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PREVALENCE OF TRICHOMONIASIS IN WOMEN WITH HIV IN SRAGEN DISTRICT

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ABSTRACT
Trichomonas vaginalis infection remains one of the most common non-viral sexually transmitted infections (STIs) globally, despite being one of the most easily treatable STIs. This study aims to determine the prevalence and risk factors associated with trichomoniasis among HIV-positive women in Sragen Regency. A total of 30 HIV-diagnosed women from the Sehat Panghuripan Sukowati Foundation in Sragen, aged 15–49 years, participated in this study. Respondents completed a questionnaire and underwent urinalysis at Prodia Medical Laboratory, Sragen. The presence of Trichomonas vaginalis infection was evaluated using a wet mount microscopic method. Clinical features were collected through structured questionnaires administered to each participant. Result: The findings revealed the prevalence of Trichomoniasis among HIV-positive women, indicating that Trichomoniasis can increase HIV viral load in vaginal fluid, potentially heightening the risk of HIV transmission. The study demonstrated a higher infection rate in women with a history of sexually transmitted infections (HIV), particularly those over 30 years of age. Most participants were housewives with a single sexual partner, reported no vaginal discharge complaints, but had experienced abnormal vaginal secretions in the past. The recorded prevalence of Trichomoniasis in this study was 10% (3 out of 30 samples).

Keywords: HIV; prevalence; sragen district; trichomoniasis

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INTRODUCTION

Trichomoniasis is a sexually transmitted infection (STI) caused by the protozoan *Trichomonas vaginalis*, which inhabits the urogenital tract (Ishak, 2019). This infection remains a global health concern due to its high prevalence, particularly in developi countries (Achdiat et al., 2019). Although trichomoniasis is a non-viral STI that can be effectively treated, it is often underdiagnosed as many infected individuals exhibit no clear clinical symptoms (Johnston, 2022). In women, trichomoniasis can lead to vaginal discharge, genital irritation, and an increased risk of pregnancy complications and pelvic inflammatory disease (Pathel at al., 2018). Despite its significant impact on reproductive health, trichomoniasis is not classified as a notifiable disease, and surveillance efforts remain limited. Additionally, several studies suggest that trichomoniasis may contribute to an increased risk of Human Immunodeficiency Virus (HIV) transmission through mechanisms involving mucosal inflammation and elevated viral load in genital secretions (Graves et al., 2019).

Sragen Regency has experienced a continuous rise in HIV cases over the past few years, and HIV infection remains a major public health concern in Indonesia. According to data from the Sragen Regency Health Office (collected based on the Data Collection Approval Letter from the Sragen Regency Health Office No: 000.9.2/42339/5/2024), the number of HIV cases has increased annually. The high prevalence of HIV cases may be associated with the elevated prevalence of sexually transmitted infections (STIs), including trichomoniasis. Among women living with HIV, Trichomonas vaginalis infection can further deteriorate health conditions and increase the likelihood of viral transmission to sexual partners. Therefore,

research on the prevalence of trichomoniasis among women with HIV is essential to provide an epidemiological overview and to establish more effective prevention and treatment strategies.

To date, no specific reports have been published on the prevalence of trichomoniasis among women living with HIV in Sragen Regency. Therefore, this study aims to determine the prevalence rate of *Trichomonas vaginalis* infection in HIV-positive women in the region and identify potential factors contributing to its transmission. The findings of this research is to determine the presence or absence of Trichomonas vaginalis infection in woman living with HIV in Sragen District. It is expected to contribute to public health efforts, particularly in the prevention and control of sexually transmitted infections (STIs) among vulnerable populations.

METHOD

This study is a descriptive research employing a cross-sectional approach, aiming to assess the prevalence of Trichomonas vaginalis infection among women living with HIV in Sragen Regency. The study involves laboratory examinations of urine samples collected from respondents, along with a questionnaire to obtain sociodemographic data and identify risk factors associated with trichomoniasis. The population of this study comprised women living with HIV who were registered at the Sehat Panghuripan Sukowati Foundation (SPASI) in Sragen Regency. The sample was drawn from the entire population using a quota sampling method, with a total of 30 respondents. The inclusion criteria required participants to be HIV-positive women aged 15–49 years who voluntarily agreed to participate in the study by signing informed consent and meeting all eligibility criteria. The study was conducted at the Urinalysis Unit of the Prodia Medical Laboratory in Sragen in December 2024, following the Research Collaboration Agreement (Number: 0007757/05.CJR2/SPK/Other Research/December/2024) and Research Permit (No. 04/PSRG/XII/2024).

