

## Relation between syphilis cases and sex education of women in a family health unit in the city of Lauro de Freitas

### Relação entre os casos de sífilis e a educação sexual de mulheres em uma unidade de saúde da família da cidade de Lauro de Freitas

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**ABSTRACT | OBJECTIVE:** To verify the relation between syphilis cases and sex education in a Family Health Unit in the city of Lauro de Freitas. **METHOD:** This was a cross-sectional study, approved by the Research Ethics Committee of the Metropolitan Union for the Development of Education and Culture (UNIME). The target audience was women aged 18 to 60 years from a specific covered area of a Family Health Unit in Lauro de Freitas-BA. A questionnaire prepared by the researchers was applied to 114 participants. **RESULTS:** 55 (48.2%) of the women studied considered themselves black, and 31 (27.2%) had more than 11 years of study (high school complete). 62 (54.4%) were legally single, 84 (74.3%) had an active sex life, 87 (77.0%) had a steady partner. 113 (99.1%) women believe it is women's right to demand condom use. Only 7 (8.8%) of those surveyed reported having syphilis. 79 (69.3%) consider that they have good knowledge regarding sex education. 104 (91.2%) answered that the contagion is through sexual intercourse without a condom, but 60 (52.6%) of them have little information about the disease in question. **CONCLUSION:** The present study shows that 52.6% of women know little or nothing about syphilis. In addition, it was noted that when asked about the ways of syphilis contamination, none of the 114 women interviewed were able to answer all the correct alternatives. So, it is possible to conclude that it is necessary to implement new interaction public policies between the family health unit and the community.

**KEYWORDS:** Syphilis. Sexually Transmitted Infections. Treponemal Infections. Sex education.

**RESUMO | OBJETIVO:** Verificar a relação entre casos de sífilis e educação sexual em uma Unidade de Saúde da Família do município de Lauro de Freitas. **MÉTODO:** trata-se de um estudo transversal, aprovado pelo Comitê de Ética em Pesquisa da União Metropolitana para o Desenvolvimento da Educação e da Cultura (UNIME). O público-alvo foram mulheres de 18 a 60 anos de uma área de abrangência específica de uma Unidade de Saúde da Família de Lauro de Freitas-BA. Um questionário elaborado pelos pesquisadores foi aplicado a 114 participantes. **RESULTADOS:** 55 (48,2%) das mulheres estudadas se consideravam negras e 31 (27,2%) tinham mais de 11 anos de estudo (ensino médio completo). 62 (54,4%) eram legalmente solteiras, 84 (74,3%) tinham vida sexual ativa, 87 (77,0%) tinham parceiro fixo. 113 (99,1%) mulheres acreditam ser direito das mulheres exigir o uso do preservativo. Apenas 7 (8,8%) das pesquisadas relataram ter sífilis. 79 (69,3%) consideram ter bons conhecimentos sobre educação sexual. 104 (91,2%) responderam que o contágio se dá por meio da relação sexual sem preservativo, mas 60 (52,6%) delas têm poucas informações sobre a doença em questão. **CONCLUSÃO:** O presente estudo mostra que 52,6% das mulheres pouco ou nada sabem sobre a sífilis. Além disso, percebeu-se que, ao serem questionadas sobre as formas de contaminação da sífilis, nenhuma das 114 mulheres entrevistadas soube responder todas as alternativas corretas. Assim, é possível concluir que é necessária a implementação de novas políticas públicas de interação entre a unidade de saúde da família e a comunidade.

**PALAVRAS-CHAVE:** Sífilis. Infecções sexualmente transmissíveis. Infecções Treponêmicas. Educação sexual.

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## Introduction

Currently, the high incidence of Sexually Transmitted Infections (STIs), especially syphilis, has become a major public health problem, especially affecting young people. Syphilis is defined as an infectious disease of bacterial etiology caused by *Treponema Pallidum*. Its transmission can occur through sexual contact called acquired syphilis or through a vertical route, called congenital syphilis.<sup>1</sup>

