Socio-Demographic Characteristics among Adult Participants in a Trichomoniasis Study in Owerri Senatorial Zone of Imo State, Nigeria

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ABSTRACT

Trichomonas vaginalis infection is a common sexually transmitted infection that can affect adults across different age groups and social backgrounds. However, its occurrence may vary according to demographic and socioeconomic characteristics. This study assessed the socio-demographic characteristics among adult participants in Trichomoniasis study in Owerri Senatorial Zone of Imo State, Nigeria. A descriptive cross-sectional study was conducted among 720 adult participants. Information on selected socio-demographic characteristics was obtained using a structured questionnaire. The data were summarized using frequencies and percentages, and associations between socio-demographic variables were evaluated using the chi-square test. Out of 720 participants assessed, 347 (48.19%) were positive for trichomoniasis, while 373 (51.81%) were negative. Prevalence varied markedly across age groups, with the highest prevalence recorded among participants aged 20–29 years (72.78%), followed by those aged 30–39 years (53.89%) and those aged ≥50 years (46.67%). The lowest prevalence occurred among participants aged 40–49 years (19.44%). Females had a higher prevalence (57.50%) than males (38.89%). Age was significantly associated with trichomoniasis ($X^2 = 105.67$, df = 3, $p < 0.001$), as was sex ($X^2 = 20.27$, df = 1, $p < 0.001$). Among the positive participants, married group constituted the largest proportion (42.07%), followed by singles (38.62%). Participants with secondary education accounted for the largest proportion of positive cases (57.64%). By occupation, unemployed participants constituted the largest proportion of positive cases (32.85%), followed by traders (28.24%) and students (21.61%). These findings indicates that no socio-demography is exempted from this disease therefore proper and immediate caution is to be adopted in the drastic reduction of trichomoniasis in the society as its effect may be harmful to both adults and children.

INTRODUCTION

Trichomonas vaginalis is the chief motile parasitic protozoa which causes trichomoniasis. It is acquired through sexual intercourse causing sexually transmitted disease (STD) which is of global significance and one of the utmost predominant causes of non-viral sexual transmitted infections (Schwebke and Donald, 2004). Trichomoniasis occurs in females though males rarely exhibit any symptoms. If the normal acidity of the vagina is shifted from semi-acidic pH (3.8-4.2) to a much baser form (5.0-6.0) that will be beneficial for *T. vaginalis* growth (Swygard *et. al*., 2004). The flagellated protozoan *Trichomonas vaginalis* possesses five (5) flagella, four of the flagella is found along its fore section (anterior), one more which is the fifth motile structure is added within the organisms undulating rolling membranous apparatus which is sustained by a slender non-contractile feature (Kawthar *et. al.,* 2017). Symptoms of trichomoniasis are exhibited by the female gender most times than males (Newman, 2015). Some of the symptoms in males includes itching and irritation inside the urethra and penis, burning after urination and ejaculation as well as discharge from the penis (Ogomaka *et al.,* 2018) while in women, trichomoniasis leads to symptomatic effects which are as follows; foul-smelling vaginal discharge, green-yellowish frothy vaginal discharge, irritation of the vulva, strawberry punctuate hemorrhagic lesion of the cervix, genital itching and painful urination (Amadi and Nwagbo, 2013). Notwithstanding, it can thrive in different pH environment specifically in fluctuating surrounding of the female genital organ. When there is an adjustment from a normal vaginal acidity of 3.8 - 4.2 to a much more basic form of 5.0-6.0, *T. vaginalis* finds it

favourable to proliferate (Swygard *et al.,* 2004). There are so many strategies at which the study parasite inflicts harm during infection (Zarrifard *et. al*., 2004) These strategic moves imply:

a. Firstly, the pathogenic organism develops an interrelation alongside normal vaginal flora.

b. Secondly, its strategically avoids and compromise the defense cells.

c. Thirdly it copies the cells of the muscle in the urogenital walls.

d. fourthly, it attaches itself through its barbwire-like flagella to walls of its environs as well as help of adesins (Alderete *et. al.,* 2002).

