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ORIGINAL ARTICLE

Maternal *Trichomonas vaginalis* as a risk factor of spontaneous preterm labour in Southwest Nigeria: a case-control study

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ABSTRACT

BACKGROUND

Trichomonas vaginalis is a sexually transmitted protozoan infection associated with adverse pregnancy outcomes, including spontaneous preterm labour. The proposed mechanism involves genital tract inflammation, which may trigger cervical changes and uterine contractions. This study assessed whether *T. vaginalis* infection was associated with spontaneous preterm labour among pregnant women at Lagos Island Maternity Hospital, Lagos, Nigeria.

METHODS

This case-control study recruited 520 pregnant women, comprising 260 women with spontaneous preterm labour and 260 women who delivered at term. Vaginal swabs were collected using sterile swab sticks. Wet mount microscopy and culture were performed to detect *T. vaginalis*. The association between *T. vaginalis* infection and spontaneous preterm labour was assessed using the Chi-square test, while binary logistic regression was used to adjust for potential confounders. Statistical significance was set at $p<0.05$.

RESULTS

The mean age of participants was comparable between the preterm and term labour groups: 30.1 ± 5.3 years versus 29.8 ± 6.2 years, respectively (p=0.625). *T. vaginalis* infection was more prevalent among women with spontaneous preterm labour than controls, 16.9% versus 10.2%. On unadjusted analysis, infection was significantly associated with spontaneous preterm labour (OR 1.78, p=0.028). However, after adjustment for confounders, the association was no longer statistically significant (aOR 1.34, 95% CI 0.72–2.51, p=0.351).

CONCLUSION

T. vaginalis infection was more common among women with spontaneous preterm labour, but the association was not independently significant after adjustment. Comprehensive antenatal risk assessment remains essential.

Keywords: *Trichomonas vaginalis*, preterm labour, maternal infection, Nigeria

INTRODUCTION

The process of labour is a complex series of uterine contractions aimed at facilitating the dilation and effacement of the cervix, ultimately enabling the foetus to traverse the birth canal. Typically occurring approximately two weeks before or after the anticipated delivery date, labour takes on a concerning aspect when it transpires between the 28 weeks and 37 weeks and 6 days of gestation; which is termed preterm labour.[1] Preterm delivery, defined as birth occurring before 37 completed weeks of gestation, presents a significant challenge in obstetrics on a global scale. The World Health Organization (WHO) records an annual incidence of roughly 15 million premature births, leading to nearly 1 million neonatal fatalities annually due to complications associated with preterm birth and this phenomenon stands as a primary contributor to neonatal mortality and morbidity on a global scale.[2]

Spontaneous preterm birth (SPB) accounts for 7–11% of pregnancies before reaching 37 completed weeks of gestation, with a prevalence of 3–4% before 34 weeks' gestation. Disturbingly, SPB contributes to over 85% of perinatal morbidity and mortality. The mortality rate escalates from 2% between 37 and 40 weeks to 18% between 32 and 36 weeks, rising further to 21% between 24 and 31 weeks.[3] The final trimester of pregnancy is crucial for the maturation of foetal lungs and other organs, preparing the foetus for extrauterine life. When preterm delivery disrupts this developmental process, the prospects of survival for the new born are significantly diminished.[3] Preterm births commonly result in foetal mortality and various morbidities, including neurological issues, retinopathy of prematurity, hyaline membrane disease, and necrotizing enterocolitis.[4] The precise mechanism underlying preterm births remains uncertain; nonetheless, several proposed risk factors include infection in the fetoplacental unit, alcohol consumption, abnormal pre-pregnancy body mass index (BMI), level of physical activity, low maternal socioeconomic status, the consumption of psychoactive substances, ethnicity, cigarette smoking, and other drug usage, and emotional distress.[5]

T. vaginalis has been linked to negative pregnancy outcomes, notably premature rupture of membranes (PROM), preterm birth, and low birth weight (LBW).[6-10] Infection with *T. vaginalis* is among the most widespread non-viral sexually transmitted infections globally and plays a key role in reproductive health problems. It has been linked to the spread of HIV and maybe herpes simplex virus type two (HSV-2).[7,11,12-14] Despite approximately 70% of individuals with trichomoniasis remaining asymptomatic, the infection can manifest in women with symptoms such as malodorous, yellow-green, frothy vaginal discharge and vulvar irritation. Symptomatic cases may include urethritis, vaginitis, or vulvitis. Diagnosis typically involves microscopic analysis of vaginal secretions, with more sensitive techniques employed if needed.[6,15-21] The primary mode of infection is through unprotected sexual intercourse, but transmission can also occur through fomites such as wet toilet seats, towels, and exposure to contaminated items in healthcare settings.[8,19,22-24]

