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Characterization of Vaginal Infection in Pregnant Adolescents at the Vibora Park Maternity Home. Year 2023

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ABSTRACT

Introduction: Vaginal infection is a globally distributed disease that has become a significant health issue due to its high incidence; it is one of the most frequent medical complications associated with pregnancy, making early diagnosis and treatment essential

Objective: To characterize, from clinical and epidemiological perspectives, pregnant adolescents with vaginal infections admitted to the Vibora Park maternity home in 2023.

Method: A descriptive, cross-sectional, observational study covering the entire population of pregnant adolescents with vaginal infections. Data were collected from medical records using a form designed specifically for the study. Descriptive statistics techniques were applied for data processing.

Results: Forty- seven pregnant adolescents were analyzed. The most frequent age range was 15-19 years old. Regarding demographics, 48.9% were of mixed race, 74.5% were in a consensual union, 34% held at a mid-level technical qualification and 63.8% were homemakers. A total of 45 pregnant adolescents engaged in unprotected sexual intercourse. Vaginal discharge was detected in 100% of those examined, although only 83% (39 adolescents) reported experiencing it. Twenty-seven adolescents presented with * Monilia * infection, and 59.6% of the infections occurred during the third trimester. Among cases of mixed infection, 75% involved vaginal changes, and 27.7% presented complications such as premature rupture of membranes (PROM).

Conclusions: The study population was predominantly composed of pregnant adolescents aged 15-19, of mixed race, in consensual unions, with mid-level technical education, and who were homemakers. Unprotected sexual intercourse was the most significant risk factor. Vaginal discharge was the predominant symptom and clinical manifestation. The majority of pregnant adolescents did not exhibit cervical changes. * Monilia * infection during the third trimester was the most frequent type. Among complications, PROM was the most prevalent.

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Received: September 15, 2026; **Accepted:** September 19, 2026; **Published:** September 30, 2026

Keywords: Pregnancy, Vaginal Infection, Primary Health Care

Introduction

Reproductive system infections originate from changes in the vaginal flora; 50% of these infections go unnoticed by women and are only diagnosed during a gynecological examination [1].

Pregnancy is an event that is traditionally celebrated around the

world. However, for many families, the reproductive process can be grim and dangerous, with morbidity, long-term consequences, and ultimately the death of the mother, her child, or both [2,3].

Vulvovaginal infections occur with an incidence of 7-20% per year. Their clinical significance and importance relate to social implications, the risk of transmission to the partner, and, in the case of pregnant women, risks to the mother, fetus, and newborn [1].

During pregnancy, multiple complications can arise, including vaginal infection. This infection has a worldwide distribution and constitutes a health problem due to its high incidence and health consequences [4].

These infections have increased in recent years, rising from a prevalence of less than 5-10% to 7-20% of cases per year. This type of disease affects women of reproductive age, without discrimination based on race, socioeconomic status, educational level, or other factors. Lack of awareness about the issue is a contributing factor to the increased frequency observed [5].

Normal vaginal discharge is white, odorless, and non-homogeneous, generally found throughout the vaginal fornix, where numerous microorganisms of the normal flora of that region coexist. However, when the volume of secretion increases and is accompanied by irritative symptoms, unpleasant odors, and discomfort, a vaginal infection has occurred, which tends to be markedly more frequent in pregnant women [6-8].

Vaginal infections can occur in women of any age, whether or not they are sexually active. Most women have had a vaginal infection at least once in their lifetime [7]. Pregnancy is a period in which women are not exempt from experiencing vaginal infections; several studies indicate that pregnancy is a contributing factor to the development of vaginal infections [9].

Some women live with these and sometimes they go unnoticed, but during pregnancy this constitutes a serious problem, since they represent a risk factor for complications such as premature rupture of membranes (PROM), preterm birth and its consequences, including the birth of a low-birth-weight baby [10].

The World Health Organization (WHO) estimates that there are 333 million new cases of curable sexually transmitted infections annually among people aged 15 to 49, mostly in developing countries, including member states of the European Union [11,12].

Furthermore, recent estimates report that more than 340 million cases of curable sexually transmitted infections (STIs) occur worldwide each year (including only bacterial, fungal, and parasitic infections), which manifest as vaginal discharge syndrome, are amenable to effective treatments, and that at least one million new infections occur every day [3].

Vulvar and vaginal infections are a frequent reason for consultation in Primary Care, Specialist Care and Hospital Emergency Departments, representing 20% of gynecological consultations [13,14].

In the United States, it is the most frequent cause of infectious diseases, with an estimated 5 to 7 million cases per year. One in three women in this nation has bacterial vaginosis. Meanwhile, in Sub-Saharan Africa, it has the highest prevalence, especially in areas affected by the human immunodeficiency virus (HIV) [4].

