

TRICHOMONAS VAGINALIS INFECTION AMONG STUDENTS OF UNIVERSITY OF PORT HARCOURT

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Abstract: -

Trichomonas vaginalis is one of the most common curable sexually transmitted disease. Untreated Trichomoniasis in women can cause cervicitis, vaginites and pelvic inflammatory disease. Trichomonas vaginalis contributes to high risk of cervical cancer in women and HIV in men. This is an institutional based cross-sectional descriptive study conducted among two hundred (200) female students of Delta Hostels, University of Port Harcourt. High vaginal swabs (HVS) and urine samples were collected from consented students and examined for the presence of T. vaginalis under the microscope. A total of 32(16%) were infected and results obtained from HVS showed a prevalence of 32% compared to urine microscopy which no positive sample was detected. Students between the age group 15-25yrs had the highest prevalence of infection 31(17.2%) while the age group 26-35 years had 1(5%). However, the difference was statistically significant. Based on marital status all were single and had 32(16%) prevalence. This study observed a high prevalence of T. Vaginalis and its symptoms among the study population. The study also noted that high vaginal swab microscopy showed better detection sensitivity compared to urine microscopy. The best option for prevention and control is to educate students on personal hygiene and safe sex practice.

Keywords: - Current, Prevalence, *Trichomonas vaginalis*, Females, Hostels, University of Port Harcourt.



INTRODUCTION

Trichomonas vaginalis is one of the most common curable sexually transmitted disease known as trichomoniasis (Kim *et al.*, 2017). Untreated TRICHOMONIASIS in women can cause cervicitis, vaginites and pelvic inflammatory disease (Marrazo and Martin, 2007; Jahic *et al.*, 2013). *Trichomonas vaginalis* was reported to contribute to high risk of cervical cancer in women and HIV in men (Jahic *et al.*, 2013). Female sex workers have been reported to increase the spread of *Trichomonas vaginalis* and other sexually transmitted infections to the general public, so treating this group can aid in the control of this disease (Shrestha *et al.*, 2016). In infected females, *Trichomonas vaginalis* can cause green-yellowish vaginal discharge, irritation of the vulva, itching, pain during urination, hemorrhagic lesion of the cervix. According to World Health Organization (WHO), an estimated 174 million cases of Trichomoniasis are reported annually and this account for about 10-25% of vaginal infections (Poole and McClelland, 2013). There have been several reports from various parts of Nigeria on *Trichomonas vaginalis* including those of Usanga, 2009 who documented evidence of *Trichomoniasis* among pregnant women in Calabar with a prevalence of 5.2%. It was observed to be a public health problem in Onitsha as 17.5% was recorded among women attending health center in Onitsha Anambra State (Iwueze *et al.*, 2014). However, Wokem and Ndokwu (2014) declared that *T. vaginalis* infection was on the increase after recording 10% prevalence in the evaluation of the vulvo-vaginal Trichomoniasis among women in Niger Delta region of Nigeria. *Trichomoniasis vaginalis* is prevalent and should not be ignored (Bowden and Garneth, 1999). There is need therefore to know the prevalence and distribution of the disease among students. However, there is no report on the prevalence of *Trichomonas vaginalis* infection among females living in the hostels in the University of Port Harcourt.

Material and Methods

Study Area

The cross sectional descriptive study was carried out in the University of Port Harcourt, Choba community in Obio-Akpor Local Government Area of Rivers State. It is located between N4°52' 30'' and N4°55'00'' and E6°54'49'' & E 6°54'49''. The thick mangrove forest, raffia palm and light rainforest are the major type of vegetation. Due to high rain fall, the soil in the area is usually sandy or sandy-loam. It is always leached, underlain by a layer of impervious pan. The University of Port Harcourt has over 40,000 students in attendance with an average of 6000 students every year. And of this about 67% are female students (anonymous, 2017).

