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# Assessment of *Trichomoniasis* Prevalence and Healthcare Provider Knowledge among Pregnant Women: A Study at Luweero General Hospital, Uganda

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## ABSTRACT

*Trichomoniasis*, a prevalent sexually transmitted infection caused by *Trichomonas vaginalis*, significantly impacts maternal and fetal health, particularly during pregnancy. This study investigated trichomoniasis prevalence and healthcare provider knowledge among pregnant women attending antenatal services at Luweero General Hospital in Uganda. A cross-sectional study involving 385 pregnant women was conducted, with vaginal swabs examined for *T. vaginalis* presence. Additionally, healthcare providers' knowledge regarding *trichomoniasis* was assessed. Results indicated a low prevalence (1.8%) of *trichomoniasis* among the study population. Notably, midwives and nursing aides demonstrated the highest levels of knowledge. The age group most affected was 16-25 years old. These findings highlight the importance of continuous medical education for healthcare providers and targeted interventions to increase awareness among pregnant women, ultimately mitigating the burden of *trichomoniasis* in maternal health. Keywords: Trichomoniasis, *Trichomonas vaginalis*, pregnant women, antenatal services, prevalence, healthcare providers, knowledge, Uganda, sexually transmitted infections, maternal health

## INTRODUCTION

*Trichomoniasis* is an infectious disease caused by the parasite *Trichomonas vaginalis* [1]. It is a flagellated protozoan parasite possessing five flagella which are located at the posterior portion. The fifth flagellum is incorporated with the undulating membrane of the parasite which is supported by a slender non contractile costa, this parasite varies in size and shape with the average length and width being 13 and 10micrometers respectively. The life cycle *T. vaginalis* is simple and involves the direct transmission of viable *trophozoites*, unlike many protozoan parasites it possesses a *trophozoite* form and lacks a cyst stage [2]. According to Huda et al.[3], the disease is primarily transmitted through sexual contact and the incidence depends on the population screened and certain factors such as poor personal hygiene, multiple sex partners' low socio-economic status and under development. *Trichomonas vaginalis*, is human and bovine protozoan parasite that infects the human urogenital tract leading to the most common non-viral sexually transmitted disease (STD). *Trichomoniasis* the most common sexually transmissible infection (STI) worldwide [4]. The

infection is common in sexually active males and females with child bearing age [5]. Higher prevalence is observed among persons with multiple sexual partners or other venereal diseases. It is frequently encountered among women complaining of abnormal vaginal discharges and itching accompanied with vulvo-vaginal irritation, dysuria and lower abdominal pain [6]. Globally, *trichomoniasis* affects approximately 57-180million people with the majority living in developing countries. The prevalence of *T vaginalis* range from 12 to 28.5% across a variety of populations including obstetrics and gynecology clinic attendees, commercial sex workers and community based population [1]. The common symptoms of *trichomoniasis* include a smelly yellowish green discharge from the vagina, itchy genitalis and thighs, swollen labia pain during sexual intercourse or urination low abdominal pain and soreness, cervical erosion, small punctual hemorrhages and swollen papillae may be found on the cervix and vagina [4]. *Trichomoniasis* infection has been implicated in

amplifying Human Immunodeficiency Virus (HIV) transmission [7, 8].

Human *trichomoniasis* is a widely prevalent sexually transmitted infection with an estimated 3.7 million new infections acquired annually worldwide [9]. Serious complications of *trichomoniasis* in pregnant women that have been reported include; Pre- mature rapture of placental membranes, Pre- mature labor, Low birth weights and further enhances predisposition to Human immunodeficiency virus (HIV) transmission and acquisition [10, 11]. In Uganda particularly Luweero district, there is limited

information on the epidemiology of *trichomoniasis* among pregnant women due to the poor syndromic diagnosis and management approach in effectively targeting the infection [12], thus the study seeks to determine the proportion of *trichomoniasis* among pregnant women seeking antenatal services in Luweero general Hospital in luweero district. This study therefore, was designed to determine the proportion of *trichomoniasis* among pregnant women seeking antenatal services at Luweero hospital.