The adverse effects can however be prevented or managed if proper supervision and treatment is given to those infected with *T. vaginalis*. One approach to reduce the occurrence of *T. vaginalis* infection and address the challenges it poses during pregnancy is to promote public health campaigns focused on STI awareness.[3,4,6,25,26,] The aforementioned endeavours encompass instructing people on responsible sexual behaviour, enhancing the availability of birth control, and promoting routine testing for sexually active individuals, to improve mother and newborn health, routine prenatal tests and early interventions are critical. Regular prenatal care can help healthcare practitioners identify infections and other problems early on, allowing them to treat patients promptly and improving the likelihood of a healthy pregnancy and fewer complications for mothers and their unborn children. This approach prevents situations where the mother is neglected and unattended, leading to healthier mothers, families, and societies.

Preterm birth is a major public health issue worldwide, as it contributes to neonatal morbidity and mortality. Despite extensive research, the aetiology of preterm labour remains multifactorial

and complex. Among various risk factors associated with preterm birth, genital tract infections, such as *Trichomonas vaginalis*, attract attention due to their potential role in triggering spontaneous preterm labour. *T. vaginalis* infection is a prevalent sexually transmitted infection and has associations with adverse pregnancy outcomes, such as preterm delivery, but the evidence regarding its specific association with spontaneous preterm labour remains inconclusive.

Previous studies have reported mixed findings on the relationship between *Trichomonas vaginalis* infection and adverse pregnancy outcomes, particularly preterm birth. In a multicentre descriptive cross-sectional study among parturient women in Lagos, Okunade et al.[27] reported that approximately one in 13 women had *T. vaginalis* infection and found a notable association with term or preterm prelabour rupture of membranes, suggesting a possible role of the infection in adverse obstetric outcomes. Similarly, a systematic review and meta-analysis by Van Gerwen et al.[28] found that trichomoniasis in pregnancy was associated with increased risks of preterm delivery, prelabour rupture of membranes, and low birth weight, supporting the biological plausibility that genital tract inflammation may contribute to early labour and related complications. However, findings from Nigeria remain inconclusive. A recent multicentre analytical cross-sectional study in Lagos by Sunmonu et al.[29] found no independent association between *T. vaginalis* infection and spontaneous preterm labour after adjustment for relevant confounders. These inconsistencies may reflect differences in study design, population characteristics, diagnostic methods, timing of specimen collection, outcome definitions, and control of confounding variables. Unlike some previous studies that assessed adverse birth outcomes broadly or used cross-sectional designs among parturients, the present study specifically adopted a case-control design to evaluate *maternal T. vaginalis* infection as a risk factor for spontaneous preterm labour in Southwest Nigeria. By comparing women with spontaneous preterm labour with women who laboured at term and adjusting for important sociodemographic and obstetric confounders, this study provides additional context-specific evidence on whether *T. vaginalis* independently contributes to spontaneous preterm labour in this setting.

Therefore, this study aimed to investigate the association between *T. vaginalis* infections and spontaneous preterm labour in pregnant women attending Lagos Island Maternity Hospital.

METHODS

Research design

A case-control study was conducted in the Department of Obstetrics and Gynaecology at Lagos Island Maternity Hospital from December 1, 2024, to June 30, 2025.

Research subjects

This study involved pregnant women, both booked and unbooked, who provided informed consent and presented to the emergency room or labour ward after 28 weeks of gestation in established labour. The participants were divided into two groups, the case group study cohort, consisting of individuals who experienced preterm labour between 28 weeks to 36 weeks, and the control group, consisting of individuals who had term labour between 37 weeks and 40 weeks.

The case group comprised women with spontaneous onset of labour between 28+0 and 36+6 weeks' gestation, while the control group comprised women with term labour between 37+0 and 40+0 weeks' gestation. The inclusion criteria were pregnant women with singleton pregnancy of at least 28 weeks dated from the last menstrual period or first trimester ultrasound scan who had spontaneous preterm or term labour. In addition, the exclusion criteria were : (i) pregnant women with hypertension; (ii) pregnant women with preeclampsia; (iii) pregnant women diagnosed with either Type 1 or Type 2 Diabetes; (iv) pregnant women with sickle cell disease; (v) pregnant women with multiple gestations; (vi) elective preterm birth; and (vii) pregnant women with HIV.