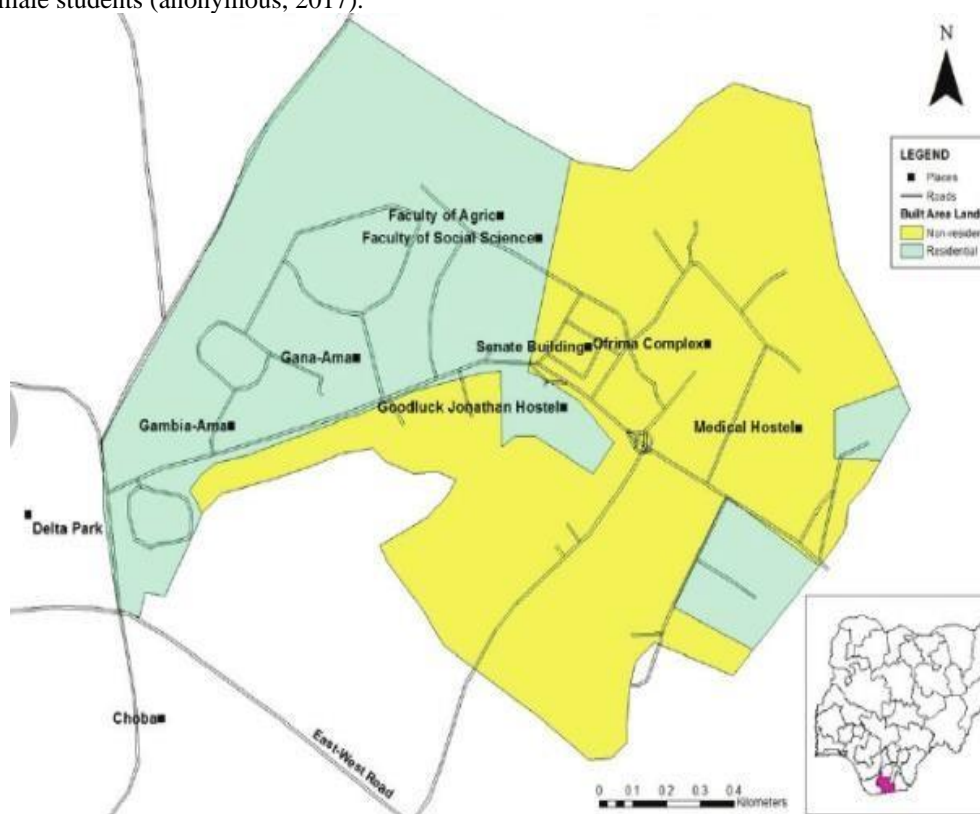


Fig. 1. The study area University of Port Harcourt.

Study population

A total of two hundred and thirty students were recruited for this study, the study population consisted of students living in Delta hostels in university of Port Harcourt. However, only 200 returned their urine bottle and were examined. Informed consent was sought from the participants before specimen collection serial sampling was employed and students who did not return their consent forms were excluded from the study. Also, ethical clearance was gotten from the hall warden of King Jaja hostels (Block A and C) and the students were sensitized on the nature of the test to be carried out..

Sample collection and Parasitological Analysis

Specimen collection and examination of urine and High vagina swab (HVS) were aseptically performed following the standard procedure. Also, microbiological investigation of macroscopy and microscopy were immediately evaluated to avoid loss of characteristic tumbling motility of the organism and death that may follow due to loss of moisture.

Sample collection.

Early morning urine and vaginal swab samples were collected from the students aged 15-45 years. A total of 200 urine samples and 200 vaginal swabs were collected from the students. Also, structured questionnaire was administered to obtain demographic characteristics of the students - age, marital status, and use of toilet system, sharing of under wears or towels and symptoms. Urine samples were collected using factory sterilized (Stermacon) plastic sterile bottles while vaginal swabs were collected using sterile Evepon swab sticks. The samples were brought to the Parasitology Laboratory, University of Port Harcourt and analysed within 3 hours of collection

Examination of Urine Samples

About 1 ml of each urine sample was poured into a centrifuge tube and spun at 3,500 rpm for 5 minutes. The supernatant fluid was decanted and a drop of the sediment was placed on grease free glass slide, covered with a coverslip and examined microscopically for *Trichomonas vaginalis*