In Cuba, cervicovaginal infections account for 80% of gynecological consultations, making these pathologies a priority health problem [3,10].

The island is not immune to this situation and reports approximately 831,787 consultations for these conditions annually. In Havana, this figure represents 227,292 patients seen in gynecological consultations. According to reports from the national statistics office, fungal, protozoal, parasitic, and bacterial infections account

for between 40,000 and 50,000 cases annually, with a marked upward trend [13].

Epidemiological studies conducted in Cuba agree that the three most common types of vaginal infections are bacterial vaginosis (40-50%), followed by candidiasis (20-25%), and trichomoniasis (15-20%). Vaginal discharge can also occur in cases of cervical infection with gonorrhea or chlamydia. (Sexually transmitted diseases). There are also other, less common causes of vaginal infections [12].

Among the risk factors that can trigger vaginal infections is the early onset of sexual relations, since age is a biological factor that influences the increase in these infections because the constitution of the vaginal mucosa and cervical tissue of young women makes them more susceptible, and therefore the risk increases when they have sexual activity before the age of 18 [14,15].

That is why delaying the start of sexual activity and being sure to use a condom every time is an effective way to prevent infection. Other things to avoid include the use of intrauterine devices, prolonged use of antibiotics, and the use of oral contraceptives [15].

Other factors that predispose women to acquiring this infection by altering the normal ecosystem of the vagina include the use of soaps or chemical products for cleaning or washing the genital area, self-medication with antibiotics, diabetes, inappropriate sexual behaviors, and poor hygiene practices in the genital and anorectal area [3].

Hygiene is of great importance. It is essential to keep the area clean and dry, so the use of vaginal sprays, perfumed soaps, and douches is not recommended, as these also eliminate the healthy bacteria that help maintain a healthy vagina. People with diabetes should keep their blood sugar levels under control to avoid an imbalance in the vaginal ecosystem [16].

The difficulty in controlling these infections lies in the fact that risky sexual practices are deeply ingrained in daily life and cultures worldwide. Furthermore, behavior is highly personal, and patients often avoid discussing this issue; therefore, they sometimes seek medical help late. It is important to bear in mind that many of these infections are asymptomatic and can be transmitted silently; and in the case of pregnant women, it is crucial to consider the high frequency with which this condition occurs [17].

The main objective of our study is to characterize the Vaginal infection in pregnant adolescents at the aforementioned Maternity Home during the indicated period.

Method

observational, descriptive, cross-sectional study was conducted to clinically and epidemiologically characterize vaginal infection in pregnant adolescents admitted to the Vibora Park maternity home during the year 2023.

Inclusion Criteria

- Pregnant adolescents with a positive microbiological study recorded in the obstetric card admitted to the Vibora Park maternity home in the municipality of Arroyo Naranjo in Havana during the year 2023.
- That the women agree to be included in the research and demonstrate this by signing the informed consent form.
- With stable residence in the health area.

Exclusion Criteria

Having a mental disability that prevents him/her from performing adequately in the study.

All pregnant adolescents with a positive microbiological study recorded in the obstetric card admitted to the Vibora Park maternity home in the municipality of Arroyo Naranjo in Havana during the year 2023.

No sampling techniques were applied; all patients who met the aforementioned criteria were included. The variables used were age, vaginal infection, skin color, education level, marital status, occupation, and trimester of pregnancy. Previous vaginal infection, quality of prenatal care, sexual partners, protected sex, use of tampons or pads, inadequate use of underwear, vaginal hygiene, microbiological findings, complications, and response to treatment were all factors considered in obtaining this information. Methods were used to collect the data. Theoretical Induction-Deduction, Historical-Logical and Analysis-Synthesis. Empirical Methods: Documentary Analysis. Statistical Method: Calculation of absolute frequencies, percentages, arithmetic mean, median, standard deviation and X2 (Chi-Square). Preparation of statistical and contingency tables.

The information obtained was used to create an automated database using the Statistical program Package The statistical processing was performed using SPSS 19.0 for Windows. The study was approved by the Scientific Council and the relevant Medical Ethics Committee for Research. Informed consent was obtained from the patient or legal guardian , as appropriate , after they had been informed of the research objectives.