Gloria and Cecilia 2015, trichomoniasis thrives in a variety of acidic pH. The protozoa are not able to proliferate in normal vaginal pH of about 5.4- 8.3 but when there is an increasing effect on the vaginal pH either during pregnancy or menstruation, the risk of fungal infections growth makes it possible. It is an indisputable fact that no social status is exempted, its neglected asymptomatic effect could be health implicating even to the foetus, hence its negligence has led to this study area.

MATERIALS AND METHODS

A descriptive cross-sectional survey was conducted among adults in Owerri Senatorial Zone, Imo State, Nigeria, using a well-structured questionnaire to obtain information on selected socio-demographic characteristics.

No specimen was collected, there was no wet-mount microscopy, no urine analysis, HVS collection, or laboratory diagnosis. Participants age was a determining factor in their eligibility, since participants had to be at least 20years old.

Study Area

This study was carried out in Owerri, the capital city of Imo State, Southeastern Nigeria. Majority of their indigenous population are made up of business owners, students, a small number of civil servants, unemployed and artisan folk. The study area provided access to adults from different socio-demographic backgrounds, making it suitable for assessing selected socio-demographic characteristics relevant to the study.

Study Population

The study population includes seven hundred and 20 (720) male and female participants between the age of 20 and above. Participants below 20 years of age were excluded. This population included adults in student hostel and higher institutions, market/Business people, adults encountered in public places and civil servants.

Data Collection

Participants were informed about the purpose of carrying out this study before the questionnaires was administered to them. The use of questionnaire is to enable the researcher gather vital information. Participation was voluntary, and informed consent was obtained from each participant. A structured questionnaire was then administered to collect relevant socio-demographic information, including age, sex, marital status, educational attainment, and occupation. Completed questionnaires were collected and reviewed for completeness before data entry and analysis.

Statistical Analysis

Data obtained from the completed questionnaires were tabulated, and analyzed using descriptive statistics. Frequencies and percentages were used to summarize the socio-demographic characteristics of the participants, including age, sex, marital status, educational attainment, and occupation. The results were presented in tables and figures.

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Ethical Consideration

Ethical considerations were given and approved.

Tables presenting the prevalence of *T. vaginalis* in relation to various socio-demographic characteristics. The various socio- demographic characteristics displays prevalences in Trichomoniasis in adults (Table 1)

Table 1. Age and Sex Related Prevalence of Trichomoniasis Among Study Participants

Age group (years)	Total examined	Positive respondent (%)	Negative respondent (%)	Males examined	Male positive R (%)	Females examined	Female positive R (%)
20–29	180	131 (72.78)	49 (27.22)	90	53 (58.89)	90	78 (86.67)
30–39	180	97 (53.89)	83 (46.11)	90	31 (34.44)	90	66 (73.33)
40–49	180	35 (19.44)	145 (80.56)	90	20 (22.22)	90	15 (16.67)
≥50	180	84 (46.67)	96 (53.33)	90	36 (40.00)	90	48 (53.33)
Total	720	347 (48.19)	373 (51.81)	360	140 (38.89)	360	207 (57.50)

Participants under the age group 20–29 years (72.78%) had the highest prevalence, followed by those aged 30–39 years (53.89%), ≥50 years (46.67%), and 40–49 years (19.44%). A chi-square test showed that there was a statistically significant association between age group and trichomoniasis status ($X^2 = 105.67$, df = 3, $p < 0.001$). A statistically significant association was also observed between sex and trichomoniasis status ($X^2 = 20.27$, df = 1, $p < 0.001$).