Examination of Vaginal Swab Samples

A drop of normal saline was introduced into the pack of each respondent's vaginal swab and mixed by shaking vigorously to wet the swab. A drop of the mixture of each sample was placed on clean grease-free slide, covered with coverslip and examined microscopically using x10 and x40 objectives with condenser iris sufficiently to observe motile flagellated form of *T. vaginalis*

Statistical analysis

The data obtained from questionnaires and laboratory analysis were analysed statistically using *Chi-square* with significant difference set at 5% level

Results

Although 230 female students of University of Port Harcourt, Rivers State were initially enrolled for the study, only 200 students submitted urine and swab samples and were included in the data analysis. The findings of the study revealed that 32 (16.0%) out of 200 students examined, were infected with trichomoniasis. Thirty two (16.0%) students had *Trichomonas vaginalis* in their vaginal swabs but none was found in their urine samples. Students between the age group 15-25 had the highest prevalence of *T. vaginalis* 31(17.2%) while age group of 26-35 had prevalence of 1(5%). Based on marital status all were single and had 32(16%) prevalence for the infection Table 1. The difference in the prevalence of infection between the different age-groups was statistically significant ($p < 0.05$). Prevalence of trichomoniasis based on clinical manifestation and risk factors revealed that 20(10%) of the students had vaginal discharges and 5% had itching/irritation Table 2. However, infection was highest 27(13.5%) among the students who used the general school toilet as well as those who shares wears 22(11.0%).

Table 1: Distribution of *Trichomonas vaginalis* among students by sampling method

Variables	Classification	Number Examined	Number Infected	Percent Infected (%)	p-value
Specimen	Swab	200	32	16	0.06
	Urine	200	0	0	
Age (years)	15-25years	180	31	17.2	0.08
	26-35 years	20	1	5.0	
	36-45 years	0	0		
Marital Status	Single	200	32	16	0.06
	Married	0	0	0	

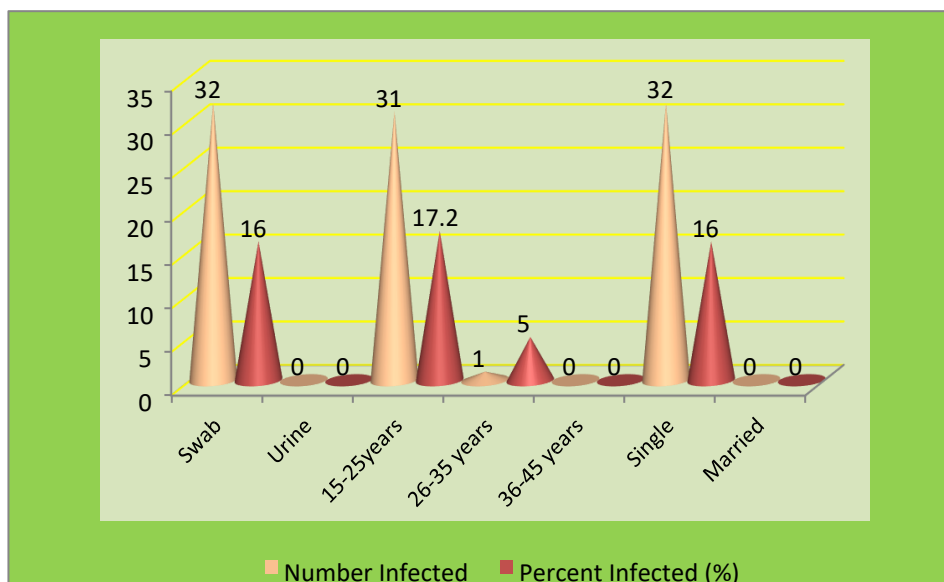


Figure 1: Distribution of T. vaginalis

Table 3: Distribution of Trichomonas vaginalis among Infected Students by Clinical Manifestation and Risk Factors

Variables	Classification	Number Infected	Percent Infected (%)	p-value
Symptoms	Vaginal Discharge	20	10	0.01
	Dysuria	2	1	
	Itching/irritation	10	5	
Toilet system	General School Toilet	27	13.5	
	Personal Bucket	5	2.5	
Sharing of Wears	Yes	22	11	0.09
	No	10	5	