Results

Table 1: Sociodemographic Characteristics of Pregnant Adolescents with Vaginal Infection. Vibora Park Maternity Home, 2023

Sociodemographic Characteristics	N = 47	%
Age Groups		
10-14	4	8.5
15-19	43	91.5
Race		
White	9	19.1
Mestiza	23	48.9
Black	15	31.9
Marital status		
Single woman	11	23.4
Consensual Union	35	74.5
Married	1	2.1
Level of Education		
Primary	2	4.3
Secondary	15	31.9
Pre-university	14	29.8
Intermediate Technician	16	34.0
Occupation		
Student	15	31.9
Housewife	30	63.8
Worker	2	4.3

Sources: Data Collection Template

Table 1 analyzes 47 pregnant adolescents with vaginal infections during the study period, all belonging to the maternal household in question. The predominant age group was 15 to 19 years, representing 91.5% of the total (43 pregnant women). The other age group (10-14 years) represented less than 10%.

The majority of patients were of mixed race (23 cases; 48.9%). The percentage of Black patients was 31.9%; followed by pregnant women of White race with 19.1%, which represented the smallest number.

The most frequent marital status was consensual union (35 pregnant women, 74.5%), followed by single women with a total of 11 pregnant women, 23.4%. Only 1 pregnant woman was married.

Of the women analyzed (2 pregnant women), 4.3% had completed primary school. The percentages of those with secondary, pre-university, and technical education were very similar (31.9%, 29.8%, and 34%, respectively). Pregnant women who were studying (15 in total) and those who were employed (only 2) represented approximately 36.2% and were less affected by vaginal infections than housewives, who had a rate of over 60%.

Table 2: Risk Factors in Pregnant Adolescents with Vaginal Infection. Vibora Park Maternity Home, 2023

Risk Factors	N= 47	%
Overcrowding	27	57.4
Limited Economy	21	44.7
Poor housing conditions	14	29.8
Inadequate vaginal cleansing techniques.	35	74.5
Smoking	6	12.8
Unprotected sex	41	87.2
Frequent change of sexual partner	15	31.9
None	5	10.6

Source: Data collection form

Table 2 shows the risk factors for pregnant adolescents with vaginal infections. Unprotected sex and inadequate vaginal hygiene were the most frequent risk factors, affecting more than 70% of the total participants in both cases (41 and 35 pregnant women, respectively). Furthermore, more than 50% of the pregnant women lived in overcrowded conditions, and only 21 had limited financial resources. Frequent changes of sexual partners and poor housing conditions were similarly prevalent, at 31.9% and 29.8%, respectively. Smoking was the least frequent risk factor, affecting 12.8% of the total, which is a very important finding. Only 5 pregnant women did not present any risk factors.

Table 3: Symptoms Reported by Pregnant Adolescents with Vaginal Infection. Vibora Park Maternity Home, 2023

Symptoms Reported	N= 47	%
Vaginal Discharge	39	83.0
Symptoms Urinals	11	23.4
Pruritus	31	66.0
Lower abdominal pain	4	8.5
Stench	18	38.3
Vulvodinia	8	17.0
Others	2	4.3

Source: Data collection form

Table 3 shows that, of the 47 patients, vaginal discharge was the most frequent symptom in 39 pregnant women (83%), followed by vaginal itching and fetid odor (31 cases; 66% and 18 cases; 38.3%, respectively). Urinary symptoms were reported in 23.4%. Additionally, vulvodynia was reported in 17% (8 pregnant women). Lower abdominal pain was present in less than 10% of the women analyzed. The percentage of those included in “Other” did not exceed 5%.

Table 4: Clinical Manifestations in Pregnant Adolescents with Vaginal Infection. Vibora Park Maternity Home, 2023

Clinical Manifestations	N= 47	%
Vaginal discharge	47	100.0
Stench	19	40.4
Vulvovaginal erythema	14	29.8
Abrasions	7	14.9
Edema	3	6.4
Others	2	4.3

Source: Data collection template, Others include condyloma.

Table 4 presents the clinical manifestations of the patients studied. It is noteworthy that 100% of the pregnant women presented with vaginal discharge. The second most common manifestation was foul odor, reported in 19 patients (40.4%), followed by vulvovaginal erythema (14; 29.8%) and excoriations, which were found in 7 pregnant women. Edema was not significant, as it was present in only 3 pregnant women. The “Other” category included only 2 pregnant women, both of whom presented with grape-like tumorous lesions (condyloma), representing less than 5% of the cases.

Table 5: Microbiological Findings and their Relationship with the Trimester of Gestation. Vibora Park Maternity Home, 2023

Microbiological Findings	Trimesters of Pregnancy			Total
	1st Quarter	2nd Quarter	3rd Quarter	
	N %	N %	N %	
Monilia	1 3.7	5 18.5	21 77.8	
Trichomonas	0 0,0	4 80.0	1 20.0	
Gardnerella	0 0,0	3 37.5	5 62.5	
Mixed	1 25.0	2 50.0	1 25.0	
Others	2 66.7	1 33.3	0 0,0	
Total	4 8.5	15 31.9	28 59.6	

Source: Data collection form, Other Escherichia E. coli, Staphylococcus aureus.