Figure 1. Cluster column displaying Age prevalence amongst participants

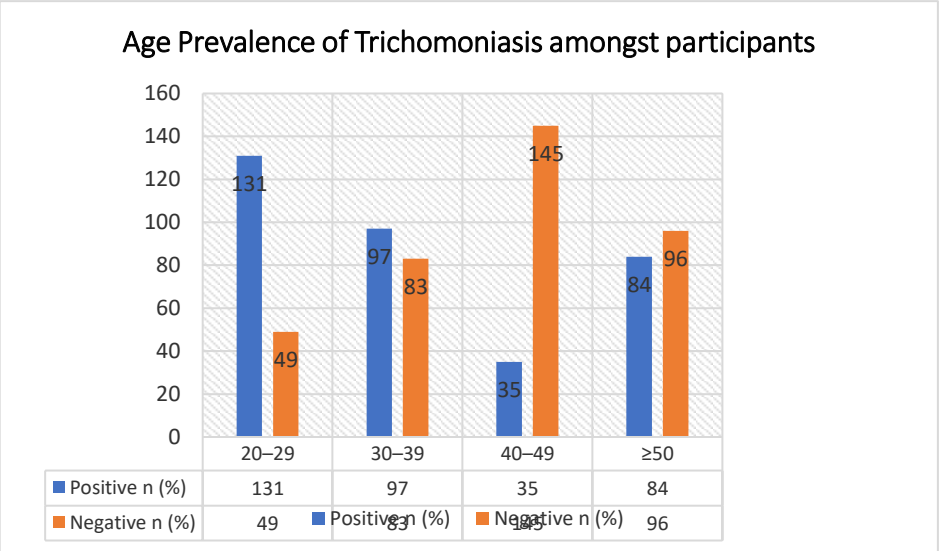

Table 2. Distribution of Trichomoniasis-Positive Participants by Marital Status and Sex Socio-Demography.

Marital status	Positive R (%)	Male positive R (%)	Female positive R (%)
Single	134 (38.62)	56 (16.14)	78 (22.48)
Cohabiting	8 (2.31)	0 (0.00)	8 (2.31)

Married	146 (42.07)	52 (14.99)	94 (27.09)
Divorced	12 (3.46)	8 (2.31)	4 (1.15)
Bereaved/widowed	47 (13.54)	24 (6.92)	23 (6.63)
Total	347 (100.00)	140 (40.35)	207 (59.65)

Figure 2. Bar chart represents Distribution of Trichomoniasis-Positive Participants by Marital Status and Sex Socio-Demography

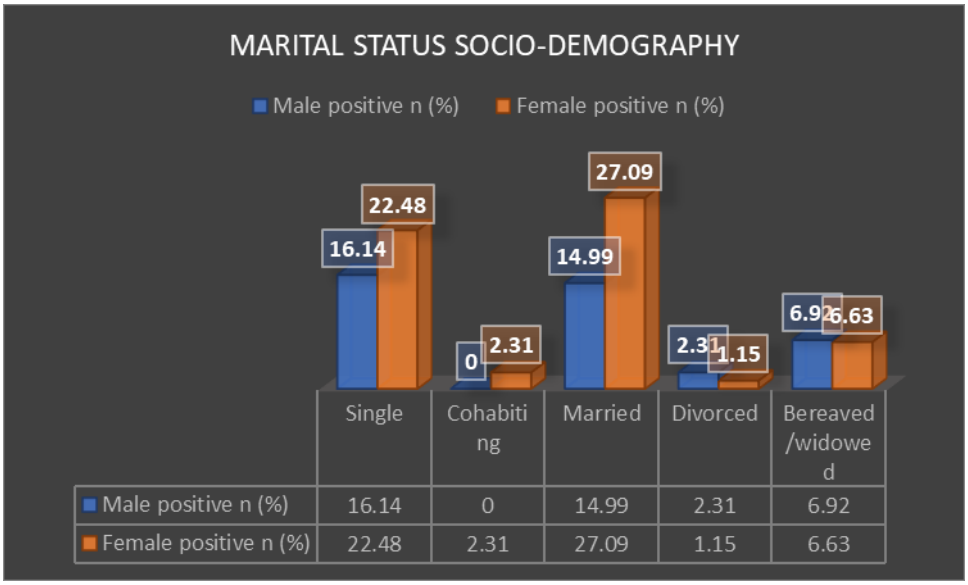

Table 3. Distribution of Trichomoniasis-Positive Participants by Educational Status and Sex.

