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ORIGINAL

Risk factors related to pregnant women with reactive Venereal Disease Research Laboratory in a health area

Factores de riesgo relacionados con gestantes con Laboratorio de Investigación de Enfermedades Venéreas (VDRL) reactivas en un área de salud

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ABSTRACT

Introduction: identification of risk factors and timely follow-up of pregnant women with reactive serology is essential.
Objective: to identify factors associated with reactive VDRL in pregnant women.
Method: a cross-sectional study was conducted in 91 pregnant women with reactive VDRL. The chi-square test and odds ratios (OR) with 95 % confidence intervals (95 % CI) were used.
Results: the mean age was 25,1 years. Significant factors were: cohabiting marital status (OR: 3,57; 95 % CI: 1,45–8,79; p = 0,003), low educational level (secondary education: OR: 3,50; 95 % CI: 1,20–10,21; p = 0,022; primary education: OR: 3,08; 95 % CI: 1,02–9,32; p = 0,045), sexual debut before 18 years of age (OR: 6,00; 95 % CI: 2,40–15,00; p < 0,001), three or more sexual partners (OR: 6,60; 95 % CI: 2,80–15,56; p < 0,001), history of sexually transmitted infection (OR: 2,58; 95 % CI: 1,39–4,79; p = 0,003), primigravidity (OR: 2,05; 95 % CI: 1,13–3,72; p = 0,018), and inconsistent condom use (never: OR: 4,33; 95 % CI: 1,85–10,14; p < 0,001; sometimes: OR: 4,11; 95 % CI: 1,74–9,69; p < 0,001).
Conclusions: the identified factors allow risk quantification and provide guidance for preventive interventions aimed at controlling gestational syphilis.

Keywords: Reactive VDRL; Pregnant Women With VDRL; Risk Factors.

RESUMEN

Introducción: la identificación de los factores de riesgo y el seguimiento oportuno de gestantes con serología reactiva es fundamental.
Objetivo: identificar factores asociados con VDRL reactiva en gestantes.
Método: estudio transversal en 91 gestantes con VDRL reactiva. Se utilizó χ^2 y odds ratio (OR) con intervalos de confianza del 95 % (IC 95 %).
Resultados: la edad promedio fue 25,1 años. Los factores significativos fueron: estado civil conviviente (OR: 3,57; IC 95 %: 1,45–8,79; p = 0,003), nivel educacional bajo (secundaria: OR: 3,50; IC 95 %: 1,20–10,21; p = 0,022; primaria: OR: 3,08; IC 95 %: 1,02–9,32; p = 0,045), inicio de relaciones sexuales antes de los 18 años (OR: 6,00; IC 95 %: 2,40–15,00; p < 0,001), tres o más parejas sexuales (OR: 6,60; IC 95 %: 2,80–15,56; p < 0,001), antecedente de ITS (OR: 2,58; IC 95 %: 1,39–4,79; p = 0,003), primigestación (OR: 2,05; IC 95 %: 1,13–3,72; p = 0,018) y no uso sistemático de condón (nunca: OR: 4,33; IC 95 %: 1,85–10,14; p < 0,001; a veces: OR: 4,11; IC 95 %: 1,74–9,69; p < 0,001).
Conclusiones: los factores identificados permiten cuantificar el riesgo y orientar intervenciones preventivas para el control de sífilis gestacional.

Palabras clave: VDRL Reactiva; Gestante con VDRL; Factores de Riesgo.

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INTRODUCTION

Prenatal care refers to the set of health services provided to pregnant women during pregnancy. Medical care for pregnant women is essential to ensure a healthy pregnancy and includes regular check-ups and prenatal testing.[1,2] Screening for sexually transmitted infections (STIs) among pregnant women is a key component of this type of care.