Respondents were asked to complete a questionnaire containing questions regarding sociodemographic data, medical history, and sexual activity related to trichomoniasis infection. Subsequently, they were instructed to provide a midstream urine sample. The examination was performed using the urine sedimentation technique and analyzed under a microscope. A positive result was indicated by the presence of actively motile Trichomonas vaginalis trophozoites. The data were analyzed descriptively and presented in the form of frequency distributions and percentages using the following formula:

$P = (f : N)100$

P = Percentage of trichomoniasis (%)
f = Frequency of urine samples testing positive for Trichomonas vaginalis
N = Total number of urine samples examined

Figure 1. *Trichomonas vaginalis* Trophozoite (yellow arrow) and epitel cell (blue arrow) Observed Under 400x Objective Lens

This study received ethical approval from the Health Research Ethics Committee of RSUD dr. Soehadi Prijonegoro Sragen (No: 207/Etik-Crssp/XI/2024). All respondents were provided with clear information regarding the purpose of the study and voluntarily agreed to participate

by signing an informed consent form. The respondents visited the Prodia Sragen Medical Laboratory with a referral letter from their doctor to undergo urinalysis and complete a questionnaire and consent form. The urine sediment results were reported, revealing the presence of *Trichomonas vaginalis*. The confidentiality of the collected data is strictly maintained and used solely for academic purposes.

RESULT

Respondent Characteristics

In this study, the age distribution of respondents, who were women living with HIV, was as follows: 21–29 years (23.3%), 31–40 years (33.3%), and 41–49 years (43.4%). These findings indicate that the majority of respondents were aged over 30 years.

Tabel 1.
Characteristics of Research Subjects Based on Basic Data

	Research Subject	
	f	%
Age (years)		
15-20	0	0
21-30	7	23,3
31-40	10	33,3
41-49	13	43,4
Education		
Elementary School	6	20,3
Junior High School	14	46,7
Senior High School	10	30
Diploma/Bachelor	0	0
Occupation		
Student	0	0
Private Employee	0	0
Entrepreneur	6	20
Housewife	19	63,3
Direct Sex Worker (DSW)	5	16,7
Marital Status		
Single	0	0
Married	27	70
Divorced	3	30

The decline in the immune system tends to occur after the age of 30, making adherence to antiretroviral therapy (ART) essential. Biologically, hormonal changes and alterations in vaginal mucosal conditions in older women can affect vaginal pH and lead to more frequent immune system disturbances, thereby increasing the risk of sexually transmitted infections, including trichomoniasis. The educational background of respondents was predominantly junior high school (46.7%), followed by senior high school (30%) and elementary school (20.3%), with no respondents having attained higher education beyond senior high school. Women with lower educational attainment tend to have lower awareness of symptoms and the importance of medical examinations. Additionally, they have less control over sexual decision-making and are more dependent on their sexual partners, which increases the risk of sexually transmitted infections (STIs), including trichomoniasis.

Based on the characteristics of HIV-positive women in Sragen Regency, the majority were housewives (63.3%), followed by direct sex workers (DSWs) (16.7%), and other occupations (20%). DSWs are at a higher risk of trichomoniasis due to frequent sexual contact with multiple partners, often without protection. Studies in Indonesia have indicated that housewives infected with HIV or STIs typically acquire the infection from their partners rather than through their own sexual behavior (Riyanti et al., 2019). Most respondents were married (90%), while 10% were divorced. Marital status should be considered in relation to

potential interactions between high-risk and general populations (Table 1). The characteristics of research subjects in terms of sexual activity were evaluated based on several variables, including having sexual partners other than a primary partner, the number of sexual partners per day, frequency of vaginal washing, history of vaginal discharge complaints, and the presence of abnormal vaginal secretions (Table 2).