In 2015, a total number of notified cases in Brazil were reported to SINAN as 65,878; of which, 6,332 (9.6%) in the Northeast and 2,174 (3.3%) in Bahia. In the same period, the detection rate in Brazil was 42.7 cases of acquired syphilis / 100 thousand inhabitants.<sup>1</sup> In 2015, it was observed that 55.6% of acquired syphilis cases in Brazil were in the age group 20 to 39 years old, 40.1% declared to be white / race and 31.0% brown, and 16, 3% had completed high school.<sup>2</sup>

More than a quarter of the planet's inhabitants are in the 10 to 24 age group, with 86.0% of individuals in this age group living in developing countries.<sup>3</sup> This current generation of young people is the most educated and the most urban in history. However, at the same time that urbanization has increased access to education and health services, young people aged between 15 and 24 are exposed to high risks of acquiring STIs.<sup>4</sup>

Schooling is one of the parameters used to measure a population's social and cultural inequality concerning health. Low education, associated or not with low income, and early sexual activity has been described as a risk factor for STIs, such as syphilis.<sup>5,6</sup> Nevertheless, the level of sexual education of women diagnosed with syphilis is not known. Given the low level of education associated with less knowledge, it is suggested that educational actions are needed for this population, who are in a more vulnerable situation.

Sexual education is understood as an aspect of the education process and one of the components of health promotion, which contributes to individuals' personal and social formation and, fundamentally, to a healthy, more rewarding, and responsible sexual and reproductive life. In this context, sex education in schools, social programs, public policies, newspapers,

and television programs would be the main way of trying to amortize the numbers of syphilis cases and other types of Sexually Transmitted Infections (STIs). Sex education integrates young people into the world in which they live, enabling them to take a critical attitude about their reality<sup>7</sup> and always having an inter-relationship with the community.

Faced with a considerable increase in cases of Syphilis in Brazil, the literature still demonstrates a scarcity of studies reporting the prevalence of the disease in the city of Lauro de Freitas. In addition to this, many studies demonstrate a relationship between the low level of education and the occurrence of this infection. In this context, the present study aims to verify the relationship between syphilis cases and sexual education in a Family Health Unit in the city of Lauro de Freitas.

## Methods

This is a cross-sectional study, approved by the Research Ethics Committee of the Metropolitan Union for the Development of Education and Culture (UNIME) through the CAAE number: 13296819.2.0000.5600 the Resolution 466 guidelines and standards/12 that regulates research involving human beings.

Women registered in a specific coverage area of the USF Parque São Paulo, belonging to the municipality of Lauro de Freitas-BA, aged between 18 and 60 years, were included in the research. Those who reported psychiatric disorders and who had difficulty understanding the questionnaire were excluded from the research. Initially, women in this area were randomly invited to participate in a free sexual health event about how to prevent syphilis. In this event, women were invited to participate in the research. In case of acceptance, they signed the free and informed consent form (ICF).

Before the event, the participants were interviewed by previously trained researchers, using a questionnaire prepared by the researchers, which contained 24 questions about sociodemographic data, knowledge of syphilis, and sexual education.

The sample calculation was performed using the WINPEPI calculator (<http://www.brixtonhealth.com/pepi4windows.html>), using the proportion estimation command, establishing an 8% prevalence rate of syphilis in women in a reference service from Porto Alegre<sup>8</sup>, with a 95% confidence interval and an acceptable difference of 5%, totaling 114 participants.

For the elaboration of the database, descriptive and analytical analysis, the software Statistical Package for Social Sciences (SPSS), version 14.0 for Windows®, was used. The normality of the numerical variables was verified using the Kolmogorov-Smirnov test, descriptive statistics, and graphical analysis. The results are presented through tables. Continuous variables with normal distribution were expressed as mean and standard deviation ( $\pm$  SD) and those with asymmetric distribution in median and quartiles (Q).

## Results

The final sample was composed of 114 women, with a mean age of  $32.3 \pm 9.7$  years, 62 (54.4%) were single, 55 (48.2%) considered themselves black, and 27 (23.7%) had less than one minimum wage. Regarding education, 31 (27.2%) of the women had completed high school (Table 1).