## METHODOLOGY

### Study Area

The study was conducted at Luweero general hospital. The Hospital is located in Luweero town council, Luweero district in central Uganda. It is about 62 km along Kampala-Gulu highway. The hospital has both inpatient and outpatient departments. It renders antenatal services, Immunization of children, general outpatient services, dental services, eye clinic it runs HIV/AIDS ART clinic and offers laboratory services among others. This hospital was chosen because it receives huge numbers of pregnant mothers with suspected cases of *trichomoniasis*.

### Study design

A study was cross sectional. This design was used because it takes short time and minimize biasness.

### Study Population

All pregnant women seeking antenatal services at Luweero general hospital with a vaginal discharge.

### Sample size determination

The sample size was calculated according to the standard formula of Kish and Leslie [13]

$$N = \frac{PQZ^2}{L^2}$$

Where N is the sample size required

P is the assumed prevalence (50%)

L is allowed error = 5% = 0.05

Z is the confidence interval (95%) = 1.96

Q = 1- p

Q = 1- 0.5

Q = 0.5

$$\text{Therefore } N = \frac{0.5 \times 0.5 \times 1.96^2}{0.05^2}$$

N = 385

Therefore, the sample size was 385 pregnant women

### Inclusion Criteria

Only pregnant women who were seeking antenatal services at Luwero general hospital with a vaginal discharge.

### Exclusion criteria

Pregnant women who had been or are on treatment for *trichomoniasis* infection, antibiotic medication

(either metronidazole or tinidazole) and those who didn't accept to participate in the study

### Sampling procedure

It was a convenience sampling because it was cheap

### Sample collection and processing

A clean sterile swab labeled with participant special identification number, age date, was issued to each participant and instructions on how to collect the samples was given by the interviewer

A vaginal swab was mixed with normal saline onto a well labeled glass slide and. Cover slip was applied on the preparation and glass slide was placed on microscope stage. The preparation was then examined microscopically for motile flagellates using 10x and 40x objective with the iris closed sufficiently to give good contrast [14].

### Quality control

This included pre-analytical, analytical and post analytical measures, new sterile swabs were used to collect samples. Standard operating procedures were used during laboratory procedures and the preparations was re-examined by the senior laboratory technologist to check on the quality of results

### Ethical considerations

After approval of the proposal, a letter of introduction to administration of Luweero general hospital was obtained from the Dean clinical medicine and dentistry Kampala International university western campus in addition only consented mothers participated in this study.

All the information obtained about the respondents from the study were treated with confidentiality and mother's names were not used during data collection

### Data analysis

Data obtained from microscopic examination of centrifuged urine for *trichomonas vaginalis* infection was analyzed using special statistical computer Programmed SPSS and the results were then presented in tables, graphs and pie chart form for easy reading and interpretation.