Tabel 2.
Characteristics of Research Subjects Based on Sexual Activity

Sexual Activity	Research Subject	
	f	%
Having Sexual Partners Other Than a Primary Partner		
Yes	8	26,7
No	22	73,3
Number of Sexual Partners Per Day		
1 person	29	96,7
2-3 person	1	3,3
More than 3 people	0	0
Frequency of Vaginal Washing Per Day		
Never	1	3,3
1-2 times	29	96,7
History of Vaginal Discharge and Odor		
Ever	13	43,3
Never	17	86,7
Abnormal Vaginal Discharge		
Yes	0	0
No	30	100

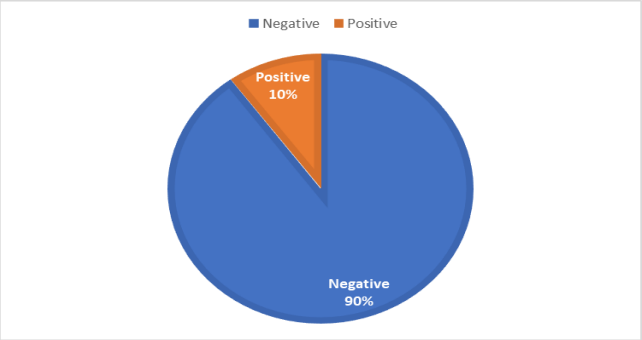
A total of 26.8% of respondents were found to have sexual partners other than their primary partner, which increases the risk of sexually transmitted infections (STIs), including trichomoniasis. This study also indicates that nearly all respondents had the habit of washing their vagina with commercial antiseptic soap. However, improper use of antiseptic soap for vaginal cleansing may potentially increase the risk of broader infections by disrupting the normal pH balance and disturbing the vaginal microbiota ecosystem.

Characteristics of Respondents with Trichomoniasis

The results of this study showed that in wet smears performed on 30 women with HIV who were examined, 3 respondents (10%) were detected positive for Trichomonas vaginalis. This percentage is included in the high category, especially in high-risk populations in women with HIV. This finding is in line with previous research which states that Trichomoniasis infection is more common in disease conditions with weakened immune systems including women with HIV (Masha et al., 2019).

Tabel. 3
Results of Wet Preparations on Research Subjects

Urine Test Results	Research Subject	
	f	%
Negatif	27	90
Positif	3	10



Figur 2. Total incidence Trichomoniasis in woman with HIV infection in the Sragen Regency

Tabel 4.
Sociodemographic Characteristics of Study Subjects with Trichomoniasis

Research Subject	Age	Education	Occupation	Marital Status
1	40	Elementary	Direct Sex Worker (DSW)	Divorced
2	49	Senior High School	Housewife	Married
3	34	Junior High School	Housewife	Married

From the sociodemographic results, 3 women infected with trichomoniasis were > 30 years old, had elementary and junior high school education and 2 of them were housewives. One of the respondents who was positive for trichomoniasis was a female sex worker and had more than one sexual partner, indicating a high risk of trichomoniasis transmission. Previous studies have shown that older age due to a decreased immune system along with a previous history of STIs and female sex workers contribute to an increased risk of trichomoniasis (Table 4).

Tabel 5.
Characteristics of Research Subjects with Trichominiasis

Sexual Activity	Research Subject		
	1	2	3
Having a sexual partner other than regular partner	Yes	No	No
Number of sexual partners in a day	2-3	1	1
Frequency of vaginal washing Within a day	1-2	1-2	1-2
Vaginal discharge and odour complaints	Ever	Ever	Ever
Vaginal Duh	No	No	No

Although there were no complaints of vaginal discharge, all three respondents had experienced vaginal discharge before. This is in accordance with the characteristics of trichomoniasis which is often asymptomatic so that it does not realise the infection until laboratory tests are carried out, especially in people with HIV (Johnston, 2022).

DISCUSSION

Immune system decline tends to occur after the age of 30. Although no significant relationship was found between CD4 T lymphocyte count and the incidence of STIs in induviduals living with HIV, those with low CD4 levels are at higher risk of STI transmission (Soenardi & Mawardi, 2019). Thus, adherence to antiretroviral (ARV) therapy is required (World Health Organization, 2024). Biplogically, hormonal changes and vaginal mucosal conditions in older women may affect vaginal pH, and are more likely to have compromised immune systems, increasing the risk of sexually transmitted infections including trichomoniasis (Graves et al., 2019). Women with lower education tend to have lower awareness of symptoms and the importance of screening, and have less control over sexual decisions and dependence on their sexual partners, increasing the risk of STI transmission including trichomoniasis (Ramadhana & Meitasari, 2023).