Regarding sexual life, 84 (74.3%) of women have an active sex life, and 87 (77.0%) have a steady partner. Regarding the number of partners in the last year, 91 (80.5%) stated that they had only one steady partner in this period. Only 07 (6.1%) of the interviewees reported a diagnosis of syphilis, and three did not know how to inform, and among those who had a diagnosis of syphilis, only 04 (3.5%) underwent treatment (Table 2).

When asked about the disease, only 08 (7%) of the women said they knew a lot about syphilis, while 60 (52.6%) knew little or nothing about the disease. Regarding the knowledge of the quick test, 62 (54.4%) know it exists and report having already done it, 31 (27.2%) know it exists but never did it, and 21 (18.4%) do not know the test. Moreover, even though they are in a health unit that offers quick testing for syphilis, 88 (77.2%) of the women interviewed say they do not know any health service that attends women with syphilis (Table 3).

Regarding how the syphilis contagion occurs, 104 (91.2%) answered that it happens through sexual intercourse without a condom, while 07 (6.1%) answered that the contagion could be via air droplets, 06 (5.3%) through the insect bite, and 09 (7.9%) did not know what to answer when asked about the form of contagion. When asked about chancre, only 13 (11.4%) responded that it is the injury caused by syphilis. Furthermore, regarding the prevention of syphilis, 96 (84.2%) answered that using condoms is the correct way, 15 (13.2%) did not know what to respond, and 03 (2.7%) answered other ways such as oral contraceptives, IUDs, and interrupted intercourse (Table 3).

Regarding the knowledge of syphilis in pregnant women, 98 (86%) of the interviewees answered that syphilis could be diagnosed during pregnancy. When asked about the transmission of syphilis to the baby, 91 (79.8%) answered "yes, it is possible" (Table 3).

Regarding sexual education, 14 (12.3%) women answered that they consider having very good knowledge about it. About what characterizes safe sex, 91 (79.8%) answered that safe sex is sex without contacting secretions, using condoms, while 13 (11.4%) did not know what to respond (Table 4).

Regarding the condom, 13 (11.4%) women stated that the condom is a prevention method available only to men. In addition, 113 (99.1%) of women believe that it is the woman's right to ask her partner to use a condom, contrasting 01 (0.9%) woman who answered that it is not her right (Table 4).

Of the interviewees, 12 (10.5%) women stated that having sex only with people who appear to be in good health is a method of preventing syphilis. Regarding the condom use, 06 (5.3%) responded using condoms during oral sex and penetration, 40 (35.1%) used only during penetration, 07 (6.1%) used only with new partners, 51 (44.7%) do not use with a steady partner, 19 (16.7%) do not like to use, and 11 (9.6%) forget to use (Table 4).

Regarding participation in educational activities focused on sexual education/ STIs promoted by the USF, 46 (40.4%) of the women claim to have participated while the majority, 68 (59.6%), never participated in any activity. When asked how they evaluate the knowledge acquired, 17 (14.9%) considered it very good, 30 (26.3) good, and 67 (58.8%) were indifferent (Table 4).

**Table 1.** Description of the sociodemographic variables of the 114 women registered in a specific covered area of the USF Parque São Paulo, which belongs to the municipality of Lauro de Freitas-BA

<b>Variables</b>	<b>Mean ± SD</b>
<b>Age</b>	32.3 ± 9.7
<b>Marital Status</b>	<b>n (%)</b>
Not married	62 (54.4)
Married	28 (24.6)
Divorced	07 (6.1)
Another situation	17 (14.9)
<b>Race</b>	
White	06 (5.3)
Black	55 (48.2)
Parda	37 (32.5)
Yellow	11 (9.6)
Indigenous	05 (4.4)
<b>Income</b>	
Less than a minimum wage	27(23,7)
A minimum wage	26(22,8)
Two or more minimum wage	17(14,9)
No fixed income	18(15,8)
No income	26(22,8)
<b>Education</b>	
Just know how to sign the name	01(0,9)
Elementary school incomplete	26(22,8)
Elementary school complete	07(6,1)
High school incomplete	30(26,3)
High School complete	31(27,2)
University incomplete	08(7,0)
University complete	11(9,6)

**Table 2.** Description of the clinical variables and sexual history of the 114 women registered in a specific covered area of the Family Health Unit Parque São Paulo, which belongs to the city of Lauro de Freitas-BA