Discussion

Most previous studies on *Trichomonas vaginalis* in this geographical region have focused on transmission patterns of the disease in pregnant women and rural populations. The present investigation was one of the first institutional- based studies on prevalence of *T. vaginalis* in Rivers State. The findings of this study show that trichomoniasis is prevalent in the University of Port Harcourt though no previous data on the prevalence in the university exists. The overall prevalence recorded in this study is high when compared to the previous report of Abah (2017) who recorded a low rate of (0.63%) in Rivers State, Usanga *et al.*, (2009) recorded (5.2%) among pregnant women in Calabar and Wokem (2006) also recorded 10% prevalence among women in Niger Delta region. This value (16.0%) is lower than the observations of 44.23% made by Ito and Nmor (2018) among women in Isoko South, Delta State. Crucitti *et al.* (2010) recorded a prevalence of 28% in Monglia although it was among sex workers. However, 32 (16.0%) recorded in this study is similar to the report of Iwueze *et al.* (2014) who recorded a prevalence of (17.5%) among women in Onisha, Anambara State and 15.0% by Onyido *et al.*, (2014). It appears that *Trichomonas vaginalis* is particularly common among students, especially as the prevalence recorded in the present study was probably an under-estimate of the true value, given that it was based on the results of the examination of just on urine and smears of vaginal swabs /student. Trichomoniasis is the most prevalent sexually transmitted parasitic infection, yet it appears to be highly neglected in the higher institutions and adequate attention has not been given to its control and eradication. The differences in values recorded by other works and this study could be due to the lifestyle of the students examined, geographical location and communal use of school toilets. The non-detection of parasites in urine samples and a detection rate of 32(16%) from direct wet smears of vaginal swab samples as obtained in this study disagreed with the findings of Dahab *et.al*, (2012) who reported highest and all prevalence rates from urine samples in a survey in Sudan. Findings of previous work revealed that the microscopic examination of direct wet smears of vaginal swabs had higher prevalence of trichomoniasis than examination of urine deposits (Usanga *et al.*, 2009; Ito and Nmor, 2018). Therefore direct wet smear of vaginal swabs should be considered a better diagnostic approach than urine deposits examination. Though collection and processing of urine is more cost effective than high vaginal swab but the use of high vaginal swab makes it easier for researchers to screen subjects with accurate results. In the present study, higher prevalence of infection was observed amongst 15-25yrs students, only one student among the age bracket 26-35yrs was recorded. Similar trends have been recorded before in Nigeria and elsewhere in Africa (Decastero, 1989; Usenga *et al.*, 2006; Jautau *et al.*, 2006, Dahab *et.al*, 2012; Ito and Nmor, 2018). Who reported

that trichomoniasis is more prevalent amongst the more sexually active young people. It could also be that younger females have more sexual partners than the older ones. On the contrary, results by Iwueze *et al.*, 2014; Inan *et al.*, 2010 reported prevalence of *Trichomonas vaginalis* to be higher among women in the age group 30-39. This study also showed that infection were significantly higher in singles than married women ($p < 0.05$). It was revealed that all the infested participants in this study were all singles. Hence, single women/students should avoid having casual sex with unknown sex partners. Furthermore, majority of the students reported of vaginal discharge and irritation or itching, this varied with the result of Ojurongbe *et al.* (2010). Besides being transmitted sexually, there have been cases of nonsexual transmission of Trichomoniasis such as contaminated towels, wears, douche nozzles, toilet seats, or swimming pool water. It was observed that; students using general toilet were more exposed to the infectious agent than students using personal bucket system. The unhygienic and deplorable conditions of toilet school hostels without proper maintenance may have contributed to the high prevalence and spread of this infection among students as well as sharing of wears like towel and under wears.

Conclusion

This study revealed a high prevalence of *T. Vaginalis* and its symptoms among the female student in university of Port Harcourt, River State, Nigeria. The study also noted that high vaginal swab microscopy showed better detection compared to urine microscopy. The best option for prevention and control is to educate the students on personal hygiene and safe sex practice.

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