Sample size determination

The sample size for the case-control study was calculated using a formula designed specifically for such studies.

$$n = \frac{\left[Z_{\alpha}\sqrt{(1+m)\bar{p}'(1-\bar{p}')} + Z_{\beta}\sqrt{p_1(1-p_1) + m\,p_0(1-p_0)}\right]^2}{(p_1 - p_0)^2}$$

Where,

n = represents the minimum sample size needed in each group.

Z_{α} = denotes the critical value at a 95% confidence level, which equals 1.96.

Z_β = stands for the critical value for the type II error at an 80% power level, which is 0.84.
p_1 = indicates the prevalence of *T. vaginalis* infection in women with preterm labour from a prior investigation, estimated at 23.0% or 0.23.[29]
p_0=signifies the prevalence of *T. vaginalis* infection in women with term labour from a previous study, estimated at 15% or 0.15.[29]

m= ratio of cases to controls = 1:5= 0.2

$$P = (p_1 + p_0)/2 = (0.23+0.15)/2 = 0.19$$

$$= \frac{[1.96\sqrt{\{(1+0.2)0.19(1-0.19)\}} + 0.84\sqrt{\{0.23(1-0.23) + 0.2*0.15(1-0.15)\}}]^2}{(0.233-0.049)^2}$$

$$= 232.1 \approx 232$$

With 10% non-response rate: n = 232 + 23= 255. So the sample size was 255 per group.

Two hundred and fifty-five women with diagnosis of preterm labour were recruited as the cases and 255 with diagnosis of term labour were recruited as controls.

Sampling technique

A non-randomised consecutive sampling technique was used to select eligible women with diagnosis of preterm labour from 28 weeks to 36 weeks and term labour from 37 weeks to 40 weeks, who presented to the study centre throughout the duration of the data collection. These women were recruited from the antenatal clinic, emergency units and lying-in wards of the study centre. Cases and controls were not individually matched; rather, eligible participants were recruited consecutively, and the two groups were broadly comparable in age and parity following comprehensive counselling regarding the study's purpose and procedures.

Data collection

The data collection tool captured detailed socio-demographic, obstetric, gynaecological, medical, and clinical information from each participant. Socio-demographic variables included age, marital status, level of education, occupation, religion, ethnicity, and other relevant background characteristics. Obstetric information included the date of the participant's last menstrual period, from which gestational age was estimated, and this was corroborated where available with early pregnancy ultrasound records or antenatal documentation. Previous obstetric history was also obtained, including gravidity, parity, number of previous miscarriages, previous preterm births, previous term deliveries, previous caesarean sections, and history of stillbirth or neonatal loss. Relevant medical and gynaecological history was documented, including previous sexually transmitted infections, vaginal discharge, urinary symptoms, chronic medical conditions, medication use, and any history suggestive of risk factors for preterm labour. Information was also collected on current pregnancy events, including antenatal care attendance, symptoms at presentation, rupture of membranes, uterine contractions, and other clinical findings relevant to the diagnosis of spontaneous preterm labour. This comprehensive data collection enabled assessment of possible confounding factors and allowed comparison between women with spontaneous preterm labour and those who laboured at term.

Sample collection

Participants were briefed on the procedure for sample collection. High vaginal swabs were collected from pregnant women just before delivery in emergency or labour ward. Participants were examined in a well-ventilated and well-lit room specifically designed for specimen collection, using a gynaecologic examination bed, while in the lithotomy position. Cusco's or Sim's aseptic speculum was delicately introduced into the vaginal canal, revealing the lateral and posterior fornices. Vaginal secretions were obtained by collecting specimens from the vaginal walls, specifically the lateral, anterior, and posterior walls, using a sterile swab stick. The swab was gently rotated against the vaginal walls for a duration of approximately 10 to 30 seconds to aid in fluid absorption. To ensure the viability of *T. vaginalis*, a single drop of physiological saline solution (0.9% NaCl) was introduced into the specimen. The collected material was promptly transported to the laboratory in a reverse cold chain using a cold box for subsequent analysis.

