

## ORIGINAL ARTICLE

# Prevalence of Trichomonas Vaginalis Infection in Sexually Active Women: a Cross Sectional Study

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## ABSTRACT

**Aim:** To determine the prevalence of trichomonas vaginalis infection in sexually active women

**Study design:** Cross sectional study

**Place and duration:** This study was conducted at Muhammad Medical Collage Mirpurkhas, Pakistan. From Jan 2020 to Jan 2021.

**Methodology:** The present study was conducted on 120 sexually active women. Factors that can influence its infestation such as age, occupation, number of sexual partners, and education of the participant were also studied. A detailed history and symptoms were recorded on the proforma. Clinical examination of the participants was done to assess the signs in the genital tract. Following the standard protocol, two swabs from the posterior fornix of each patient were collected. The wet mount technique and culture of the swabs were carried out in the laboratory. The IBM SPSS version 26 was used to analyze the data.

**Result:** A total of 120 participants were chosen after evaluating them on the basis of inclusion criteria and only 9 (7.5%) participants were detected with Trichomonas infestation. The mean age of the patients were  $31 \pm 10.5$  years ranging from 18 to 60 years. All of the infected participants were married and had one sexual partner. All of them had clinical symptoms. There was a positive association of Trichomonas Vaginalis infection and education, occupation, clinical symptoms, and marriage.

**Conclusion:** In our study the prevalence of Trichomonas Vaginalis infection was low. However, there were certain factors that were influential on the infection promotion.

**Keywords:** Trichomonas Vaginalis, infection, prevalence, Trichomoniasis, women

## INTRODUCTION

Trichomoniasis is a sexually transmitted infection (STI) that shows up with a variety of symptoms such as vaginal discharge with a foul smell, painful urination, genital itching, and burning on micturition. It is almost asymptomatic in men. It is most risky in the case of pregnant women because it can cause premature delivery of the baby, preterm membrane rupture, low birth weight of the baby, cervical cancer, and infertility [1]. Other similar sexually transmitted infections are Neisseria gonorrhoeae and Chlamydia trachomatis. Three of these organisms cause infection in 351.7 million people annually. These infections are entirely treatable, however, they can leave long-term side effects in both men and women [2].

Trichomoniasis is considered to be the most prevalent STI globally. It increases the risk of transmission of the human immunodeficiency virus (HIV). Risk factors for Trichomoniasis in women are previous STI such as HIV or syphilis, non-stable or multiple partners, incarceration, drug use, and sex work [3]. Some studies have also suggested that the age of the patient is also directly proportional to the occurrence of the infection, whereas, some studies have negated this concept [4]. The incidence of Trichomoniasis is more in women than men [5]. The prevalence is also dependent on the region, time of the study, and population [6]. The prevalence of infection is different in different populations ranging between 5%-74% in the female population, and 5%-29% in the male population [7]. The

diagnostic tools used to detect Trichomonas Vaginalis are quite sensitive such as polymerase chain reaction (PCR), wet mount microscopy, and culture. PCR is an expensive tool while the latter two are cost-effective which is why they have been used in our study [8]. Moreover, testing the presence of infection by two methods reduces the chances of error.

Prevention of reinfection demands treatment of both partners. A large dose of tinidazole or metronidazole is the most commonly used regimen. This treatment is also cost-effective and easily available even in developing countries. Using a condom in the correct manner during sex also helps in preventing the infection [9]. The present study aims to evaluate the prevalence of Trichomonas Vaginalis infection among sexually active females in Pakistan.

## METHODOLOGY

The present study is a cross-sectional study. This study was conducted at Muhammad Medical Collage Mirpurkhas, Pakistan. From Jan 2020 to Jan 2021. Permission was taken from the ethical review committee of the institute. It involves 120 participants. All the participants were female. The male population was not included in this study. The ages of the patients were between 18 to 60 years. All the patients reported in the Obstetrics and Gynecology department had reported symptoms related to sexually transmitted infections (STI) such as a vaginal discharge, burning on micturition, and painful micturition. Patients

were explained and counseled regarding the study. They all were asked to read and sign a written informed consent.

First of all, demographic data including age, occupation, education, parity, and a number of sexual partners, was acquired. After that, a detailed history of the patient was recorded on the proforma. The history also included any previous STI, human immunodeficiency virus (HIV), and hepatitis C virus (HCV) infection. Drug consumption, alcohol consumption, and involvement in any sex-related occupation were also asked. The clinical symptoms of the patients were asked to assess the type of STI. All the participants were examined to check for signs of the STI.

After history taking and examination, swabs for culture and wet mount microscopy were collected. Two swabs for the sampling were collected from the posterior fornix of all the patients. Due to the high specificity and authenticity of wet mount and culture technique to detect Trichomonas Vaginalis, they both were used in all the cases. The first swab was used for an immediate wet smear. The second swab was used for the Dorset culture. The culture was incubated at 32°F for one day and transported for microscopy. After that, a fresh smear of the swab was prepared. The smear was examined under a microscope for Trichomonas Vaginalis. The microscopy was done for 7 consecutive days. The data was then entered and analyzed in IBM SPSS version 26.