**RESULTS**

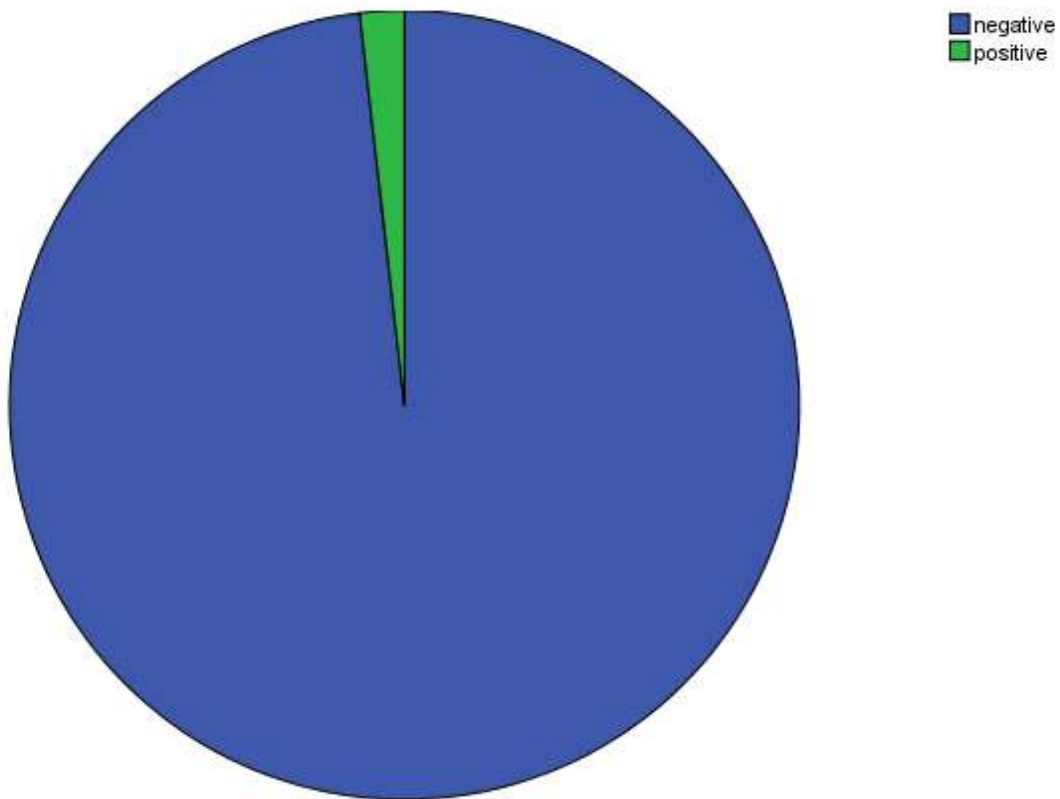
**Proportion of *trichomoniasis* among pregnant mothers seeking antenatal services at luweero general hospital**

**Table 1 proportion of trichomoniasis among pregnant women**

Status	Results	Percent
Negative	378	98.1
Positive	7	1.8
<b>Total</b>	<b>385</b>	<b>100.0</b>

The proportion of *trichomoniasis* among the 385 samples analyzed, 7 were positive and 378 negative.

This gave a percentage of 1.8 positive and 98.1 negative as shown in the figure 1 below.



*Figure 1 showing the proportion of trichomoniasis among pregnant women*

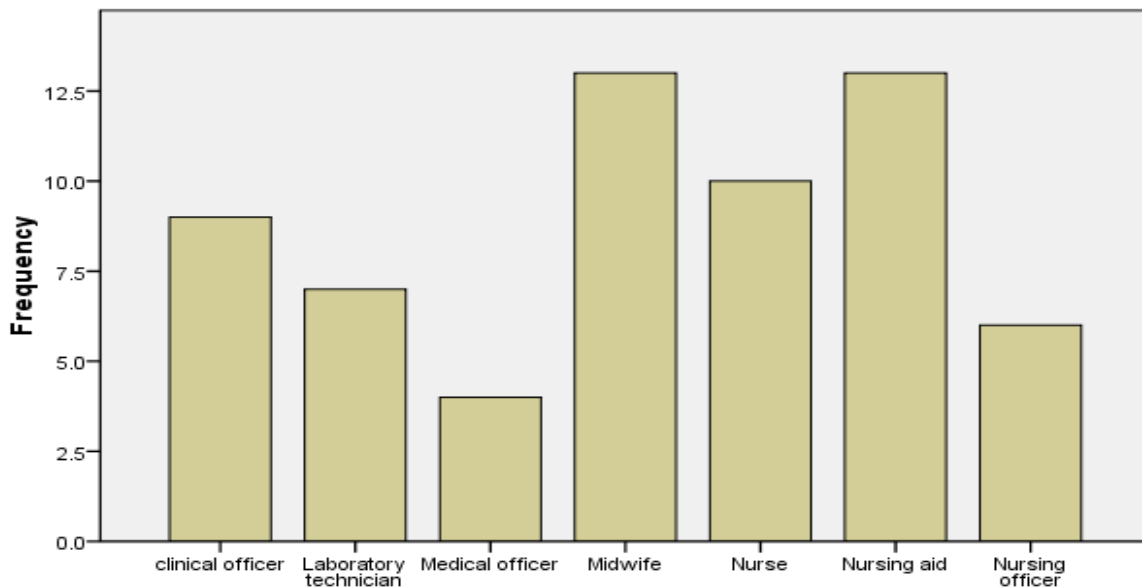
**Knowledge of clinicians attending to pregnant women seeking antenatal services at luweero general hospital have about *trichomoniasis***