Laboratory analysis

All vaginal specimens were transported immediately to the laboratory and processed within 2 hours of collection. Where unavoidable delays occurred, specimens were stored in a cold box at 4°C and analysed within 4 hours to maintain sample integrity. A wet mount preparation was performed by placing vaginal fluid collected from the swab onto a clean glass slide, followed by the addition of a drop of sterile physiological saline (0.9% sodium chloride). The slide was covered with a coverslip and examined

immediately under light microscopy at 400x magnification for characteristic motile *Trichomonas vaginalis* trophozoites. Additional microscopic findings, including pus cells, epithelial cells, and clue cells, were also noted. For culture, each swab specimen was inoculated onto Modified Diamond's medium and incubated at 30–35°C. Microscopic examination of the culture was performed after 24 hours to detect *T. vaginalis* trophozoites. If no organisms were seen, the culture was further incubated for up to 72 hours, with repeat microscopic examination performed daily or on alternate days. A specimen was regarded as negative if no trichomonads were identified after 3 days of incubation.[9,11]

Study outcomes

The primary outcome was the prevalence of *T. vaginalis* at the Lagos Island Maternity Hospital, while the secondary outcome was the association between *T. vaginalis* infection and spontaneous preterm delivery.

Definition of outcome

Spontaneous preterm labour was defined as spontaneous onset of labour occurring between 28+0 and 36+6 weeks' gestation. Term labour was defined as labour occurring between 37+0 and 40+0 weeks' gestation.[9,11]

Statistical analysis

The data collected were entered into a Microsoft Excel spreadsheet and analysed with SPSS (Statistical Package for the Social Sciences) version 27. The findings were expressed as texts, in frequency tables, charts and graphs. The means and standard deviations were used to summarise continuous data, while frequencies and percentages were used to summarise categorical variables. The relationship between categorical variables was evaluated using either the Pearson Chi-square test or Fisher's exact test. A comparison was made between the occurrence of *T. vaginalis* infection in women who had preterm labour and in those with term labour, using the Chi-square test. The relationship between preterm labour and socio-demographic parameters (such as age, education, marital status, employment, religion) or obstetric variables (such as parity, history of preterm birth) were assessed using either a Chi-square test or Fisher's exact test. The technique of simple and multiple binary logistic regression was utilised to identify any confounding factors. In order to identify confounding variables in preterm delivery, ethnicity, religion, occupation, parity, history of preterm labour and inter-pregnancy interval alongside with *T. vaginalis* were computed into the binary regression model. Significance was attributed to outcomes with a p-value below 0.05 for all analyses.

Ethical clearance

Ethical approval from the Ethical Committee of Lagos Island Maternity Hospital was obtained to ensure compliance with ethical standards. Additionally, permission to conduct the study was obtained from the Head of the Obstetrics and Gynaecology Department at Lagos Island Maternity Hospital- ADM/LIMH/OG/287A.

Informed consent to participate and withdraw from study

All participants received comprehensive explanations regarding the study's objectives. Informed consent was diligently obtained from each participant before their inclusion in the study. Participants retained the right to decline participation or withdraw from the study at any juncture, and such decisions were respected, ensuring no compromise to the standard of care afforded to them.

RESULTS

A total of 725 pregnant women were assessed for eligibility. Of these, 205 were excluded (200 women did not meet the inclusion criteria and 5 declined to provide consent). Consequently, 510 pregnant women were enrolled in the study, comprising 255 women with preterm labour and 255 women with term labour. By the end of the study, 255 participants in each group completed their questionnaires. The flow diagram of the study is shown in Figure 1. The analysed data was summarised in tables and figures.

Table 1 shows the socio-demographic characteristics of participants. The socio-demographic characteristics of participants in the preterm and term groups were largely comparable in terms of age, marital status, and education level, with no significant differences observed. However, significant differences were found in ethnicity (p=0.001), religion (p=0.005), and occupation (p=0.047). Most participants were married, had tertiary education, and belonged to the Yoruba ethnic group (Table 1).

