

## Research Paper

# Women and Trichomonas Vaginalis Infection in Owerri, Imo State, Nigeria

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Three thousand, two hundred and eighty female residents aged between 11 and 30 years were examined for *Trichomonas vaginalis* infection in Owerri urban. Out of 3280, 660 (20.14 %) were infected with *T. vaginalis*. The highest prevalence of *T. vaginalis* infection 392 (21.6 %) was observed among women aged 16-20 years, while the least 12 (7.59 %) was observed among those aged between 26-30 years. Women who had multiple sex-partners showed higher prevalence of the infection

102 (35.92 %) than those with one sex partner 395 (17.48 %). There was higher prevalence of mixed infections involving *T. vaginalis* and the bacteria - *Staphylococcus aureus* and *Neisseria gonorrhoea* 321 (48.68 %); and *T. vaginalis* and *Candida albicans* 182 (27.58 %), than single infection of *T. vaginalis* 101 (15.3 %).

**Keywords:** Infection, Trichomonas Vaginalis, women, Imo State, Nigeria

## INTRODUCTION

*Trichomonas vaginalis* is a human parasitic protozoan which commonly infects the vagina, cervix and urethra of both males and females. The protozoan infects the upper urinary tract and the prostate gland leading to prostate enlargement (Okoli, 1990), epididymitis (Acholonu et al., 1998) and the renal pelvis. In females *T. vaginalis* infection is associated with vaginitis characterized by intense itching and burning sensation, soreness of the vagina and vulva, profuse creamy white frothy vaginal discharge often leading to excoriation or chafing of the vulva, pruritis and dermatitis of adjacent skin of the thighs. Acholonu, (1980) opined that additional symptoms of frequent urination especially dysuria, dyspareunia (difficulty in sexual intercourse) and cystitis. The protozoan which exists mainly in the trophozoite stage is commonly isolated from foamy vaginal discharge of symptomatic females.

According to Kit and Safakb (1998), the WHO estimates that about 330 million cases of treatable sexually

transmitted diseases (STDs) exist worldwide, yet women may have these infections without realizing it. Furthermore, about 50-80% of STDs in women are asymptomatic or go unnoticed because they are internal. For this reason, women are much less likely than men to seek timely treatment for STDs. Besides, the stigma attached to STDs, especially for women, inaccessibility of clinics, poverty and too many other responsibilities further prevent women from getting prompt treatment. Schwebke and Donald (2004) added that negative attitudes of health workers towards women (and teenage girls) in South Africa with STDs may be a major deterrent to those seeking treatment.

Azoospermia and oligospermia coupled with conjugal sterility have been reported in men infected by *T. vaginalis* infection (Garcia et al., 2004). Among children and infants, neonatal pneumonia has been reported (Adeoye and Akande, 2007), as well as conjunctivitis in infants, probably contracted from their mother's birth

canal (Amadi and Nwagbo, 2013). Among women, trichomoniasis has been associated with carcinoma of the cervix salpingitis, pelvic inflammatory disease, ectopic pregnancy, infertility, low birth weight, pre-term delivery, among others have been reported by a number of workers (Garcia et al., 2004). Ugo and Acholonu (1996), associated trichomoniasis with increased risk of human immune deficiency virus (HIV) infection, oedema, hemorrhage and ulceration. Generally, much attention has been given to gonorrhoea and other STDs than is given to trichomoniasis infection among Nigerian women. Many Nigerian women have never heard the name *Trichomonas vaginalis* or trichomoniasis, yet many of them have been infected at one time or the other with the parasite, coupled with no vernacular name has been attached to the infection among the populace. To this end, the study seeks to ascertain the prevalence of trichomoniasis among women in Owerri and proffer solutions.

## MATERIALS AND METHODS

Urine specimen and vaginal swabs were collected from 3,280 women aged 11 to 30 years in Owerri area, including some out skirt like Unugums, Ifakala and Avu using sterile bijou bottles and evepon swab sticks respectively. The bijou bottles were sterilized by autoclaving at 15 psi at 121°C for 15 min, while the swab sticks were sterilized by the manufacturers using ethylene oxide. The 1,639 samples were obtained from women including undergraduate, pregnant women and school children; The method described by Njoku et al. (2000), was used for Laboratory analysis of the samples. The urine specimens were spun at 3,500 rpm and the supernatant fluid discarded. The deposits were examined microscopically using both low objectives lens of (x10) and high power (x40) objectives. Two drops of physiological saline were added to each container of the vaginal swab and mixed. Adrop was taken unto a clean glass slide, covered with a cover slip and examined microscopically. Stained smear of the vaginal swabs were made using safranin and examined with oil immersion objective (x100). The pH range of the urine and vagina of the women was recorded.