<b>Variables</b>	<b>n (%)</b>
<b>Active sex life</b>	
Yes	84(74,3)
No	29(25,7)
<b>Partners</b>	
Steady Partner	87(77)
More than one partner	
Do not have a steady partner	26(23)
<b>How many partners in 1 year</b>	
Steady partner only	92(80,7)
Occasional partner only	09(7,9)
Steady and eventual partner	03(2,6)
No partner	10(8,8)
<b>Have or had syphilis</b>	
Yes	07(6,1)
No	104(91,2)
Do not know what to respond	03(2,6)
<b>Treatment</b>	
Yes	04 (3,5)
No	43(37,7)
Do not apply	67(58,8)
<b>Partner treatment</b>	
Yes	03(2,6)
No	97(85,1)
Do not know what to respond	14(12,3)

**Table 3.** Description of the variables that comprise the understanding of the disease of 114 women registered in a specific covered area of the USF Parque São Paulo, which belongs to the municipality of Lauro de Freitas-BA

<b>Variables</b>	<b>n(%)</b>
<b>Knowledge of the disease</b>	
I know a lot about syphilis	08(7,0)
I know reasonably	46(40,4)
I know little about syphilis	30(26,3)
I do not know what syphilis is	30(26,3)
<b>Syphilis cures by itself</b>	
Yes	04(3,5)
No	90 (78,9)
Don't know what to respond	20(17,5)
<b>Know that there is a quick test for syphilis</b>	
Yes, but I never had it	31(27,2)
Yes, I already had it	62(54,4)
No, I do not know	21(18,4)
<b>Know a health service that attend people with syphilis</b>	
Yes, I know	25(21,9)
Do not know	88(77,2)
There is no treatment	01(0,9)
<b>How syphilis contamination occurs</b>	
When kissing on the mouth	31(27,2)
Air droplets	07(6,1)
Bug bite	06(5,3)
Sexual intercourse without a condom	104(91,2)
Blood transfusion	38(33,3)
Use the same syringe and needle that someone else used	48(42,1)
Do not know what to respond	09(7,9)
<b>What is chancre</b>	
Warts	19(16,7)
Injuries that syphilis cause	13(11,4)
Do not know what to respond	82(51,9)
<b>How can syphilis be prevented</b>	
Using oral contraceptives	01(0,9)
IUD	01(0,9)
Interrupt sex during ejaculation	01(0,9)
Using condom	96(84,2)
Do not know how to respond	15(13,2)
<b>Can pregnant women know if they have syphilis</b>	
Yes	98(86)
No	05(4,4)
Do not know what to respond	11(9,6)
<b>Can a pregnant women with syphilis transfer to the baby</b>	
Yes	91(79,8)
No	09(7,9)
Do not know what to respond	14(12,3)

**Table 4.** Description of the variables on sexual education of the 114 women registered in a specific covered area of the USF Parque São Paulo, which belongs to the municipality of Lauro de Freitas-BA

<b>Variable</b>	<b>n(%)</b>
<b>Knowledge of sex education</b>	
Very good	14(12,3)
Good	79(69,3)
Indifferent	12(10,5)
Too bad	03(2,6)
Bad	06(5,3)
<b>What characterizes safe sex</b>	
No contact with secretions, using condom	91(79,8)
Secretions contact only from husband	09(7,9)
Contact with any secretion	01(0,9)
Do not know what to respond	13(11,4)
<b>Condom is a method available only to men</b>	
Yes	13(11,4)
No	101(88,6)
<b>It is a women's right to ask men to use condom</b>	
Yes	113(99,1)
No	01(0,9)
<b>Having sex with people who seems to be healthy is a method of preventing</b>	
Yes	12(10,5)
No	100(87,7)
Do not know what to respond	02(1,8)
<b>Use condom</b>	
Yes, including during oral sex	06(5,3)
Yes, during penetration	40(35,1)
Yes, with new partners	07(6,1)
Do not use it with a steady partner	51(44,7)
Do not like to use	19(16,7)
Forget to use sometimes	11(9,6)
<b>Has participated educational activities focused on sex education / STIs promoted by the USF</b>	
Yes	46(40,4)
No	68(59,6)
<b>If you participated how do you evaluate the knowledge acquired</b>	
Very good	17(14,9)
Good	30(26,3)
Indifferent	67(58,8)