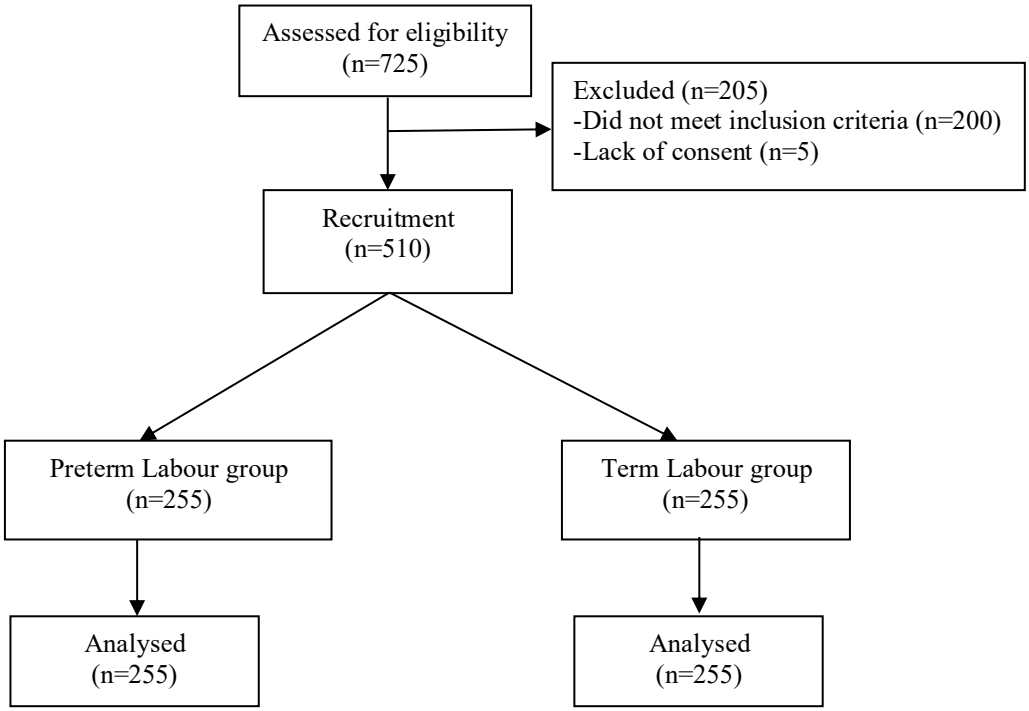

Figure 1. Flow chart of the study participants

Table 1. Socio-demographic characteristics of study participants

Variable	Preterm group (n=255)	Term group (n=255)	p value
Age group (years)			
20-24	138 (54.1)	140 (54.9)	0.830
25-29	53 (20.8)	59 (23.1)	
30-34	44 (17.2)	38 (14.9)	
≥35	20 (7.8)	18 (7.1)	
Ethnicity			
Yoruba	166 (65.1)	163 (63.9)	0.001*
Igbo	66 (25.9)	83 (32.5)	
Hausa	4 (1.6)	7 (2.7)	
Others	19 (7.5)	2 (0.8)	
Marital status			
Single	5 (2.0)	9 (3.5)	0.278 c
Married	250 (98.0)	246 (96.5)	
Religion			
Christianity	170 (66.7)	138 (54.1)	0.005*
Islam	85 (33.3)	116 (45.5)	
Traditional	0 (0.0)	1 (0.4)	
Education status			
No formal	1 (0.4)	3 (1.2)	0.645 c
Primary	28 (11.0)	22 (8.6)	
Secondary	95 (37.3)	98 (38.4)	
Tertiary	131 (51.4)	132 (51.8)	
Occupation			
Unemployed	14 (5.5)	16 (6.3)	0.047* c
Unskilled	51 (20.0)	42 (16.5)	
Semi-skilled	69 (27.1)	46 (18.0)	
Skilled	104 (40.8)	135 (52.9)	
Professional	17 (6.7)	16 (6.3)	

data presented as n (%) ; significant, c- Chi-square test

Table 2. Obstetric and gynaecologic parameters of the study participants

Variable	Preterm group (n=255)	Term group (n=255)	p value
Parity			
Nulliparous	86 (33.7)	106 (41.6)	0.111[c]
Primiparous	63 (24.7)	64 (25.1)	
Multiparous	106 (41.6)	85 (33.3)	
Age at coitarche (years)	21.4±3.7	20.5±5.0	0.038*[t]
History of previous miscarriage			
Yes	17 (6.7)	9 (3.5)	0.107[c]
No	238 (93.3)	246 (96.5)	
History of preterm labour			
Yes	42 (16.5)	10 (3.9)	<0.001*[c]
No	213 (83.5)	252 (96.1)	
History of pregnancy with pre-eclampsia			
Yes	39 (15.2)	27 (10.6)	0.113[c]
No	216 (84.7)	228 (89.4)	
History of previous pregnancy with SGA babies			
Yes	9 (3.5)	3 (1.2)	0.080 [c]
No	246 (96.5)	252 (98.8)	
Inter-pregnancy interval (years)			
< 2	42 (16.5)	21 (8.2)	0.005*
≥2	213 (83.5)	234 (91.8)	