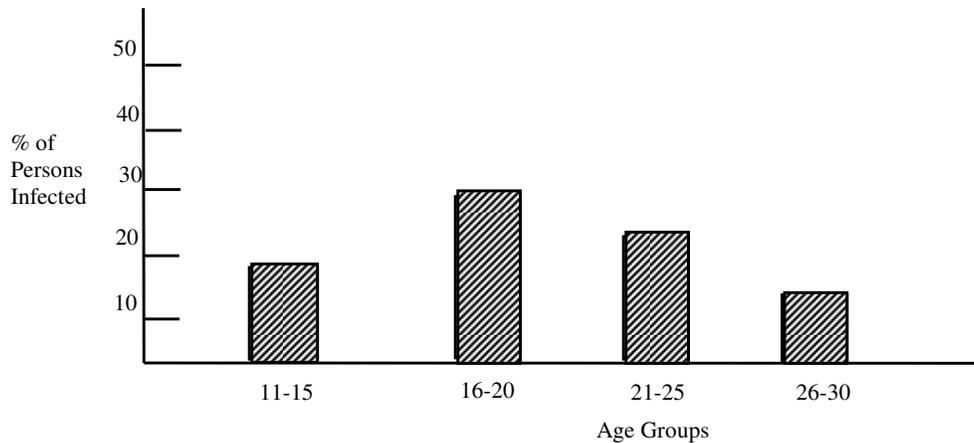
## RESULTS AND DISCUSSION

Out of the 3,280 women examined, 660 (20.14 %) were infected with *Trichomonas vaginalis*. The highest prevalence of the infection, 443 (24.42 %) was observed among younger girls aged 11-15 years, followed by those aged 16 to 20 years 132 (21.67 %). The prevalence rate dropped drastically to 18 (7.59 %) for women aged 26-30 years (Table 1 and Figure 1). The observed prevalence

rate in the Owerri urban centre was higher than those of the rural communities. Of the 3,280 women examined in Owerri urban, 660 (32.0%) were infected; Women who admitted having multiple sex-partners showed a prevalence rate of 35.92 %, while those who have one or two sex-partners showed prevalence of 21.19% and 17.48% respectively. Mixed infected of *T. vaginalis*, *Candida albicans* and/or bacteria spp. (*Staphylococcus aureus* or *Neisseria gonorrhoea*) occurred in most of the women examined. Three hundred and twenty one girls (48.64 %) were infected with *T. vaginalis* and bacteria (*N. gonorrhoea* and *S. aureus*); 182 (27.58%) were infected with *T. vaginalis*, *Candida albicans* and bacteria; while 101 (15.3%) were infected women experienced symptoms of urinary tract infect; others were found to be asymptomatic. The results are shown in (Tables 2, 3, 4 and 5). The results of this study show that the prevalence of *Trichomonas vaginalis* infection among Nigerian women is high (20.14%). When compared with the findings of Ogbonna et al., (1991) among pregnant women in Jos, Northern Nigeria, the prevalence rate of the present study is lower, but higher than that reported by Marched et al. (1979), in Mississippi, U.S.A. Transmission of the parasite from one person to the other is mostly through sexual intercourse, hence previous workers have reported high prevalence of the infection among highly promiscuous women (Trussel, 1947), sexually active adolescents (Decastero, 1989), and female students with multiple sex-partners (Anosike et al., 1993). However, infections through other means like toilet seats, contaminated towels, examination instruments, examination equipment among others are possible (Jawetz et al., 1982; Okoli, 1990; Smyth, 1996). It was estimated that about 200 million people are infected annually with *T. vaginalis* (Quinn and Holmes, 1984), and most of them were females. Ogbonna et al. (1991) reported a prevalence of 37.6 % among pregnant women in Jos metropolis and 24.8% among pregnant women in Jos rural community. In Nigeria and perhaps, most countries of the world, no serious attention has been given to *Trichomonas vaginalis* infection. Public Health Workers do not regard the infection as a serious health problem, yet the public health implications are many. According to WHO (1992), when left untreated, reproductive tract infection (RTIs) represent a vast reservoir of infection with serious short-term and long-term effects on women's overall health status. They have an impact on a range of issues, including maternal functions, fatigue, and child survival. For several reasons, women are at greater risk of *T. vaginalis* infection as with other STDs than men. Paterson, (1996) observed that women are biologically more vulnerable than men to all STDs. The author argued that while there is a 25 per cent chance of a man contracting gonorrhoea from unprotected sex with an infected woman, there is a 50 per cent chance of a woman contracting it from an infected man.