## Discussion

The present study showed that 52.6% of women know little or nothing about syphilis. The lack of knowledge can also be evidenced when asked about how syphilis contamination occurs, and it was noticed that no woman was able to answer 100% of the correct alternatives. However, a significant sample (91.2%) was able to answer that sexual relation without a condom can transmit syphilis, confirming this as the main way of transmission, what is already positive, because it shows that this population has knowledge that the practice of unprotected sex is a risk factor to take syphilis and other diseases. The level of information of the population between 15 to 24 years old about the tactics of preventing sexual transmission of HIV is high - 95% identify the condom use as effective in this condition.<sup>9</sup> The lack of knowledge about the correct use of condoms blocks the appropriate use, exposing the user to the risks of getting diseases and an unwanted pregnancy.<sup>10</sup>

In addition, many young people do not know their rights to obtain condoms for free at health centers, making their routine use more difficult. Although the distribution is free, in Brazil, condoms still are not very used by young people. According to data from the Ministry of Health, the lowest use rates are between 5 and 19 years old.<sup>10</sup>



When asked if a pregnant woman can know if she has syphilis, 86% of women responded correctly yes. About congenital syphilis, most women (79.8%) answered that there is a possibility of transmission of the disease to the fetus. In Brazil, the number of notified cases of syphilis in pregnancy has been increased every year. In 2013, 21,382 of these cases were notified in the country, with a detection rate of 7.4 per thousand live births. Considering this estimate, the notified number of pregnant women with syphilis is still lower than expected, indicating difficulties in diagnosis and/or in the notification of cases.<sup>11</sup>

When analyzing the knowledge about sex education, the results showed that although 81.6% of the women interviewed considered their understanding of sex education good or very good, 59.6% never participated in any educational activity turned to sex education in the unit.

Even about sexual education, it is worth mentioning that, following the National Curriculum Parameters (NCP), the Ministry of Education included sexual orientation among the transversal topics in the various areas of knowledge to impregnate the entire educational practice with the subjects related to sexual orientation.<sup>12</sup>

Besides that, 20.2% of women consider that contact with spermatogenic secretions only from the husband and the contact with any secretion from anyone is a form of safe sex. Furthermore, condom use during all sexual relations, including oral sex and penetration, had a low adherence. 44.7% of the women in the study answered that they do not use condoms with their steady partner, and 35.1% use condoms only during penetration.

The objective of syphilis control is to interrupt the transmission and prevent new cases. Avoiding the disease's transmission consists of the early and appropriate detection and treatment of the patient and partner or partners. The prevention of new cases may have a strategy for the general population and, especially, for the most vulnerable people (prostitutes, intravenous drug users, etc.) about the disease and ways to avoid it. Counseling to the patient is important, trying to show the need for communication with the partner and encouraging condoms during sexual relation.<sup>13</sup>

Although these topics related to sex education do not perform well, almost all participants possessed the knowledge that having sex with only good-looking people is not a way to prevent syphilis. All the women interviewed also said they knew that condoms are not a contraceptive method only available for men and women, and it is the right of every woman to request their use by her partner.

The use of male and female condoms effectively prevents sexually transmitted diseases (STDs and HIV). The male condom is used by approximately 45 million couples of reproductive age worldwide as a method of HIV prevention and additional contraceptive protection.<sup>14</sup> However, a limitation of the method for women depends on the use by the partner, affecting their right to free choice when they do not accept to use it.<sup>15</sup>

In this context, there is a growing need for the female condom to be made available in the public health system to expand the possibilities of protecting the female population and reducing gender inequality since it also permits women to practice safe sex. To respond to this demand, the Ministry of Health started to provide, from 2000, in prevention programs, the female condom.<sup>16</sup>