*Data presented as n (%), except for age at coitarche as mean ± SD; significant, c: Chi-square, t:t-test; SGA : Small for gestational age

The obstetric and gynaecologic parameters of the study participants are shown in Table 2. There were no significant differences between the preterm and term groups in parity, history of miscarriage, pre-eclampsia, or previous small-for-gestational-age (SGA) babies. However, the preterm group had a significantly higher mean age at coitarche (p=0.038), more prior history of preterm labour (p<0.001), and shorter inter-pregnancy intervals (p=0.005) (Table 2).

There was a significant difference in the age at coitarche, history of preterm labour and inter-pregnancy interval between women that had preterm and term birth (p<0.05).

Table 3 shows the life style among the study participants. There were no statistically significant differences in lifestyle factors, smoking, alcohol, or caffeine consumption, between the preterm and term groups. Smoking was reported only in the preterm group (1.2%), while alcohol and caffeine use were slightly higher among preterm participants but not significantly. Overall, lifestyle habits were similar across both groups. *T. vaginalis* infection was present in 16.9% of the preterm group versus 10.2% of the term group. The primary outcome was the prevalence of *T. vaginalis*, namely 69/510 (13.5%).

Table 3. Life style among the study participants

Variable	Preterm group (n=255)	Term group (n=255)	p value
Smoking			
Yes	3 (1.2)	0 (0.0)	0.082[c]
No	252 (98.8)	255 (100.0)	
Alcohol consumption			0.323[c]
Yes	16 (6.3)	11(4.3)	
No	239 (93.7)	244(95.7)	
Caffeine consumption			0.625[c]
Yes	22(8.6)	19(7.5)	
No	233(91.4)	236(92.5)	

Note : data presented as n (%), c- Chi-square test

Table 4. Risk factors of preterm labour using multiple binary logistic regression

Variable	Adjusted Odds ratio	95% CI for Odds ratio	p value
T. vaginalis			
Present	1.35	0.72- 2.51	0.351
Absent	Reference		
Ethnicity			
Yoruba	Reference		
Igbo	0.59	0.36- 0.96	0.032*
Hausa	4.74	0.95- 23.73	0.052
Others	0.39	0.09- 1.66	0.200
Occupation			
Unemployed	Reference		
Unskilled	1.14	0.45- 2.91	0.783
Semi-skilled	1.89	0.77- 4.65	0.172
Skilled	0.96	0.41- 2.26	0.921
Professional	0.18	0.03- 0.99	0.050
Parity			
Nulliparous	Reference		
Primiparous	0.98	0.56- 1.73	0.955
Multiparous	0.15	0.96- 2.43	0.076
History of preterm labour			
Yes	4.91	2.12- 11.38	< 0.001*
No	Reference		
Inter-pregnancy interval (years)			
< 2	0.54	0.27- 1.07	0.072
≥2	Reference		

*significant

Table 4 presents the results of a binary logistic regression analysis to identify risk factors associated with preterm labour. All variables that were significant in the bivariate analysis, were included in the multiple binary logistic regression analysis. *Trichomonas vaginalis* infection was not a significant predictor (OR = 1.34;95 % C.I. 0.72-2.51; p=0.351). The odds for preterm delivery was reduced by 41.2% in Igbo women (Odds ratio = 0.59; 95% CI of 0.36- 0.96; p=0.032) compared to Yoruba women. A history of preterm labour significantly increased the odds (aOR = 4.91, 95% C.I. 2.12-11.38; p<0.001). Having an occupation as a professional also showed a protective effect against preterm labour compared to unemployment (aOR = 0.18,95 % C.I. 0.03- 0.99; p=0.050) (Table 4).

DISCUSSION

The principal findings of the study were that there was a higher prevalence of *T. vaginalis* infection among women with preterm labour (16.9%) compared to those with term labour (10.2%). A significant association was observed between *T. vaginalis* infection and preterm labour in bivariate analysis. However, after adjusting for other risk factors such as ethnicity, occupation, and prior preterm labour, the association between *T. vaginalis* and preterm delivery was no longer statistically significant. A history of preterm labour emerged as the strongest predictor of preterm labour.

