



**PREVALENCE OF *TRICHOMONAS VAGINALIS* INFECTION AMONG WOMEN ATTENDING HOSPITALS/HEALTH CENTRES IN ONITSHA COMMUNITY, ONITSHA NORTH LOCAL GOVERNMENT AREA OF ANAMBRA STATE**

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**ABSTRACT**

A study of *Trichomonas vaginalis* infection among women of Onitsha community in Onitsha North Local Government area Anambra State, Nigeria was carried out between January to June, 2013. A total of 200 women less than 20years and above, who attended hospital/health centres during the study were involved in the study. Two hundred samples of vaginal swabs were carefully and aseptically collected from the vaginal area using well-labeled, sterile, non-abrasive high vaginal swab sticks. All samples were centrifuged and examined microscopically within 2 hours of collection. The presence of *Trichomonas vaginalis* was detected by its characteristic jerking movement in a wet preparation. An overall prevalence of 17.5% *T. vaginalis* infection was obtained. The highest prevalence of *T. vaginalis* infection (27.5%) was obtained from General Hospital Onitsha. However, none (0%) was obtained in safety Medical Laboratory. The highest prevalence (47.2%) was obtained from age group 30-39 years age old. Non-pregnant women were more infected (17.8%) than pregnant ones (16.7%) but the difference was not statistically significant ( $p>0.05$ ). Adequate personal hygiene, avoidance of promiscuity, faithfulness to on sexual partner, and health education were advocated for improvement of their health.

**INTRODUCTION**

*Trichomonas vaginalis* infection is the most common sexually transmissible infection (STI) worldwide (Johnson and Maybey, 2008). It has a cosmopolitan distribution and has been identified in all racial and socio-economic groups (Brown, 1992). The infection is common in sexually active males and females especially within

the child-bearing age (CDC, 2006). Higher prevalence is observed among persons with multiple sexual partners or other venereal diseases (Brown, 1992). It is frequently encountered among women complaining of abnormal vaginal discharges and itching accompanied with vulva-vaginal irritation, dysuria and lower

abdominal pains (Thomson *et al.*, 1989).

Globally, trichomoniasis affects approximately 57-180million people, with the majority living in developing countries (Adu-Sarkodie, 2004). Prevalence of *T. vaginalis* infection ranged from 12% to 28.5% across a variety of populations including obstetrics and gynaecology clinic attendees, (Swygard *et al.*, 2004), clinic attendees, commercial sex workers (Diamond *et al.*, 1994), and community based population, (WHO, 1992). Increasing prevalence of trichomoniasis has been reported in many states of Nigeria including Lagos (Oyerinde, 1999), Plateau (Jombo *et al.*, 2007), and Imo states (Ulogu *et al.*, 2007).

The common symptoms includes, a smelly yellowish green discharge from the vagina, itchy genitals and thighs, swollen labia, pain during sexual intercourse or urination, low abdominal pain and soreness, cervical erosion, small punctual haemorrhages and swollen papillae may be found on the cervix and vagina (Cudmore *et al.*, 2004). It has also been implicated in amplifying Human Immune Deficiency Virus (HIV) transmission (Laga *et al.*, 1993; Soper, 2004).

This study was therefore undertaken to determine the prevalence and epidemiological correlates of *Trichomonas vaginalis* infection among females attending General Hospital, Onitsha North Primary Health Care centre, Onitsha Diagnostic Centre and Safety Medical Laboratory

all in Onitsha North L.G.A. of Anambra State.

## Materials and method

### Study area

The study was carried out in Onitsha community in Onitsha-North Local Government Area, Anambra State, South Eastern Nigeria between January and June 2013. Onitsha has an area of 36.19km<sup>2</sup> with geographical coordinates of latitude 6°10'N and longitude of 6°47'E and lies on the eastern bank of Niger River, in the rain forest belt of Nigeria. It experiences two different seasons, a wet season of abundant rainfall which begins in April and ends in October or early November and a practically rainless dry season which lasts from November to March. The temperature ranges between 22°C and 37°C and has annual rainfall of between 152cm and 203cm.

Onitsha North has a population of approximately 5,000 women most of whom are traders. The high class level consists of the lawyers, doctors and the very successful business ones. The middle class level comprises of the civil servants, the teachers and the government workers and the low class level comprises of the unemployed ones and students. The educated ones are many but not as much as the traders. Due to the proximity of the community to the Niger River, some of the women settled for farming producing most of the things sold at the popular Onitsha main market.