FSWs have a high risk of trichomoniasis due to frequent sexual contact with multiple partners and often without using protection. Several studies in Indonesia mention that housewives who are infected with HIV or STIs actually get it from their partners, not because of their own sexual behaviour (Riyanti et al., 2019). The habit of washing the vagina with inappropriate antiseptic soap is likely to increase the risk of more widespread infection because it disrupts the normal pH balance and disturbs the normal flora ecosystem. In the three respondents with trichomoniasis, although vaginal washing was often considered a hygienic measure, no significant association was found between vaginal washing and prevention of trichomoniasis infection. (Table 5).

Trichomoniasis has been recognised as one of the risk factors for increased HIV transmission, as it causes inflammation of the vaginal mucosa which facilitates the entry of the HIV virus into the body. In addition, Trichomonas vaginalis can increase HIV viral load in female genital fluids, potentially increasing the risk of HIV transmission to their sexual partners (Graves et al., 2019). Individuals infected with Trichomonas vaginalis have a higher risk of HIV transmission. A study conducted in Jalingo, Nigeria, by Imo in 2023 also demonstrated that co-infection with trichomoniasis and HIV increases HIV transmission through sexual contact. If both individuals are infected with Trichomonas vaginalis, this condition further enhances the likelihood of HIV infection compared to a scenario where only one individual is infected with trichomoniasis.

In this study, the characteristics of infected respondents showed that trichomoniasis did not only occur in women with multiple sexual partners but also housewives with one sexual partner. This is consistent with the study by Achdiat et al., 2019, which demonstrated that the risk of trichomoniasis transmission. This suggests that the risk of trichomoniasis transmission does not only occur in women with multiple sexual partners, but also in groups that are considered low risk, especially if their partners have a history of STIs or engage in unsafe sexual activity. This finding supports previous studies showing that housewives in Indonesia are at high risk, emphasising the importance of screening for STIs including trichomoniasis, even in low-risk groups, as well as treating regular partners to avoid repeated transmission.

The percentage of women infected with trichomoniasis in this study did not exhibit any symptoms. This poses a challenge in the transmission of sexually transmitted infections (STIs), as asymptomatic individuals may not recognize the importance of undergoing medical examinations. Therefore, effective surveillance and education on STIs are necessary to enhance awareness and prevention efforts. The study results indicate that the prevalence of trichomoniasis among women with HIV was 10%, with Trichomonas vaginalis detected in 10% of respondents. This finding aligns with the study by Imo et al,.2023, which reported a general population prevalence of 13%. Additionally, a study by (Widyastuti & Setya, 2023) reported a trichomoniasis prevalence of 6.7% among high-risk women. These findings suggest that the prevalence of trichomoniasis co-infection is higher among women living with HIV.

CONCLUSION

This study aims to determine the prevalence of trichomoniasis in women with HIV in Sragen Regency. The results showed that 3 (10%) out of 30 respondents detected trichomoniasis based on microscopic examination of wet preparations. This finding indicates that trichomoniasis still needs special attention, especially in women with HIV who have a high risk of sexually transmitted infections. This infection has the potential to increase the viral load in vaginal fluid which increases the risk of transmitting the HIV virus to sexual partners. The characteristics of infected respondents show that trichomoniasis does not only occur in women with multiple sexual partners but also in housewives who only have one sexual

partner. This emphasises the importance of routine screening for STIs including trichomoniasis even in groups considered to be at low risk.