**Table 1.** Prevalence of trichomoniasis among women in Owerri.

Age (years)	Number of Persons Examined	Numbers of Persons Infected		
		Urine Deposit (%)	Stained Smear (HVS) (%)	Wet Smear (HVS) (%)
11-15	277	65 (12.21)	56(10.51)	67(12.57)
16-20	453	423(23.31)	392(21.6)	443(24.42)
21-25	305	128 (21.01)	110(18.06)	132(21.67)
20-30	324	17 (6.59)	17(6.59)	18(6.59)
Total	3,280	633(19.32)	575(17.55)	660(20.14)



**Figure 1.** Prevalence of trichomoniasis among women in Owerri, Imo State.

**Table 2.** Comparison of the prevalence of *T. vaginalis* in the urban and rural areas.

Owerri Urban		Rural Communities	
Number Examined	Number Infected (%)	Number Examined	Number Infected (%)
2,647	593 (22.4)	633	70(10.44)

**Table 3.** Prevalence of infection according to number of sex partners.

One Sex Partner		Two Sex Partners		> Sex Partners	
Number Examined	Number Infected (%)	Number Examined	Number Infected (%)	Number Examined	Number Infected (%)
2,054	395 (17.48)	939	199 (21.19)	287	102 (35.54)

This is because the concentration of the pathogen in the semen is far greater than it is in the vaginal secretions of the woman and vaginal membranes are more permeable than the surface of the penis. As with other STDs, certain cultural practices make women more susceptible to *T. vaginalis* infection. Some of these have been reviewed by Kit and Safaids, (1998) and they include:

(i) Female genital mutilation (circumcision) practiced in many countries. It has been observed that infibulation (in which the labia minora and labia maiora are cut away and the vulva is sewn shut leaving a pinhole opening for

urination and menstruation) leads to extensive tearing and bleeding when sexual intercourse is attempted. Less extreme circumcision, like removal of the clitoris hood, presents little risk during sex, but the procedure is potentially risky.

(ii) Excessive rubbing of the genitals during foreplay and intercourse or rough sex, lead to sores in the mucous membrane through which parasites can enter.

(iii) The use of herbs and other substances in the vagina to cause dryness, heat and tightness, often cause inflammation and erosion of the vaginal mucosa making it easier for parasites to penetrate.

**Table 4.** Prevalence trichomoniasis and associated infections in Owerri.

Number of People Infected	Nature of Infection			
	<i>T. vaginalis</i> Only (%)	<i>T. vaginalis</i> and <i>Candida</i>	<i>T. vaginalis</i> and Bacteria	<i>T. vaginalis</i> , <i>Candida</i> and Bacteria (%)
660	101 (15.3)	182 (27.58)	321 (48.64)	56 (8.48)

**Table 5.** Symptoms associated with trichomoniasis on Owerri.

No symptom		Itching and burning		Discharge	
Number Examined	Number Infected (%)	Number Examined	Number Infected (%)	Number Examined	Number Infected (%)
2,108	261 (12.48)	661	314 (47.5)	511	85 (16.63)

Besides, young women are at greater risk of *T. vaginalis* infection and other STDs, than mature' women because a teenager's vagina is not as well lined with protective cells as that of a mature woman. Her cervix may be more easily eroded, thereby enhancing the risk of infection. The prevalence of infection in the present study is higher among younger women aged 21-40 years, probably because they are in the more sexually active age, and thus more exposed to the risk of infections. This observation agreed with the earlier reports of Marchetti *et al.* (1979) and Anosike *et al.* (1993).

Also, women with multiple sex partners showed a higher prevalence rate of infection than those with single sex partners. This shows that the more the number of sex partners an individual has, the greater the risk of infection with *Trichomonas vaginalis*. Earlier reports by McLellan *et al.* (1982) and Reitano, (1990) agreed with this observation. Although, the prevalence of infection was remarkably higher among women with symptoms of urinary tract infection, out of 2,108 asymptomatic women examined, 261 (12.48%) were infected with *T. Vaginalis*. This shows that, like men, women infected with *T. vaginalis* could remain asymptomatic and continue to spread the infection to other people. Mixed infections with bacteria and/or *Candida* spp. occurred in a greater number of women infected with *T. vaginalis* in this survey.

This indicates that *T. vaginalis* infection can create opportunity for other more deadly infections. The observations of Ugo and Acholonu, (1996) in Zimbabwe supported this observation. Therefore, the negative attitude of health workers and the general public to trichomoniasis as a harmless infection is very erroneous. The high prevalence of the infection in the urban city (22.4%) as compared with the rural areas (10.63%) shows that trichomoniasis is more of a problem of urban dwellers than die rural people. A similar observation was made by Ogbonna *et al.* (1991), in Jos metropolis. Therefore, people in urban cities should watch out and apply preventive measures against *T.*

*vaginalis* infection.

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