NB: Classification of the subjects into socio-economic status were based on the area where they live, hence there are:

- i. High class which consists of those that live in government reserved areas (GRA), Housing Estate etc.
- ii. Middle class-those that live in MCC, Awada, Fegge etc.
- iii. Low class –those that live in Okpoko, Odoakpu etc.
- iv. Unclassified- those that have no permanent place of living.

### Methodology

A total number of 200 women between the ages less than 20 years and above who attended hospitals /health centers used as case studies were used for the period of study. The bio-data of the participants such as age, pregnancy status occupation, level of education, marital status, and socioeconomic group (based on where they live) were obtained through direct interviews. The participants comprised of apparently healthy people without any complicated signs or symptoms of *Trichomonas vaginalis* infection.

Two hundred samples of vaginal discharge were carefully collected aseptically from the high vaginal area. Each sample was poured into a test tube and few drops of normal saline were placed into the tube containing vaginal secretion and centrifuged for three minutes at 2000 rotations per minute (rpm) (CDC, 2006). The supernatant was discarded and the sediment examined. A drop of the sediment was then placed on a clean, grease-free slide, covered with cover slip and examined microscopically with low power (X10) and high power (X40) objectives. Chi-square statistical package with 0.05 degree of freedom was used to determine the difference.

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### ETHICAL CONSIDERATION

Approvals were given by the Medical Director of General Hospital, Onitsha North Primary Health Centre and the proprietors of Safety Medical Laboratory and Onitsha Diagnostic Centre. Participation was voluntary and informed consent was obtained with the help of the introductory letter from the Head of the Department of Parasitology and Entomology, Nnamdi Azikiwe University, Awka.

### RESULTS

Of the 200 women that were examined, 35 (17.5%) were positive. The highest prevalence was seen in General Hospital 22(27.5%) while the least was found in Safety Medical Laboratory with 0(0%).Statistical analysis shows that the prevalence of *Trichomonas vaginalis* infection is not dependent on the hospitals/health centre.

The prevalence of *Trichomonas vaginalis* infection among the age groups is shown in Table 3. Of all the age groups examined for *Trichomonas vaginalis* infection, the highest prevalence of 17(47.2%) was seen in age group 31-40 years old followed by those less than twenty years old (14.3%) while the least prevalence of 4(8.0%) was seen in those more than fifty years old. Statistical analysis shows that the prevalence of *Trichomonas vaginalis* infection is dependent on the age of the participants.

The prevalence of *Trichomonas vaginalis* infection among the pregnant and non-pregnant women participants is shown in Table 4. Of the 48 pregnant women examined, 8(16.7%) tested

positive. While 8(16.7%) out of 152 non-pregnant women examined were positive. Statistical analysis shows that the prevalence of *Trichomonas vaginalis* infection is not dependent on the pregnancy status.

The prevalence of *Trichomonas vaginalis* infection by marital status is shown in Table 5. 8(16.0%) of 50 single women examined were positive. Those that were married were found to have the highest prevalence of trichomoniasis followed by those that were single (16.0%). The least prevalence were found by widows (8.0%) Statistical analysis shows that the prevalence of *Trichomonas vaginalis* infection is not dependent on marital status.

The prevalence of *Trichomonas vaginalis* infection by occupation is shown in Table 6. The highest prevalence (25.9%) of *Trichomonas vaginalis* was observed among the traders followed by farmers (22.9%). While the least prevalence of 2(5.0%), was observed among the civil servants. Statistical analysis shows that the prevalence of *Trichomonas vaginalis* infection is not dependent on occupation.

Table 7 shows the prevalence of *T. vaginalis* infection in relation to level of education. The highest prevalence (25.4%) of *T. vaginalis* infection was observed among those with West African School Senior Certificate Examination followed by those with First school leaving certificate (22.6%), while the least prevalence of 10.9% was observed among degree holders. Statistical analysis shows that the prevalence of *Trichomonas vaginalis*

infection is not dependent on the level of education.

Figure 1 shows the prevalence of *Trichomonas vaginalis* infection according to socio-economic status. The classification was based on where they live. Those that belong to lower class had the highest of 47.0% followed by those in the higher class (37.0%) Statistical analysis shows that the prevalence of *Trichomonas vaginalis* infection is not dependent on the socio-economic status of the participants.