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REFERENCES

Abreu, P., Silva, R., & Naves, W. (2017). *Association Between Trichomonas Vaginalis Infection in Pregnant, Non-Pregnant and HIV-Positive Women* (Vol. 2, Issue 4). http://transconpublishers.org/icjmms

Achdiat, P. A., Dwiyana, R. F., Feriza, V., Rowawi, R., Ae, R. R., Oki, S., & Gunawan, H. (2019). *Prevalence of Trichomoniasis in Asymptomatic Pregnant Women Population in Bandung, West Java, Indonesia* (Vol. 7, Issue 4). https://doi.org/10.20473/ijtid.v7i4.8102

Alderete, J. F., & Chan, H. (2023). Point-of-Care Diagnostic for Trichomonas vaginalis, the Most Prevalent, Non-Viral Sexually Transmitted Infection. *Pathogens*, *12*(1), 1–14. https://doi.org/10.3390/pathogens12010077

Azahra, S., & Susanto, L. (2023). Faktor-Faktor Yang Mempengaruhi Patogenitas Trichomonas Vaginalis. *JURNAL ANALIS LABORATORIUM MEDIK*, *8*(1), 1–11. https://doi.org/10.51544/jalm.v8i1.3799

CDC. (2024). *DPDx - Laboratory Identification of Parasites of Public Health Concren*. https://www.cdc.gov/dpdx/trichomoniasis/index.html

Enrique, M.-G., & Yu, X. G. (2019). Role of dendritic cells in natural immune control of HIV-1 infection. In *Frontiers in Immunology* (Vol. 10, Issue JUN, pp. 1–9). Frontiers Media S.A. https://doi.org/10.3389/fimmu.2019.01306

Gaydos, C., Klausner, J., Pai, N. P., Helen, K., Coltart, C., & Peeling, R. (2017). Rapid and Point-of-Care Tests For The Diagnosis of Trichomonas Vaginalis in Women and Men. In *Sexually transmitted infections* (Vol. 93, Issue S4, pp. 31–35). https://doi.org/10.1136/sextrans-2016-053063

Graves, K. J., Ghosh, A. P., Schmidt, N., Augostini, P., Evan Secor, W., Schwebke, J. R., Martin, D. H., Kissinger, P. J., & Muzny, C. A. (2019). Trichomonas vaginalis Virus among Women with Trichomoniasis and Associations with Demographics, Clinical Outcomes, and Metronidazole Resistance. *Clinical Infectious Diseases*, *69*(12), 2170–2176. https://doi.org/10.1093/cid/ciz146

Hamar, B., Teutsch, B., Hoffmann, E., Hegyi, P., Váradi, A., Nyirády, P., Hunka, Z., Ács, N., Lintner, B., Hermánné, R. J., & Melczer, Z. (2023). Trichomonas Vaginalis Infection is Associated With Increased Risk of Cervical Carcinogenesis: A Systematic Review and Meta-Analysis of 470 000 Patients. In *International Journal of Gynecology and Obstetrics* (Vol. 163, Issue 1, pp. 31–43). John Wiley and Sons Ltd. https://doi.org/10.1002/ijgo.14763

Handayani, L. T. (2018). Kajian Etik Penelitian Dalam Bidang Kesehatan Dengan Melibatkan Manusia Sebagai Subyek. *The Indonesian Journal of Health Science*, *10*(1), 47–54. https://doi.org/https://doi.org/10.32528/the.v10i1.1454

Hashemi, N., Ommi, D., Kheyri, P., Khamesipour, F., Setzer, W. N., & Benchimol, M. (2021). A Review Study On The Anti-Trichomonas Activities of Medicinal Plants. *International Journal for Parasitology: Drugs and Drug Resistance*, *15*, 92–104. https://doi.org/10.1016/j.ijpddr.2021.01.002

Hazra, A., Collinson, M. W., & Davis, A. M. (2022). *CDC Sexually Transmitted Infections Treatment Guidlines*. https://doi.org/10.1001/jama.2022.1246.

Ishak, H. (2019). *Biomedik: Parasitologi Kesehatan* (A. Dadi, Ed.; 1st ed., Vol. 1). Masegena Press. https://www.researchgate.net/profile/Hasanuddin_Ishak/publication/336574797_Biomedik_Parasitologi_Kesehatan/links/5da6682b4585159bc3d00f82/Biomedik-Parasitologi-Kesehatan.pdf

Johnston, C. (2022). Diagnosis and Management of Genital Herpes: Key Questions and Review of the Evidence for the 2021 Centers for Disease Control and Prevention Sexually Transmitted Infections Treatment Guidelines. In *Clinical Infectious Diseases* (Vol. 74, pp. S134–S143). Oxford University Press. https://doi.org/10.1093/cid/ciab1056