Table 5 shows that the highest number of pregnant women with vaginal infections occurred in the third trimester, with a total of 28 cases (59.6%). Vaginal infections in the second trimester represented 31.9%, with a total of 15 pregnant women. Vaginal infections were not significant in the first trimester, with only 4 cases, not exceeding 10%. Vaginal infection caused by Monilia was the most prevalent (27 pregnant women; 57.4%) among all those studied. While 77.8% of pregnant women with candidiasis were in the third trimester, 80% of those infected with Trichomonas were in the second trimester, and 62.5% of those infected with Gardnerella were in the second trimester. Vaginal infections were also found in the third trimester, as this was the most prevalent. No pregnant women presented with vaginal infections solely due to Trichomonas or Gardnerella during the first trimester. Mixed infections, as well as those caused by other agents, were quite similar in terms of total number and trimester of pregnancy, with a total of 4 pregnant women and 3 pregnant women, respectively.

Table 6: Microbiological Findings and their Relationship with Cervical Changes in Pregnant Adolescents with Vaginal Infection. Vibora Park Maternity Home, 2023

Microbiological Findings	Cervical Modification		Total
	YEAH	NO	
	N %	N %	
Monilia	1 3.7	26 96.3	5 10.5
Trichomona	1 20.0	4 80.0	8 17.0
Gardnerella	2 25.0	6 75.0	4 8.5
Mixed	3 75.0	1 25.0	3 6.4
Others	1 33.3	2 66.7	47 100.0
Total	6 17.0	39 83.0	47 100.0

Source: Data collection sheet. Other Escherichia E. coli, Staphylococcus aureus.

Table 6 shows that a total of 8 pregnant women (17%) presented cervical changes, the most frequent being due to mixed vaginal infections. The other 83% (39 pregnant women) did not have any changes.

Table 7: Complications in Pregnant Adolescents with Vaginal Infection. Vibora Park Maternity Home, 2023

Complications	N = 47	%
Abortion	1	2.1
Premature rupture of membranes	13	27.7
Prematurity	9	19.1
Neonatal sepsis	3	6.4
Low birth weight/ IUGR	5	10.6
Puerperal Sepsis	2	4.3
None	30	63.8

Source: Data collection form

Table 7 summarizes the complications in pregnant women with vaginal infections. Some pregnant women experienced more than one complication. The most frequent complication was premature rupture of membranes, occurring in 13 women (27.7%). This was followed by prematurity (9 women; 19.1%) and low birth weight/intrauterine growth restriction (IUGR) (5 women; 10.6%). Neonatal and puerperal sepsis were not significant, with 3 and 2 cases respectively, as was miscarriage, which occurred in only one woman. Fortunately, more than 60% of the women experienced no complications.

Discussion

The discussion of the results shows that vaginal discharge syndrome is a condition with varied implications for women’s sex lives. Its effect is not always uniform nor statistically significant in all aspects. In this study, although no significant relationship was found between vaginal discharge syndrome and overall sexual quality of life (p=0.248), the descriptive data indicate that 70% of women reported having a low sexual quality of life, suggesting that other factors influence these perceptions [18].

The development of community medicine, centered on prevention and timely diagnosis, characterizes current primary health care. Likewise, care for pregnant women and the unborn child are fundamental pillars of the programs of the Cuban Ministry of Public Health. Since the introduction of the Maternal and Child Health Program (PAMI), the monitoring of this population group has benefited in various ways. The recognition of pregnant women as a vulnerable group susceptible to preventable diseases has led to the standardization of strategies that involve not only a multidisciplinary team of health professionals, but also social actors at all levels of government. Infectious diseases are increasingly common in the general population, displacing chronic diseases [19].

Pregnancy is one of the situations that physiologically increases the secretion of the vestibular and endocervical glands and, therefore, the amount of vaginal discharge. It is important to distinguish between normal vaginal discharge, which should not be a cause for concern (white, milky, odorless, or with a mild odor), and discharge that may indicate an infection (a color other than white and with a foul odor) [20]. Syndromic management,

a strategy developed by the Ministry of Public Health, represents an alternative that guarantees the resolution of more than 95% of cases in all units of the National Health System [21]. In the current study, 116 patients presented with vaginal infection, representing more than half of the pregnant women analyzed. This corresponds to the findings reported by Alves D. et al. and by Castillo Pacheco, with an incidence of 54.3% in their series [22].