**Table 2 Knowledge of clinicians about *trichomoniasis***

Clinician titles	Frequency	Percent
Clinical officer	9	14.5
Laboratory technician	7	11.3
Medical officer	4	6.5
Midwife	13	21.0
Nurse	10	16.1
Nursing aid	13	21.0
Nursing officer	6	9.7
<b>Total</b>	<b>62</b>	<b>100.0</b>

Midwives and nursing aid were knowledgeable about *trichomoniasis* with 21%, nurses 16.1%, clinical officers 14.5%, laboratory technician 11.3%, nursing officers

9.7% and medical officers being the list with 6.5% as shown below.



**Figure 2 A bar chart showing the knowledge of clinicians about *trichomoniasis***

Age group of pregnant women seeking antenatal services at luweero general hospital is most affected by *trichomoniasis*

**Table 3 shows age group distribution**

Age group	Frequency	Percent
16-25	204	52.9

26-35	123	31.9
36-45	58	15
<b>Total</b>	<b>385</b>	<b>100.0</b>

52.9% mothers were in the age group of (16-25), 31.9% (26-35) and only 15% were aged between (36-45) years as shown in the table 3 above.

**Table 4. most affected age group by trichomoniasis**

Age group	Positivity	Percent
16-25	5	71.4
26-35	2	28.5
36-45	0	.0
<b>Total</b>	<b>7</b>	<b>100.0</b>

The most affected age was (16-25) 71.4%, (26-35) 28.5% and none was affected by *trichomoniasis* in the age group of (36-45).

#### DISCUSSION

The proportion of *trichomoniasis* was low 1.8% that is 7 pregnant women were positive out of 385 pregnant women who participated in the study. This was a low proportion as compared to the study carried out by Sutton et al. [15] who found out that the proportion was 3.1%. This low proportion could have been due to one life time sex partner and vaginal douching. However, the proportion of *trichomoniasis* from the study was very low compared to 46.9% proportion among pregnant prisoners who were a high risk population Shuter et al. [16] and it was also in disagreement with the proportion obtained from a study conducted in Rakia Uganda 23.1% [17]. Midwives and nursing aid 21% were knowledgeable about *trichomoniasis* because most of them were fresh graduates from school, nurse 16.1%, clinical officers

14.5%, laboratory technician 11.3% had continuous medical education (C.M.E) about *trichomoniasis* five years ago while nursing officer 9.7% and Doctors 6.5% had no continuous medical education (C.M.E) about *trichomoniasis* for the past five years. This was in line with the study conducted on access to continuous professional education among health worker [18].

The most affected age group was (16-25) 71% this was very high compared to the 2.8% in the study conducted on the proportion of *trichomoniasis* among reproductive age group [15]. This was because between (16-25) years are sexually active and it could be due to high poverty level.

#### CONCLUSION

The proportion of *trichomoniasis* was very low compared to other studies conducted in different parts of the world. Service delivery is affected by knowledge gap leading to poor diagnosis of the disease. The most affected age group is between (16-25) and the list affected is between (36-45).

#### Recommendation

However much the proportion of *trichomoniasis* was low it might have a significant contribution to premature labour hence recommending the antenatal care team to be vigilant and give a second thought to

*Trichomoniasis vaginalis* when they review a pregnant mother with a vaginal discharge. Continuous medical education (C.M.E) should be considered by the clinical team because it's important in bridging the knowledge gap hence improving diagnosis for the neglected diseases like *trichomoniasis*. Pregnant women should be sensitized on the preventive measures of eliminating *trichomoniasis* by the clinical staffs during the antenatal visits.

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