Kementerian Kesehatan RI. (2023). *Komite Penanggulangan Kanker Nasional*. jdih.kemkes.go.id

Masha, S. C., Cools, P., Sanders, E. J., Vaneechoutte, M., & Crucitti, T. (2019). Trichomonas Vaginalis and HIV Infection Acquisition: A Systematic Review and Meta-Analysis. *Sexually Transmitted Infections*, *95*(1), 36–42. https://doi.org/10.1136/sextrans-2018-053713

Miyos. (2024, December 1). *Hari AIDS Sedunia, Perjuangkan Hak Setara untuk Smua*. Https://Sragenkab.Go.Id/Berita/Hari-Aids-Sedunia-Perjuangkan-Hak-Setara-Untuk-Semua.Html.

Prodia. (2020). *IK Sediment Urine*. *iv*.

Ramadhana, B., & Meitasari, I. (2023). Kajian Tingkat Pendidikan Terhadap Kualitas Hidup Masyarakat. *Jurnal Penelitian Pendidikan Geografi*, *8*(2), 38–45. https://doi.org/https://doi.org/10.36709/jppg.v8i2.1

Riyanti, Suryono, & Haryanti, T. (2019). Faktor Penyebab Penularan HIV/AIDS pada Wanita di Kabupaten Sragen Factors Causing the Transmission of HIV/AIDS among Women In Sragen District. *Jurnal Ilmu Kesehatan Masyarakat Berkala*, *1*(1), 14–22. https://doi.org/https://doi.org/10.32585/jikemb.v1i1.693

Silalahi, U. (2017). *Metodologi Penelitian*. Bina Budhaya Bandung, Hal 2-5

Soenardi, A., & Mawardi, P. (2019). Hubungan Antara Kadar CD4+ Dengan Angka Kejadian Infeksi Menular Seksual Pada Pasien HIV/AIDS. *Jurnal Berkala Ilmu Kesehatan Dan Kelamin*, *31*(2). https://doi.org/https://doi.org/10.20473/bikk.V31.2.2019.104-110

Sutrisno, Qomarudin, & Winarti, L. (2020). *Implementasi Peraturan Bupati Sragen Nomor 49 Tahun 2017 Tentang Petunjuk Pelaksanaan Peraturan Daerah Kabupaten Sragen Nomor 6 Tahun 2016 Tentang Penanggulangan HIV AIDS Tahun 2019*. *9*(2). https://ejurnal.unisri.ac.id/index.php/MAP/article/view/3788/3125

Tambunan, R. T. H. (2024). Metode Diasnosis Infeksi Trichomonas Vaginalis Terkini. *Majalah Ilmiah Methoda*, *14*(1), 74–80. https://doi.org/10.46880/methoda.Vol14No1.pp74-80

Tristiyanti, E., & Febriyossa, A. (2022). Gambaran Pemeriksaan Trichomonas Vaginalis Pada Urin Pekerja Seks Komersial (PSK) di Kawasan Boker Jakarta Timur. *Jurnal Medical Leboratory*, *1*(1), 1–28. https://ejournal.stikeskesosi.ac.id/index.php/Medlab/article/view/5/10

Widarti, Hadijah, S., Djasang, S., Rahman, R., Kerek, Y., & Armah, Z. (2024). Identifikasi Trichomonas vaginalis Pada Urine Ibu Hamil Di Puskesmas Mamajang Kota Makassar. *Jurnal Media Analis Kesehatan*, *15*(1), 79–85. https://doi.org/10.32382/jmak.v15i1.658

Widyastuti, S., & Setya, A. K. (2023). Prevalensi Trikomoniasis pada Wanita Risiko Tinggi di Kawasan Wisata Baturraden Kabupaten Banyumas. *Indonesian Journal on Medical Science*, *10*(1), 50–55. https://doi.org/10.55181/ijms.v10i1.407

World Health Organization. (2024). *Recommendation for the Treatment of Trichomonas Vaginalis, Mycoplasma Genitalium, Candida Albicans, Bacterial Vaginosis and Human Papillomavirus (Anogenital Warts)*.