Syphilis is caused by *Treponema pallidum*, which can also be transmitted transplacentally and through blood transfusions. It can take an acute or chronic course, may affect the entire body, and manifests primarily on the skin, mucous membranes, and appendages. It can remain asymptomatic for years.[3] During pregnancy, severe adverse complications, including congenital anomalies, preterm birth, low birth weight, perinatal death, and syphilis in the newborn, can occur.[4,5]

In Cuba, health policies implemented to address sexuality education and ensure access for the entire population to STI prevention, care, and treatment services are evidenced through organizational measures, which are reflected in the Syphilis Control Program and the National Sexuality Education Program, specifically the Subprogram for the Control of Congenital Syphilis.[2,3]

The Global Health Sector Strategy on STIs 2016–2021 established global targets for 2030, such as reducing the global incidence of *T. pallidum* by 90 % (compared with 2018) and reducing the number of congenital syphilis cases to a maximum of 50 per 100 000 live births in 80 % of countries.[6] In 2020, 15 countries or territories worldwide reported the elimination of congenital syphilis (defined as an incidence rate of <50 cases per 100 000 live births), including Cuba.[7]

In 2021, an increase in the rate of gestational syphilis was reported in Cuba, with concerning figures in several provinces, including Havana. The rates ranged from approximately 0,8 to 1,5 per 1000 live births. The Cuban Ministry of Public Health has strengthened educational campaigns and practices for the early diagnosis of gestational syphilis during prenatal care; it is also the guarantor of Cuba's achievement as the first country in the world to receive WHO validation for the elimination of mother-to-child transmission of HIV and syphilis.[8,9]

Therefore, while the universal risk factors for gestational syphilis are known, their contextualization within the studied health setting is not. Thus, the research question posed is as follows: What are the sociodemographic, obstetric, and behavioral risk factors in pregnant women with positive VDRL results?

Consequently, the objective was to identify the potential sociodemographic, obstetric, and behavioral risk factors associated with VDRL positivity among pregnant women.

METHOD

An observational, descriptive, and cross-sectional study was conducted on pregnant patients with reactive VDRL results treated at the Dermatology Clinic of the Salvador Allende Polyclinic in the municipality of Boyeros from January 2022 to December 2024.

The study population consisted of 91 patients who were selected through nonprobabilistic purposive sampling on the basis of their compliance with the inclusion and exclusion criteria:

Inclusion criteria

- Pregnant patients with reactive VDRL.
- Patients who were cared for and followed throughout the entire gestational period in the designated health area.
- Patients who provided informed consent.

Exclusion criteria

- Patients whose medical records and survey responses lacked the primary data required for the study.
- Theoretical, empirical, and statistical methods were employed. The results obtained from the empirical methods were analyzed using mathematical statistical methods, descriptive statistics, and the creation of graphs to represent the results.
- The operationalized variables included age, skin color, and risk factors.

These factors were classified as follows:

- Demographic risk factors: adolescence, marital status, educational level, and occupation.
- Obstetric risk factors included pregnancy, prenatal care, the start of prenatal care, the onset of sexual activity, having sexual partners, and a history of sexually transmitted infections.
- Behavioral risk factors included condom use, alcohol consumption, and smoking.

Low educational level was defined as having completed only primary school. Adequate prenatal care was defined as the pregnant woman being enrolled before 13 weeks of gestation, attending scheduled prenatal checkups regularly, and complying with medical instructions.

To achieve the objectives of this study, the medical records of pregnant women with reactive VDRL were reviewed, with an emphasis on follow-up by dermatology, and a survey was administered.

The collected data were processed automatically and analyzed using the statistical software IBM SPSS version 25 (Statistical Package for the Social Sciences), which enabled the derivation of conclusions and recommendations.

The study included pregnant women whose reactive VDRL results were referred from family doctor and nurse clinics in the Salvador Allende health area during the period in question.

Dermatology consultations were offered weekly at the polyclinic itself. Dermatology specialists worked in conjunction with the surveying nurses and professionals from the primary health care team.

Control of Bias

To minimize bias, sampling was conducted using explicit selection criteria (selection bias). VDRL testing was performed using a standardized technique with blinded reading; interviews were conducted by trained personnel with no prior knowledge of the serological results (information bias). Multivariate analysis using logistic regression allowed for the control of potential confounding factors.

