that syphilis, in addition to being transmitted during pregnancy, if there are active lesions on the genitals and breasts, can also be transmitted during childbirth and breastfeeding (GASPAR PC, et al., 2021). As a limitation of this study, the sample size stands out, since only a small number of participants was obtained. This fact could be related to the SARS-CoV-2 pandemic, as well as to the restricted period the interviewers were able to be at the UBS. The study was carried out during a period of intense transmission of COVID-19 cases, and many pregnant patients avoided going to the UBS and missed

routine prenatal appointments for fear of becoming infected. Another limitation was the non-participation of the interviewees' partners, even if they were not part of the study's delineation, since their participation in prenatal consultations and awareness of STIs are essential to prevent new infections and vertical transmission.

In addition, the comparison of the data obtained in this research is hampered by the scarcity of similar studies carried out in other municipalities and/or states, as there are only a few similar studies that could be found in scientific literature (ATTANASIO JCO, et al., 2021; PALHAREWS RF, et al., 2020; GOMES NS, et al., 2021).

The present data show the lack of knowledge of the study participants about several aspects of STIs and syphilis, factors that can contribute to the increased risk of contamination in pregnant patients and vertical transmission[11]. It is important to highlight that, as far as we are aware, is the first study carried out on the knowledge of pregnant patients about STI/syphilis in the municipality of Zé Doca, state of Maranhão. Therefore, these findings can contribute to the implementation of health education strategies and actions in the city, so that health professionals can improve the quality of prenatal.

CONCLUSION

It was observed that the investigated patients demonstrated erroneous knowledge about STI/syphilis, which may contribute to the high rates of gestational and congenital syphilis, since the lack of information and the non-use of protection during sexual activities are considered structuring factors that contribute to the vulnerability to STIs. Sexual education in a prevention perspective plays a crucial role in informing and raising awareness of the importance of safe sexual practices. Besides, it is crucial to promote candidness to the discussion within the familiar environment, contributing to the minimization of sociocultural problems and psychological effects that STIs still cause by generating prejudice, stigmatization, and discrimination, for they are still considered a tabu. Thus, this data can contribute to the adoption of prophylactic measures, especially regarding the quality of prenatal care.

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