A 2017 article by Gálvez et al. reported on a study of 45 pregnant women between the ages of 12 and 19; of these, 60% were between 17 and 19 years old, 28.9% were between 14 and 16 years old, and 11.1% were 13 years old or younger. In the Dominican Republic, 20% of adolescents between 15 and 19 years old dropped out of school due to pregnancy, and 45.5% were enrolled in general secondary education. Salvant and colleagues, in a study conducted at the “Félix Peña Pérez” University Polyclinic in San Antonio del Sur (Guantánamo), found that, in prenatal consultations, out of a total of 60 pregnant adolescents, 50% had deficient knowledge about the risks to which they were exposed, 45% had a medium level, and only 5% had knowledge classified as good. Of the pregnant adolescents with a partner (20 cases; 44.4%), most maintained a stable union [23]. In another study, most patients were young, with 43% between 18 and 24 years old, and 42% between 25 and 35 years old. Stable relationships predominated (48%), and homemakers were the most common occupation (39%). The most frequent infections were cytolytic vaginosis (61%) and Gardnerella. vaginalis (19%). The predominant symptoms included vaginal burning (61%) and foul odor (19%). The most common complications were preterm delivery (41%) and premature rupture of membranes. This study allowed for the characterization of the main pathogens responsible for vaginal infections in pregnant women. Timely detection and treatment are essential to prevent maternal-fetal complications and improve perinatal outcomes [24].

In this other study, 116 pregnant women (59.5%) were identified with vaginal infection. The mean age of the group was 23.6 ± 7.05 years and 45.6% were Black. 100% of the women who had only completed primary education had vaginal infections as well as 67.8% of unmarried women and 61.2% of single women. 67.6% presented with the infection at 12 weeks of gestation or earlier. Prenatal care was inadequate in 40.5% of these women, and 72.2% of them had vaginal infections. 62.6% had unprotected sex and 52.8% practiced inadequate hygiene. 9.5% presented with mixed infections, and of these, 72.7% responded unfavorably to treatment. Only 8.6% experienced neonatal infection as a complication. Among pregnant women with vaginal infections, those with low educational attainment, early gestational age, and unprotected sexual practices predominated. Mixed infections showed an unfavorable response in a greater number of pregnant women. The most frequent complication was premature rupture of membranes [25,26]. In this other investigation, the complications that can occur are premature birth, spontaneous abortion, pelvic cellulitis, and pelvic abscess. Traditional testing methods are used, such as the Amsel criteria, microbiological cultures, and the Nugen score, described as the gold standard. Accurate detection of bacterial vaginosis has been fundamental to combating this infection and preventing possible complications between mother and fetus. Laboratory tests, including the observation of symptoms such as fishy odor, the presence of vaginal discharge, and the performance of a pelvic examination, can indicate the presence of bacterial vaginosis [27]. Similarly, Couto Núñez et al. in their work state that genital infection was the predominant risk factor (74%), followed by premature rupture of membranes (55.8%), as a risk factor for chorioamnionitis [28]. Navarro

García YE et al. explain that premature rupture of membranes (PROM), the most frequent complication in this series, is currently associated with multiple causes, but vaginal and cervical sepsis is the most relevant factor [29,30]. Vaginal infection remains a significant obstetric problem that complicates pregnancy and sometimes leads to fatal outcomes. This work provides local institutions with a characterization of pregnant adolescents with vaginal infections, allowing for the long-term identification of strengths and weaknesses in their diagnosis and management. It also facilitates the development of strategies aimed at improving maternal and fetal health care, based on the results of new studies. The development of increasingly preventive medicine, capable of anticipating adverse events, is a strategy to pursue. It is vital to understand the characteristics of obstetric patients and their conditions during pregnancy, identifying early risk factors that could compromise the integrity of the maternal-fetal dyad.

Conclusions

The majority of pregnant adolescents were between 15 and 19 years of age, of mixed race, in consensual union, with a middle technical level of education and housewives.

Unprotected sex and improper vaginal hygiene were the risk factors most strongly associated with vaginal infection. Vaginal discharge and itching were the most common symptoms reported by pregnant women, while vaginal discharge and foul odor were the most frequent clinical manifestations found in the adolescent pregnant women studied.

Monilia infection was the most frequent. Mixed infections predominated in those who experienced cervical changes, although the fewest pregnant women had no changes. The most common complications were premature rupture of membranes and prematurity. More than 60% of the pregnant adolescents experienced no complications of any kind.

There was a statistically significant relationship between the microbiological results and the trimester of pregnancy.

Conflicts of Interest

The authors declare no conflict of interest.

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