Quantitative variables are expressed as the mean ± SD after verification of normality (Kolmogorov–Smirnov test). Qualitative variables were summarized using absolute frequencies and percentages. For bivariate analysis, Pearson's χ^2 test (or Fisher's exact test when expected frequencies were <5 in more than 20 % of the cells) was used for qualitative variables. Statistical significance was set at $\alpha = 0,05$.

Ethical Considerations

The research project was approved by the research ethics committee and the scientific council of the aforementioned healthcare institution. Ethical considerations were respected, and informed consent was obtained for participation in the study.

RESULTS

The series included 91 patients with reactive serology, of whom the average age was 25,1 years; in order of frequency, the range was 19 to 29 years (78,0 %), followed by the range of under 19 years at 17,6 %. The minimum age was 16 years, and the maximum was 42 years, with an average of 25,1 years and a standard deviation of ±2,7. A total of 59,3 % of the patients had a white skin color (table 1).

Table 1. Demographic variables (age and skin color) of pregnant women with positive VDRL results. Salvador Allende Polyclinic, January 2022–December 2024

Age (years)	No.	%
Under 19	16	17,6
19–29	71	78,0
30–39	3	3,3
40–49	1	1,1
Total	91	100,0
Skin color		
White	54	59,3
Mixed-race	23	25,3
Black	14	15,4
Total	91	100,0

Table 2. Sociodemographic factors associated with reactive VDRL in pregnant women

Adolescence	No.	%	OR (95 % CI)	p
Age				
Adolescents (ref)	16	17,6	1,00	
Nonadolescents	75	82,4	0,97 (0,69–1,36)	0,871
Marital status				
Married (ref)	14	15,4	1,00	
Living with a partner	50	54,9	3,57 (1,45–8,79)	0,003
Single	27	29,7	1,93 (0,74–5,03)	0,176
Educational level				
High school/College (ref)	12	13,2	1,00	
Completed middle school	42	46,2	3,50 (1,20–10,21)	0,022
Completed elementary school	37	40,7	3,08 (1,02–9,32)	0,045
Occupation				
Student	22	24,2	0,90 (0,45–1,80)	0,767
Housewife	20	22,0	0,80 (0,39–1,64)	0,543
Blue-collar and/or professional worker (ref)	49	53,8	1,00	

Note: Ref: reference

In the analysis of sociodemographic factors associated with reactive VDRL, no significant association was found with age (adolescents vs. nonadolescents: OR: 0,97; 95 % CI: 0,69–1,36; p = 0,871). With respect to marital status, compared with married women, cohabiting pregnant women had a greater odds ratio for syphilis (OR: 3,57; 95 % CI: 1,45–8,79; p = 0,003), whereas unmarried women did not significantly differ (OR: 1,93; 95 % CI: 0,74–5,03; p = 0,176). With respect to educational level, a significant association was observed for those who had completed lower secondary school (OR: 3,50; 95 % CI: 1,20–10,21; p = 0,022) and those who had completed elementary school (OR: 3,08; 95 % CI: 1,02–9,32; p = 0,045), with high school/college education used as the reference group. With respect to occupation, although the overall test revealed an association (p = 0,013), when each category was compared with the group of manual workers and/or professionals, no statistically significant differences were found: students (OR: 0,90; 95 % CI: 0,45–1,80; p = 0,767) and housewives (OR: 0,80; 95 % CI: 0,39–1,64; p = 0,543) (table 2).

With respect to obstetric factors, a significant association with a positive VDRL test was identified for the following: first pregnancy (OR: 2,05; 95 % CI: 1,13–3,72; p = 0,018), initiation of sexual activity before age 18 (OR: 6,00; 95 % CI: 2,40–15,00; p < 0,001), three or more sexual partners (OR: 6,60; 95 % CI: 2,80–15,56; p < 0,001), and a history of STIs (OR: 2,58; 95 % CI: 1,39–4,79; p = 0,003). No statistically significant association was observed for inadequate prenatal care (p = 0,902) or for late initiation of prenatal care (p = 0,021) (table 3).