The prevalence of *T. vaginalis* among women with preterm labour was 16.9%, which was lower than the incidence reported by Kamal et al.[14] in Egypt. The observed difference might be due to different study design, different population, sample size and laboratory methods used in testing for *T. vaginalis*. The reduced prevalence of *T. vaginalis* among women in the study site is a reflection of efficiency in healthcare service delivery. Over time the nurses and doctors synergised to engage in health education on control of vaginal infections and how to maintain a healthy vagina, especially during pregnancy. Women are often advised to avoid douching, to wipe the vagina from front to back and avoid indiscriminate use of antibiotics that can disrupt the vaginal microflora.

The prevalence of *T. vaginalis* among women with term delivery in this study was 10.2%. This prevalence is higher than the incidence reported by Kamal et al.[14] and Nakubulwa et al.[9]. However, the latter studies had study designs and populations different from the present study which

may have been responsible for the disparity in findings.

After adjusting for confounding variables such as ethnicity, religion, occupation, parity, history of preterm labour and the inter-pregnancy period in a binary logistic regression model, *T. vaginalis* infection was not significantly associated with preterm labour. This study corroborates findings of Burton and Thomas [19] and Young et al.,[23] but was contrary to a systematic review and meta-analysis by Silver et al.[18] reporting that *T. vaginalis* infection was associated with an increased risk of preterm birth. In our study, the significant risk factor of preterm labour was history of preterm labour. The odds for preterm labour increased by 391% in women with history of preterm labour to those without history of preterm labour. This finding corroborates the results of Young et al.[23] that reported history of preterm labour as risk factor of preterm labour. Therefore, ultimately there is a need for the gynaecologist to pay special attention to women with a previous history of preterm labour in order to prevent adverse feto-maternal outcomes.

This study has a number of clinical implications. The findings of this study suggest that while *T. vaginalis* infection is more common among women with preterm labour, it may not independently cause preterm labour after controlling for other factors. Clinicians should therefore focus on identifying and monitoring high-risk women, particularly those with a prior history of preterm labour. Screening for *T. vaginalis* could still be considered in the broader context of sexually transmitted infection prevention and maternal health, but its role as an isolated risk factor for preterm birth may be limited.

This study possessed several important strengths. Firstly, it utilised a robust sample size that provided sufficient statistical power to detect meaningful differences between the case and control groups. In addition, participants were recruited consecutively during the study period, reflecting prospective enrollment within a hospital-based case-control design. Additionally, the study employed multivariate logistic regression analyses to adjust for potential risk factors, such as sociodemographic and obstetric factors, thereby increasing the validity of the observed associations.

However, as a case-control study, it could not establish a causal relationship between *T. vaginalis* infection and preterm labour. The single-center setting, limited to Lagos Island Maternity Hospital, may affect the generalisability of the findings to broader populations.

From the findings of this study, it is hereby recommended that the gynaecologist should pay special attention to women that had previous history of preterm labour. Because these women are more likely to have a recurrence, routine screening for *T. vaginalis* in pregnancy may be beneficial, especially among high-risk groups.

CONCLUSION

T. vaginalis was prevalent in pregnant women, although higher in those with preterm labour than term labour. Although *T. vaginalis* infection was more prevalent among women with preterm labour and initially appeared associated with increased risk, this association was not statistically significant after adjusting for confounding variables. A prior history of preterm labour was the strongest predictor of subsequent preterm labour. Therefore, more attention should be given to women that had previous history of preterm labour. The findings reveal the multifactorial nature of preterm labour and the need for comprehensive risk assessment in antenatal care.

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Conflict of Interest

none

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Authors' Contributions

SIO, KAA, AOU : Conceptualization; AAO, MAA, AAA, ECN : methodology; validation; AAO, MAA, AAA, ECN, SIO, KAA, AOU : formal analysis; AAO, MAA, AAA, ECN, SIO, KAA, AOU :investigation; MAA, AAA, ECN : data curation; AAO, MAA, AAA, ECN, SIO, KAA, AOU : original draft preparation-, review and editing and project administration. All authors have read and agreed to the published version of the manuscript.

Data Availability Statement

Data is available on request from the corresponding author.

Declaration of AI Usage in Scientific Writing

No form of AI was used during the preparation or editing of this manuscript.

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