## DISCUSSION

This study showed that *T. vaginalis* infection (17.5%) is a public health problem in Onitsha. The high prevalence of *T. vaginalis* infection among women aged 21-30 years 17(47.2%) followed by those less than twenty years (14.3%) agrees with the report by Barch and Rees (1989) that *Trichomonas vaginalis* infection is widely distributed among individuals between 20-45 years of age. This probably is due to high sexual activities of this age group. However, their result in which there was low prevalence (3.0%) in post menopausal women do not agree with the findings of this study in which high prevalence was recorded among women more than 50 years old. The high prevalence among the post menopausal women was probably a result of long standing infection that has been left undiagnosed for years. Women less than twenty years old recorded the second highest prevalence (14.3%). This shows their tendency to be promiscuous probably because of the

high level of indiscipline in the community.

*T. vaginalis* prevalence also varied with marital status of the women, being highest among the married women (20.0%) and least among singles 8(16%). The high prevalence could be the practice of polygamy in the community, where the husband may be asymptomatic carriers, transmitting the infection to wives. Improper hygiene could also play a role here. The increased risk of trichomoniasis was found in individuals with multiple sex partners, poor hygiene and during pregnancy. The least prevalence recorded among the singles 8(16%) agreed with the report by Cameron and Padia (1999) that the prevalence of trichomoniasis is dependent on the number of sexual partners. Moreover, the prevalence of *T. vaginalis* infection is independent of marital status but sexual activity.

Prevalence of *T. vaginalis* infection is not dependent on the level of education. This is in contrast to the provision studies in Maryland, U.S.A (FMHN, 2003) and in Ilorin, Nigeria (Aboyeji and Nwabuisi, 2003), where a low level of education was associated with significant *T. vaginalis* infection among women. This may be as a result of the low level of discipline found in this community.

The high prevalence of *T. vaginalis* infection found among traders (25.9%) could be because the word “traders” is all encompassing. Some of them could be commercial sex workers, posing themselves as traders. Cameron and Padia (1999) reported that *Trichomonas vaginalis* infection

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prevalence ranges from 5-10% in healthy women and as high as 50% in prostitutes and female prisoners.

The second least prevalence (22.9%) observed among farmers does not agree with observation reported by Anosike *et al.*, (1993) where high prevalence was observed among students. This probably might be due to high level of literacy shown by especially university students. However, prevalence of *Trichomonas vaginalis* infection is not dependent on occupation. Barch and Rees (1989) have earlier reported increased risk of *T. vaginalis* infection in individuals with multiple sex partners and poor hygiene during pregnancy.

## CONCLUSION

Trichomoniasis is an unpleasant disease that can go undiagnosed for years and is often transmitted by an asymptomatic carrier (CDC, 2006). This seems to be the major factor that influenced the prevalence rate of infection in Onitsha community.

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**Table 1: Prevalence of *Trichomonas vaginalis* infection among women in relation to hospitals/health centre**

Hospital /health centres	No examined	No infected	percentage (%)
General Hospital	80	22	27.5
Onitsha Diagnostic Centre	50	8	16.0
Primary Health Centre	45	5	2.5
Safety Medical Laboratory	25	0	0.0-
Total	200	35	17.5

[(  $X^2_{tab}(12.59) > X^2_{cal}(12.19)$  p>0.05)]

**Table 2: Socio-demographic data of Onitsha North**

Variable	Frequency	Percentage (%)
<b>1. Occupation</b>		
Students	35	17.5
Traders	58	29.0
Civil servants	40	20.0
Farmers	35	7.5
Unemployed	32	16.0
<b>2. Level of education</b>		
Informal	18	9.0
First School Leaving Cert.	31	15.5
O' Level	59	29.5
Tertiary/Degree	92	46.0
<b>3. Socio-economic status</b>		
Low class	51	25.5
Middle class	35	17.5
High class	47	23.5
Unclassified	67	33.5
<b>4. Age (years)</b>		
<20	56	28.0
21-30	36	18.0
31-40	35	17.5
50+	73	36.5

<b>5. Marital status</b>			
Single	50		25.0
Married		125	62.5
Widowed		25	12.5
<b>6. Pregnancy Status</b>			
Pregnant		48	24.0
Non-pregnant	152		76.0

**Table 3: Prevalence of *Trichomonas vaginalis* infection with respect to age**

Age (years)	No. Examined	No. infected	percentage (%)
<20	56	8	14.3
21-30	36	17	47.2
31-40	35	3	8.6
41-50	73	7	9.6
>51	50	4	8.0
Total	200	35	17.5