Table 3. Obstetric factors associated with positive VDRL in pregnant women

Factor	Category	OR (95 % CI)	p
Pregnancy	Primigravida vs. multipara	2,05 (1,13–3,72)	0,018
Onset of RS	< 18 years vs ≥ 18 years	6,00 (2,40–15,00)	< 0,001
Sexual partners	≥ 3 vs 1–2	6,60 (2,80–15,56)	< 0,001
Previous STI	Yes vs No	2,58 (1,39–4,79)	0,003

In the analysis of behavioral factors, inconsistent condom use was strongly associated with reactive VDRL: those who never used condoms (OR: 4,33; 95 % CI: 1,85–10,14; p < 0,001) and those who used them only sometimes (OR: 4,11; 95 % CI: 1,74–9,69; p < 0,001) had higher odds than those who always used them did. No significant association was found with alcohol consumption (p = 0,823) or smoking (p = 0,615) (table 4).

Table 4. Behavioral factors associated with positive VDRL in pregnant women

Factor	Category	OR (95 % CI)	p
Condom use	Never vs. always	4,33 (1,85–10,14)	< 0,001
Condom use	Sometimes vs. always	4,11 (1,74–9,69)	< 0,001
Alcohol consumption	Yes vs. No	0,90 (0,35–2,31)	0,823
Smoking	Yes vs. No	0,84 (0,42–1,68)	0,615

DISCUSSION

The series investigated 91 patients with reactive serology, among whom a higher frequency of young adult pregnant women and those with white skin color was observed. These results differ from those published by Erazo et al.[3] in their series in Peru.

Similarly, the results published by Castro[10] indicate that 50 % of pregnant women are between 12 and 19 years old, and 37 % are in the 21–30 age range.

In agreement, Gámez et al.[5] reported that 13,1 % of patients were adolescents. In contrast, in his systematic review, Loveces[11] reported a mean age of 25 years, a finding that corresponds with those of the present series.

Few Cuban studies have been published, but the study by Cuñat et al.[1] stands out; in their cohort of patients from Guantánamo, they reported that the most affected group was the 15–20 age group, accounting for 2 %.

With respect to skin color, the authors believe that this variable does not provide much to consider in Cuban epidemiological studies because of the mixed-race nature of the Cuban population. However, some authors present findings contrary to those identified in this series, such as Moreno et al.[12] in 2023, who reported a higher incidence of the disease among patients of African descent; similar findings are reported by Galeano[13] and Garcés et al.[14].

The systematic identification of risk factors related to gestational syphilis allows for the prevention of disease transmission, as well as the risks and consequences for the mother and the newborn.[3]

When possible sociodemographic factors associated with reactive VRDL among the pregnant women studied were identified, the most significant were marital status and educational level.

Our findings concerning sociodemographic factors align with those published by Erazo et al.[3] regarding marital status, educational level, and occupation.

These findings confirm that adolescent pregnancy is a condition of high vulnerability for maternal and perinatal health because adolescents have a twenty-fold higher risk of syphilis than adult women do. This situation could be explained by the low attendance of pregnant adolescents at health facilities seeking preventive care for sexually transmitted infections coupled with inadequate sex education.

The authors believe that the risk among adolescents must be highlighted; this can be explained by the vulnerability of the adolescent population, which is more exposed to STIs, as it is a phase of age-related, emotional, and cognitive immaturity, as well as a period of discovery and significant influence from social groups; we acknowledge that, although this age group was not the most frequent, the frequencies shown in the study are considerable.

With regard to educational level, our results differ from those reported by Albornoz[15] and Loveces[11].