Educational status	**Positive R (%)**	**Male positive R (%)**	**Female positive R (%)**
Primary	76 (21.90)	36 (10.37)	40 (11.53)
Secondary	200 (57.64)	80 (23.05)	120 (34.58)
Tertiary	71 (20.46)	24 (6.92)	47 (13.54)
Total	347 (100.00)	140 (40.35)	207 (59.65)

Table 4. Distribution of Trichomoniasis-Positive Participants by Occupational Status.

Occupational status	**Positive R (%)**	**Male positive R (%)**	**Female positive R (%)**
Traders	98 (28.24)	48 (13.83)	50 (14.41)
Artisans	25 (7.20)	10 (2.88)	15 (4.32)
Unemployed	114 (32.85)	45 (12.97)	69 (19.88)
Civil servants	35 (10.09)	16 (4.61)	19 (5.48)
Students	75 (21.61)	21 (6.05)	54 (15.56)
Total	347 (100.00)	140 (40.35)	207 (59.65)

Figure 3. Pie chart represents Distribution of Trichomoniasis-Positive Participants by Occupational Status.

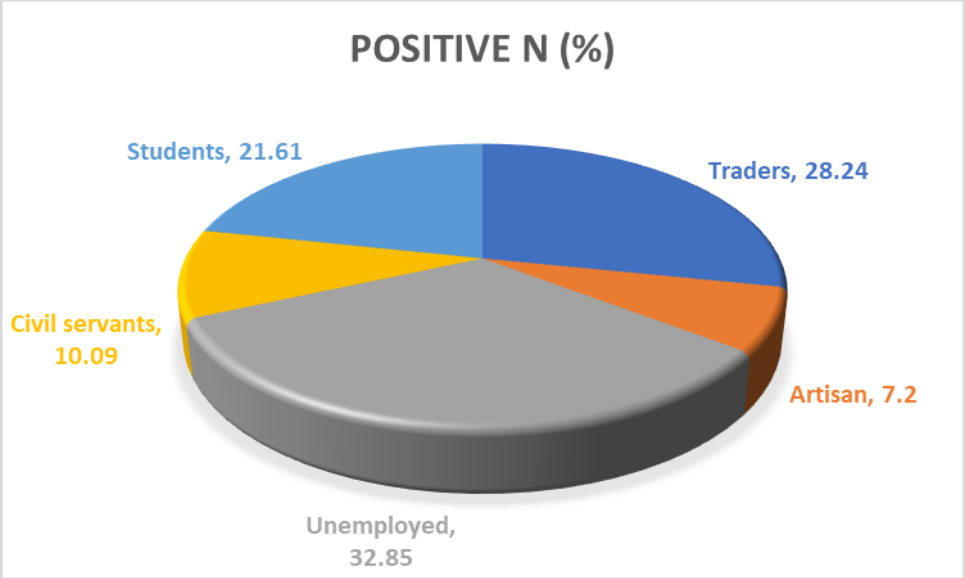

Table 4. and figure 3. Represents distribution of trichomoniasis-positive participants in relation to occupational status socio-demographic characteristic.

DISCUSSION

A total of 720 questionnaires was distributed to participants. Out of these, 347 questionnaires responded. The findings in Table 1 shows that the prevalence of trichomoniasis varied considerably across the different age groups. The highest prevalence was observed among participants aged 20–29 years (72.78%), followed by those aged 30–39 years (53.89%) and participants aged ≥50 years (46.67%). The lowest prevalence was recorded among participants aged 40–49 years (19.44%), females recorded a higher prevalence (57.50%) than males (38.89%). The observed differences in infection across age groups were statistically significant ($X^2 = 105.67$, df = 3, $p < 0.001$), indicating that age was significantly associated with trichomoniasis in the study population. Sex was also significantly associated with infection ($X^2 = 20.27$, df = 1, $p < 0.001$). Participants under the age group of 20–29 is known to be at their reproductive age hence related to a greater sexual activity, hormonal changes and changes in sexual partnerships. At this age group, adults may also have inconsistent condom use, multiple or new sexual partners, or limited access to regular screening and treatment for sexually transmitted infections.