[[ $X^2_{cal}$  (27.52) <  $X^2_{tab}$  (12.59) p<0.05]]

**Table 4: Prevalence of *Trichomonas vaginalis* infection among the pregnant and non-pregnant women participants**

Pregnancy status	No examined	No infected	percentage (%)
Pregnant	48	8	16.7
Non-pregnant	152	27	17.8
Total	200	35	17.5

[[ $X^2_{tab}$  (5.99) >  $X^2_{cal}$  (0.03) p>0.05]]

**Table 5: Prevalence of *Trichomonas vaginalis* infection in relation to the marital status of the participants**

<b>Marital status</b>	<b>No examined</b>	<b>No infected</b>	<b>percentage (%)</b>
Single	50	8	16.0
Married		125	25
Widowed		25	2
Total		200	35
			17.5

[( $X^2_{\text{tab}}(9.49) > X^2_{\text{cal}}(2.16)$  p>0.05)]

**Table 6: Prevalence of *Trichomonas vaginalis* infection according to occupation of the participants**

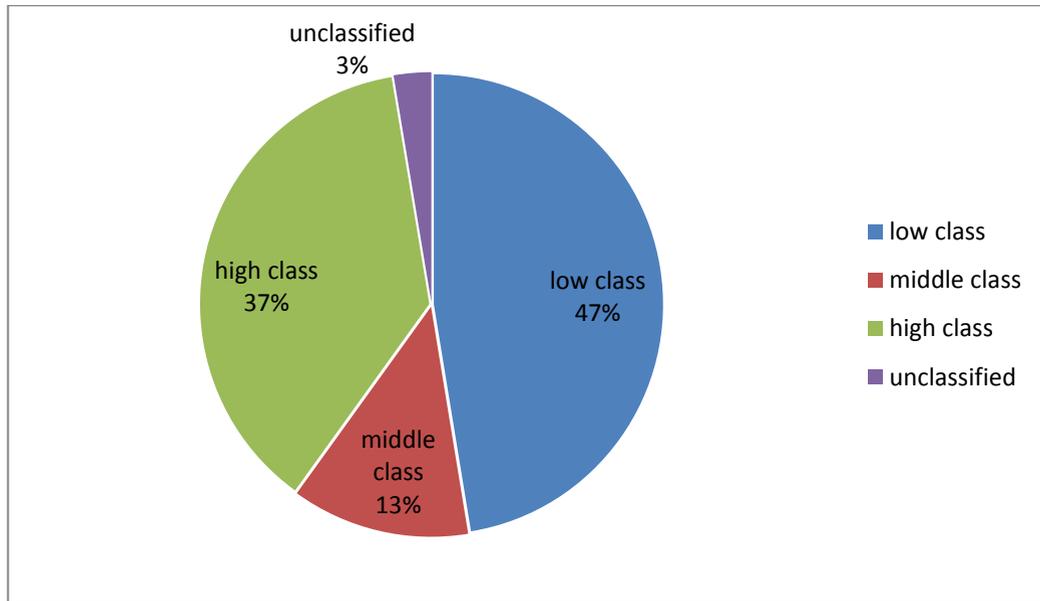
<b>Occupation</b>	<b>No Examined</b>	<b>No infected</b>	<b>percentage (%)</b>
Students	35	4	11.4
Traders	58	15	25.9
Civil servants	40	2	5.0
Farmers	35	8	22.9
Unemployed	32	6	18.8
Total		200	35
			17.5

[( $X^2_{\text{tab}}(15.51) > X^2_{\text{cal}}(8.77)$  p>0.05)]

**Table 7: Prevalence of *Trichomonas vaginalis* infection according to level of education of the participants**

<b>Level of Education</b>	<b>No Examined</b>	<b>No infected</b>	<b>Percentage (%)</b>
Informal	18	3	16.7
FSLC	31	7	22.6
WASSCE	59	15	25.4
Tertiary/Degree	92	10	10.9
Total		200	35
			17.5

[( $X^2_{\text{tab}}(12.59) > X^2_{\text{cal}}(5.92)$  p>0.05)]



[( $X^2_{tab}$  (12.59) >  $X^2_{cal}$  (4.49)  $p > 0.05$ )]

**Fig. 1:** A pie chart showing the prevalence of *Trichomonas vaginalis* infection in relation to the socio-economic status.