All the authors in Latin America agree that a key factor to highlight is the low level of education among patients, although this is not the predominant factor in our country because of the nature of our social system.[16,17,18]

In general, raising awareness in schools about syphilis, its risks, and how to prevent it is important. People with less education tend to have less access to information about sexual health, may be unaware of the dangers of sexually transmitted diseases, and may lack knowledge about safe sexual practices. This can result in less use of protective methods during intimate relations or difficulties in accessing medical services for testing and treatment.

The authors emphasize that, despite this, it is essential to note that educational level is not the only factor influencing the acquisition of syphilis or other sexually transmitted diseases; the case studies in this research reaffirm that the disease occurs even among those with advanced educational levels.

Nevertheless, the results highlight the diverse opportunities Cuba offers for studying and self-improvement to achieve a higher cultural level each day. Regardless, individuals' behavior in terms of sexual relations becomes an unquestionable factor, taking precedence over knowledge of the subject. The results may vary depending on different population groups and the prevailing sexual and educational culture.[1]

With respect to marital status, this characteristic was a risk factor associated with being single or divorced, as they share the commonality of not living in a common-law marriage, with a greater likelihood of having unstable sexual partners and lacking knowledge of their sexual history.

Authors such as Castro[10] note that in their study, 70 % of pregnant women were students, and 30 % were homemakers; the responsibility they would assume, putting their self-care on hold, is also due to various factors such as low educational attainment and even a lack of opportunities in the labor market.

The authors suggest that occupation may increase the risk of syphilis by exposing individuals to higher-risk environments, such as adult entertainment workers. In work environments with a lack of information on sexual health or difficulties accessing medical care, the risk may be greater. Although occupation is a factor, sexual behavior, access to medical care, and knowledge of safe practices are also key determinants of the risk of contracting syphilis.

With respect to obstetric factors associated with syphilis, statistically significant associations were found with initiating sexual activity before age 18, having more than two sexual partners, and having a history of other sexually transmitted infections.

Our results are in accordance with those of Erazo et al.[3], who considered factors such as initiating sexual activity before age 18, having more than two sexual partners, and having a history of other sexually transmitted infections. Similar findings were reported in the study by Macêdo and colleagues, who, in a study conducted in Brazil at public maternity hospitals, reported a threefold increased risk of gestational syphilis in patients with fewer than three prenatal visits.[8]

In the articles by Zhou[16], Calvante[17] and Quin[19], the majority of women complied with the recommended prenatal care schedule. The consistency across studies confirms that prenatal care ensures pregnancies with a lower risk of maternal and perinatal complications; conversely, fewer prenatal visits are associated with a higher probability of illness.

Tareke et al.[20] (OR = 5,25), Lendado et al.[21] (OR = 3,59) and Enbiale et al.[22] (OR = 5,01) also reported that having more sexual partners during the past year increased the probability of gestational syphilis.

The authors believe that early onset of sexual activity increases the likelihood of having a greater number of sexual partners, which, in turn, increases vulnerability to sexually transmitted infections because of unsafe sexual practices and a lack of prevention.

With respect to behavioral risk factors, not using a condom was statistically significant.

In contrast to our results, Albornoz[15] did not detect a significant association between the presence of syphilis and risk behaviors and substance use, contraceptive use, or the number of sexual partners.

The authors emphasize that regarding contraceptive use, using them only sometimes is just as incorrect as never using them; both conditions constitute incorrect use of the method. Notably, a single unprotected encounter is sufficient to expose oneself to the risk of STIs. Therefore, one of the most important and systematic medical guidelines in clinical practice is educational work on this issue.

The main risk factors that increased the likelihood of contracting syphilis during pregnancy were being unmarried, inadequate prenatal care, initiating sexual activity before age 18, not using condoms, and having more than two sexual partners.

Researchers believe that the assessment of prenatal care and its relationship to the likelihood of contracting the disease is linked to the failure of check-ups to ensure compliance with health education measures, such as the use of contraception or promoting monogamy—actions that prevent transmission of the disease.