Considering the fact that *Trichomonas vaginalis* infections can be asymptomatic, allowing infected individuals to unknowingly transmit the parasite to their partners. Participants aged ≥50 years recorded prevalence of 46.67%. This finding suggests that trichomoniasis is not restricted to younger sexually active adults. This could be as a result of suppressed immune system, lack of hygiene, changes in sexual behaviour, new partnerships following separation or widowhood and reduced perception of STI risk among older adults may also contribute to infection in this age group.

The higher prevalence among females (57.50%) compared with males (38.89%) shows epidemiological characteristics of urogenital trichomoniasis, although differences in healthcare-seeking behaviour and likelihood of diagnosis may also contribute. Table 2. presents the distribution of trichomoniasis-positive participants according to marital status and sex. Among the 347 participants who tested positive, the highest proportion were married participants (42.07%), followed by single participants (38.62%). Thirteen percent (13.54%) of participants were bereaved/widowed, while a smaller percentage was divorced (3.46%) or cohabiting (2.31%). The relatively high rate of positive cases among married participants can be explained by the fact that marriage does not always eliminate the risk of sexually transmitted infections. Infection may occur when one partner has an undiagnosed or persistent infection, especially since trichomoniasis is often asymptomatic. Reinfection between sexual partners may also occur when only one partner receives treatment. Single participants (38.62%) also showed a high prevalence due to certain factors such as inconsistent condom use, limited STI screening,

and inadequate awareness of asymptomatic infections that may increase *T.vaginalis* tendencies. Nevertheless, marital status alone cannot be considered a direct cause of infection, as other behavioural and socioeconomic factors may contribute.

Table 3 shows the distribution of trichomoniasis-positive participants according to educational status. The largest proportion of the 347 positive participants was secondary education (57.64%), followed by primary education (21.90%) and tertiary education (20.46%). Females accounted for a larger proportion of the positive participants (59.65%) than males (40.35%). The predominance of positive cases among participants with secondary education may be related to differences in sexual health knowledge, access to reliable information, health-seeking behaviour, and awareness of sexually transmitted infections. On the vein, the lower prevalence observed among participants with tertiary education (20.46%) could particularly be as a result of higher health information exposure and better awareness of preventive practices.

Table 4 presents the distribution of trichomoniasis positive participants according to occupational status. Among the 347 participants who tested positive, the largest proportion were unemployed (32.85%), followed by traders (28.24%) and students (21.61%). Civil servants accounted for 10.09%, while artisans represented the smallest proportion of positive participants (7.20%). Females constituted a higher proportion of the positive participants (59.65%) than males (40.35%). High prevalence seen in unemployed participant could be as a result of socioeconomic factors, lack of money to keep hygiene, limited access to healthcare and possible financial barriers to STI screening and treatment. The considerable proportion of positive cases among traders (28.24%) may reflect the social and occupational environment in which traders interact with a wide range of people and may have varying levels of access to healthcare and health information. In a similar way, the percentage reported among students (21.61%) could be related to sexual activity, changing sexual partnerships, inconsistent condom use, and limited STI screening. The relatively lower percentage among artisans (7.20%) and civil servants (10.09%) might be due to differences in the composition of these occupational groups, access to healthcare or other socioeconomic characteristics.

CONCLUSION

In conclusion, these findings show that trichomoniasis occurs across different social and demographic groups and should not be viewed as a problem restricted to a particular age, marital, educational, or occupational category. the findings emphasize the need for continuous sexual health education, increased awareness, early diagnosis, appropriate treatment, and preventive practices among adults in the study area. Particular attention should be given to young adults, while older adults should not be overlooked in trichomoniasis prevention and screening efforts. Since the present study mainly describes socio-demographic patterns, further research incorporating behavioural, socioeconomic, and healthcare-related factors would provide a clearer understanding of why infection varies among different groups and would support more targeted interventions in the community.

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