## RESULTS

A total of 120 participants were added to the study. The ages of the participants ranged from 18 to 60 years. The mean age of the participants was 31±10.5 years. A total of 3 (2.5%) participants were below the age of 20 years. A total of 30 (25%) participants were between the ages of 20 to 30 years and 55 (45.83%) participants were between the ages of 31 to 40 years. 28 (23.33%) participants were between the ages of 41 years and 50 years. (As shown in table 1)

The education level of the participants was determined on the basis of basic education and university education. A total of 13 (10.83%) participants were illiterate. About 62 (51.66%) participants had basic education. Only 45 (37.5%) patients had university-level education. Most of the participants were housewives. A total of 6 (5%) participants were working women while 114 (95%) were housewives. (As shown in table 2) A total of 102 (85%) patients gave no history of abortion. 12 (10%) had one abortion while 4 (3.33%) had two abortions. All the women were married or had been married before. 114 (95%) were still married while 6 (5%) were either divorced or widowed. 4 (3.33%) were pregnant at the time of study and the remaining 116 (96.66%) were not pregnant.

The analysis of data related use of contraception revealed that 10 (8.33%) participants used condoms. A total of 7 (5.83%) used contraceptive pills while 6 (5%) used intrauterine devices and 1 (0.83%) used ampoule. The remaining 90 (75%) were prevented through the natural method. A total of 6 (5%) patients had undergone tubal ligation. None of the couples was using vasectomy as a method of contraception.

Out of 120 participants, 9 (7.5%) were positive for Trichomonas Vaginalis through the wet mount technique

and 7 (5.83%) participants were T. Vaginalis positive on culture. All of the infected individuals were sexually active and had only one sexual partner. A total of 8 (6.66%) of them were housewives and 1 (0.83%) was employed. All the infected participants had positive symptoms such as genital itching, foul-smelling vaginal discharge, burning on micturition, redness of genitals, pain on coitus, abdominal pain, pain on micturition, and the vaginal discharge was yellowish or whitish in color.

The Chi-square test was applied to determine association of T. Vaginalis infection with education of the patients (p-value= 0.033), occupation (p-value=0.004), clinical symptoms (p-value=0.008) and sexual activity (p-value=0.007).

Table 1: Age distribution of T. Vaginalis positive participants

Age distribution (Years)	No. of participants	Percentage	T. Vaginalis positive participants	Percentage
18-20	3	2.5	1	0.83
21-30	30	25	2	1.66
31-40	55	45.83	4	3.33
41-50	28	23.33	2	1.66
51-60	4	3.33	0	0

Table 2: Association of T. Vaginalis with other risk factors

Risk Factor	Number of participants	Percentage	T. Vaginalis positive	Total	
Education	Illiterate	13	10.83	5	120
	Basic level	62	51.66	3	
	University level	45	37.5	1	
Occupation	House Wife	114	95	8	120
	Employed	6	5	1	
Abortion	No abortion	102	85	7	120
	History of abortion	18	15	2	
Pregnant	Non-pregnant	116	96.66	8	120
	Positive for pregnancy	4	3.33	1	
Contraceptive method	Natural method	90	75	6	120
	Acquired method	30	25	3	

## DISCUSSION

The epidemiology of Trichomonas Vaginalis is not fully identified. In Pakistan, 5% of sex workers were seen as positive as per the study of Khan et al [10]. This percentage is higher in sex workers of some developed countries. The frequency of infection in the present study was less than that conducted in Pakistan before. The reason can be the prevalence of awareness regarding STIs. According to the study of Kissinger et al, T. vaginalis infection has been recognized as an important cause of reproductive morbidity. It is more significant because it helps in the

transmission of herpes simplex virus 2 (HSV-2) and HIV infection. Due to it being a bacterial infection but not a viral infection for which an immunization program could be introduced, it is the most common non-viral STI on a global level. This is the reason it's screening and timely treatment in both genders are important [9].

According to the study conducted by Chaudry et al in which 1001 participants were considered, 11 women were tested positive for STIs. About 6 of them were positive for *Trichomonas Vaginalis*. It was noted that the prevalence of *T. Vaginalis* was low in pregnant women compared to non-pregnant women [11]. The result of their study was consistent with our study in which non-pregnant women were found to have been infected more than pregnant women. A similar study was conducted by Sami et al at Aga Khan University to assess the prevalence of reproductive infections in the peri-urban female population of Karachi. They found that *Trichomonas Vaginalis* was the most common STI and bacterial vaginosis was the most prevalent endogenous infection. Another study suggests the risk of *T. Vaginalis* in patients who already have bacterial vaginosis infection [12]. Those women did not seek any treatment which increased their chance of staying infected for a very long period of time [13].

A study was conducted to assess the prevalence of different STIs in the female population of Karachi and Lahore in which female sex workers were also included. According to this study of Rehan et al, *Trichomonas Vaginalis* was positive in 19.3% of female sex workers of Lahore [15]. The present study did not include sex workers and all the participants had a single sexual partner, hence, no such finding was seen. A similar study was conducted in Lahore by Khan et al and they found 5.1% of the sex sellers had *T. Vaginalis* infection.

As far as education level is seen, *T. Vaginalis* was less common in educated women and more in the less educated population [16]. The present study also showed a significant correlation between education and incidence of infection. In the present study, no correlation was observed between abortions in *T. Vaginalis* infection. The results in this account are different in different communities depending on the variation in socio-demographic patterns, diagnostic methods, and hygiene behaviors.

## CONCLUSION

In our study the prevalence of *Trichomonas Vaginalis* infection was low. However, there were certain factors that were influential on the infection promotion.

**Permission:** It was taken from the ethical review committee of the institute

**Conflict of interest:** None

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