This study has several limitations that should be considered when interpreting its results. First, the observational design with nonprobabilistic selection of pregnant women limits the generalizability of the findings to all pregnant women at the primary care level in Cuba. Second, the retrospective nature of data collection on behavioral variables introduces the possibility of recall bias and reverse temporality, as well as potential underreporting due to social desirability. Third, despite multivariate adjustment using logistic regression, the presence of residual confounding due to variables not included in the study cannot be ruled out. Finally, the sample size, although sufficient for the main analyses, limited the ability to conduct more detailed stratified analyses.

CONCLUSIONS

Young adult pregnant women with a white skin color and reactive VDRL results predominated, and the following factors were identified as associated: living with a partner, basic educational level, initiation of sexual activity before age 18, having more than two sexual partners, and not using condoms. The identified factors allow for quantifying risk and guiding preventive interventions for the control of gestational syphilis.

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The authors did not receive funding for the conduct of this research.

CONFLICT OF INTEREST

The authors declare that there are no conflicts of interest.

AUTHORSHIP CONTRIBUTION

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BIBLIOGRAPHIC REFERENCES

1. Cuñat Y, Parra MR del, Correa L, López M, Iribar G. Análisis comparativo sobre el comportamiento de sífilis en gestantes del Policlínico Universitario "Emilio Daudinot Bueno", Guantánamo 2020. Gac Med Est. 2020; 1(2):95-103. http://www.revgacetaestudiantil.sld.cu/index.php/gme/article/view/53

2. Santisteban S. Atención prenatal. En: Rigol Ricardo O, Santiesteban Alba S, Cutié León E, Cabezas Cruz E. Obstetricia y Ginecología. t.II [en línea]. La Habana: Editorial Ciencias Médicas; 2004. p:267-270. http://bvs.sld.cu/libros_texto/ginecologia_obstetricia_3raedicion/ginecologia_complet o.pdf

3. Erazo LL, García JD, Sotelo SA, Rivera SE, Reyes SC, Campos KE. Sífilis gestacional: análisis de factores de riesgo en un centro materno infantil de Lima, Perú (2015-2020). Ginecol. obstet. Méx. 2022; 90(11): 901-909. http://www.scielo.org.mx/scielo.php?script=sci_arttext&pid=S0300904120220011009 01&lng=es.

4. Dávila JR, Lizarbe L. Factores de riesgo asociados con sífilis en embarazadas atendidas en el Instituto Nacional Materno Perinatal 2012-2015. Ayacucho, Perú: Universidad Nacional de San Cristóbal de Huamanga, 2017. http://repositorio.unsch.edu.pe/handle/UNSCH/2569.

5. Gámez GC, Ramos RR, Vargas AD. Caracterización Sociodemográfica y Clínica de Población con Sífilis Gestacional y Congénita en el Cesar 2019 – 2021. [Bacteriologia y Laboratorio Clínico]: Universidad de Santander; 2023.

6. Estrategia Mundial del Sector de la Salud contra las Infecciones de Transmisión Sexual 2016-2021. Hacia el fin de las ITS. Organización Mundial de la Salud. Ginebra, Suiza. 2016. http://apps.who.int/iris/bitstream/10665/250253/1/WHO-RHR-16.09-spa.pdf?ua=1

7. García S, Herrera A, Olamendi M, Sánchez MA. Re-emergence of syphilis in women of reproductive age and its association with the increase in congenital syphilis in Mexico during 2010-2019: an ecological study. BMC Infect Dis. 2021; 21 (1): 1-8. https://doi.org/10.1186/S12879-021-06680-W/FIGURES/5.

8. Ministerio de Salud Pública de Cuba. Anuario estadístico de salud, 2020-2022. La Habana: MINSAP; 2022. http://www.sld.cu/sitios/estadisticas/

9. Iniciativa Regional para la eliminación de la transmisión materno-infantil de VIH y de la sífilis congénita en América Latina y El Caribe: documento conceptual. Montevideo. CLAP/SMR. Organización Panamericana de la Salud/UNICEF. 2009.