In this study, the young adult age group prevailed; the average age of women was compatible with those provided by the Ministry of Health, which points out that the prevalence of syphilis is higher in the age group 20 to 39 years old<sup>8</sup> which makes our data relevant, despite not having a high prevalence of syphilis, as expected. In addition, a considerable percentage of single women is a factor in the increase in syphilis cases. Women who declared themselves unmarried and referred not using condoms present behavior that makes them highly vulnerable to STDs.<sup>17</sup>

There was no relation between income and cases of syphilis. Contrary to what the estimates of social inequalities in health demonstrate in Brazil, they support the hypothesis that syphilis is related to the low socioeconomic level and inadequate treatment offered to the population, contributing to the persistence of transmission in Brazil and Bahia and exposing the various weaknesses of assistance not only in terms of access but also the opportunity for screening, tracking, diagnosis, treatment of women and their partners.<sup>18</sup>

As for education, we found that the prevalence of low education in this study is compatible with other studies, which have a high illiteracy rate.<sup>8</sup> Initially, it is possible to be confused with the high rate referring to complete high school education 31 (27.2%) women. However, when adding the values of the participants who only know how to subscribe their names, those who have incomplete fundamental school, complete fundamental school, and incomplete high school, we find a total of 64 women, which corresponds to 56.1% of the women interviewed. Thus, it can be affirmed that more than half of the women in our research have a low level of education from an expressive value. The findings demonstrate that marital status, low education, and the level of poverty and its resulting conditions of vulnerability are significantly associated with syphilis.<sup>18</sup>

After evaluating the data obtained in the research, it was found that of 07 (6.1%) women who affirmed to have acquired syphilis, only 04 did adequate treatment, and only 03 (2.6%) confirmed that the partner also passed per treatment. Therefore, it is important to highlight that 03 (2.6%) of the women, almost half, who reported having or have had syphilis did not execute the appropriate treatment, becoming a vehicle that transmits the disease. So, the infected individual must receive treatment and those who have or have had contact with it. For this, it is fundamental, the orientation of condom use, the realization of the rapid test, and pharmacological treatment for both.<sup>13</sup>

According to the Ministry of Health<sup>19</sup>, "the notification of acquired syphilis is done by fill the notification record compulsory by all health professionals, through Ordinance nº 104 of January 25, 2011". In 2018, in Bahia, 9.163 cases of syphilis (detection rate of 61,9) were reported; among them, 3.853 cases were in women. In Lauro de Freitas, 124 cases were reported in 2018, the highest number of cases since 2010 (prevalence rate was 63.6 per 100.000 habitants). The present study, however, shows 6.1% of cases of the disease among 114 participants. In correlation, there is nonconformity with the data collected in the interview and those presented on the data platform.

The contradiction presented comes from the participant's lack of knowledge about the disease; even once they have consciousness of the rapid test's

existence, they do not know how to affirm if they already had the disease for not understanding the clinical manifestation or transmission of syphilis.

The study limitation was the access to medical records to confirm the diagnosis of syphilis for tracking all study participants.

## Conclusion

The present study showed that 52.6% of women know little or know nothing about syphilis. In addition, it was noted that when asked about the forms of syphilis contamination, none of the 114 women interviewed answered all the correct alternatives. However, paradoxically to expected, 91.2% of women answered correctly that sexual relations without a condom could transmit syphilis, even without participating in any educational activity, turned to sexual education in the health unit and without knowing the methods of diagnosing syphilis. Consequently, it is possible to conclude that it is necessary to implement new public policies of interaction between the primary health unit and the community for an extra explanation about syphilis and sexual education, which contributes to larger notification and reduction cases of syphilis in the society.

## Authors' contribution

Lemos AQ, Macêdo BMCM, Cordeiro AM, Freitas CF, and Oliveira JF participated in the conception and design of the research, obtaining data, analyzing and interpreting the data, statistical analysis, obtaining funding, writing the manuscript, critical review of the manuscript for important intellectual content. Magalhães KF participated in the conception and design, data collection, data analysis and interpretation of data, writing the manuscript, and critically reviewing the manuscript for important intellectual content.

## Competing interests

No financial, legal, or political competing interests with third parties (government, commercial, private foundation, etc.) were disclosed for any aspect of the submitted work (including but not limited to grants, data monitoring board, study design, manuscript preparation, statistical analysis, etc.).



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