10. Castro KM. Universidad Privada Antenor Orrego. 2023. Tesis. https://alicia.concytec.gob.pe/vufind/Record/UPAO_71103cfa1d46dd9c9013f301fb64cbbb

11. Loveces F. Detección de sífilis en el embarazo: Una revisión sistemática. Universidad Abierta Interamericana. Tesis. 2021. https://repositorio.uai.edu.ar/items/058947d7-196f-48ea-b256-b84f60ae49c7/full

12. Moreno GA, Moreno JG, Colorado KT. Determinantes sociales de la salud asociados a la sífilis gestacional y congénita en Risaralda. Rev. Médica Risaralda. 1 de marzo de 2024; 29(2):9-21. https://revistas.utp.edu.co/index.php/revistamedica/article/view/25271

13. Galeano B. Estudio Observacional de los Casos de Sífilis Gestacional y Congénita en el Municipio de San Jerónimo, del Departamento de Antioquia Entre el año 2020 al 2022.. Bucaramanga, Colombia: Universidad de Santander; 2023, 32 p. https://repositorio.udes.edu.co/items/547518ec-28d3-4d75-b8ba-81c62b154765

14. Padovani C, Oliveira RR, Pelloso SM. Syphilis in during pregnancy: association of maternal and perinatal characteristics in a region of southern Brazil. Rev. Latino-Am. Enfermagem. 2018;26:e3019. http://dx.doi.org/10.1590/1518-8345.2305.3019.

15. Albornoz M, Lazarte S. Prevalencia de sífilis en puérperas sin control serológico en el último mes de gestación y estudio de su relación con factores de riesgo. Rev. argent. salud pública . 2018; 9(35): 25-32. https://www.scielo.org.ar/scielo.php?script=sci_arttext&pid=S1853810X2018000200005&lng=es

16. Zhou Q, Wang L, Chen C, Cao Y, Yan W, Zhou W. A case series of 130 neonates with congenital syphilis: preterm neonates had more clinical evidences of infection than term neonates. Neonatology. 2012;102(2):152-6. doi: https://doi.org/10.1159/000339291.

17. Cavalcante ANM, Araújo MAL, Nobre MA, Almeida RLF. Factors associated with inadequate follow-up of children with congenital syphilis. Rev Saúde Pública. 22 de octubre de 2019;53:95. DOI: https://doi.org/10.11606/s1518-8787.2019053001284

18. Macêdo VC, Lira PIC, Frias PG, Romaguera LMD. Risk factors for syphilis in women: case-control study. Rev Saúde Pública 2017; 51: 78. https://doi.org/10.11606/S1518-8787.2017051007066.

19. Qin JB, Feng TJ, Yang TB, Hong FC, Lan LN, Zhang CL. Maternal and paternal factors associated with congenital syphilis in Shenzhen, China: a prospective cohort study. Eur J Clin Microbiol Infect Dis. 2014 Feb;33(2):221-32. https://doi.org/10.1007/s10096-013-1948-z.

20. Tareke K, Munshea A, Nibret E. Seroprevalence of syphilis and its risk factors among pregnant women attending antenatal care at Felege Hiwot Referral Hospital, Bahir Dar, northwest Ethiopia: a cross-sectional study. BMC Research Notes 2019; 12 (69): 1-7. https://doi.org/10.1186/s13104-019-4106-6

21. Lendado TA, Tekle T, Dawit D, Daga WB. Determinants of syphilis infection among pregnant women attending antenatal care in hospitals of Wolaita zone, Southern Ethiopia, 2020. PLOS ONE 2022; 17 (6): e0269473. https://doi.org/10.1371/journal.pone.0269473

22. Enbiale M, Getie A, Haile F, Tekabe B. Magnitude of syphilis sero-status and associated factors among pregnant women attending antenatal care in Jinka town public health facilities, Southern Ethiopia, 2020. PLoS One 2021; 16 (9): e0257290. https://doi.org/10.1371/journal.pone.0257290