EAHRC
EAST AFRICAN HEALTH RESEARCH COMMISSION
Research for Health and Prosperity

ORIGINAL ARTICLE

Prevalence and Risk Factors for Urogenital *Schistosomiasis* Among Pregnant Women Attending Antenatal Clinics in Mwanza, Tanzania: A Hospital-Based Cross-Sectional Study

Mholya Z. Falle[a*], Shamim Mzava[b], Neema Nagabona[b], Johannes Rukyaa[b], Mashaka Kaji[b], Jeffer Bhuko[c], Nyanda C. Justine[d]

[a]School of Medical Laboratory Sciences, Institute of Health and Allied Sciences, Catholic University of Health and Allied Sciences, Mwanza, Tanzania; [b]Weill Bugando School of Medicine, Catholic University of Health and Allied Sciences, Mwanza, Tanzania; [c]Department of Haematology, Weill Bugando School of Medicine, Catholic University of Health and Allied Sciences, Mwanza, Tanzania; [d]Department of Medical Parasitology and Entomology, Weill Bugando School of Medicine, Catholic University of Health and Allied Sciences, Mwanza, Tanzania.

Correspondence to Mholya Zabron Falle (falleszabron84@gmail.com)

ABSTRACT

Background: Pregnant women are particularly vulnerable to urogenital schistosomiasis due to changes in their immune and physiological systems. Understanding the current prevalence and risk factors of the disease in this group is essential for designing effective, locally appropriate preventive strategies. This study aimed to assess the prevalence and associated factors of urogenital schistosomiasis among pregnant women.

Methods/Principal findings: This cross-sectional study was conducted between April and July 2024 at selected health centers in Ilemela and Misungwi Districts. The study enrolled 469 pregnant women attending antenatal clinics, who collected urine samples, which were screened for *Schistosoma haematobium* eggs.

Results: The median age of participants was 24 years (IQR: 14 to 2). The prevalence of urogenital schistosomiasis was 15/469 (3.2%) (95% CI: 1.8 to 5.2). Factors associated with infection included frequent contact with freshwater sources and painful urination.

Conclusion: The findings highlight a notable burden of urogenital schistosomiasis among pregnant women, particularly in rural communities with increased exposure to infested water. From the study findings we recommend community education on disease prevention, especially regarding freshwater exposure, dysuria should be considered for early detection urogenital schistosomiasis so as to facilitate timely patient management with praziquantel that may help to mitigate the health impacts of this neglected tropical disease in pregnancy.

BACKGROUND

Urogenital schistosomiasis, caused by *Schistosoma haematobium*, remains a significant public health concern, particularly in sub-Saharan Africa[1,2]. According to the World Health Organization (WHO) fact sheet, it is one of the most prevalent parasitic infections globally, with an estimated 241 million people affected annually, of which more than 90% live in sub-Saharan Africa.[3] In Tanzania, schistosomiasis is highly endemic, especially in regions surrounding large water bodies like Lake Victoria, which provide an ideal habitat for the intermediate snail hosts (*Bulinus* spp.). The transmission of the parasite is linked to activities involving contact with infested water, such as bathing, washing, and fishing.[4,5]

Transmission of *S. haematobium* is strongly associated with frequent contact with contaminated freshwater during activities such as bathing, washing, swimming, and fishing.[4,6] Several risk factors have been identified, including proximity to infested water bodies, poor access to safe water and sanitation, low socioeconomic status, and limited awareness of transmission dynamics.[7,8] Among women, gender-specific roles such as water collection, washing clothes, and childcare near open water sources significantly increase exposure risk.[9,10] In endemic communities, repeated exposure leads to chronic infection that may persist into adulthood, including during pregnancy.

In Tanzania, the epidemiology of *S. haematobium* shows marked geographical heterogeneity, with the Lake Victoria basin, including Mwanza Region, being one of the most affected areas.[6] Studies conducted in northwestern Tanzania have reported moderate to high endemicity, with prevalence in the general population ranging from approximately 10% to over 50%, particularly in communities living in close proximity to the lake.[11-13] Although school-aged children are the primary targets of mass drug administration (MDA) programs and have shown declining trends in some settings, adults remain an important reservoir for ongoing transmission.[14,15]

Evidence on the burden of urogenital schistosomiasis among pregnant women in Tanzania remains limited. However, studies from similar endemic settings suggest that prevalence among pregnant women ranges between 5% and 30%, depending on transmission intensity and diagnostic approaches used.[16,17] In Mwanza Region, particularly in districts such as Misungwi and Ilemela, sustained transmission is driven by reliance on Lake Victoria for domestic and economic activities, placing pregnant women at continued risk of infection.[18,19] Despite this, routine screening for schistosomiasis is not commonly integrated into antenatal care services.

Pregnant women are particularly vulnerable to urogenital schistosomiasis due to immunological and physiological changes that may increase susceptibility to infections.[20] Schistosomiasis in pregnancy can lead to adverse outcomes such as anemia, increased risk of preterm birth, low birth weight, and even stillbirth.[21,22] A number of preventive measures against Urogenital schistosomiasis have been well documented including avoiding contact with freshwater in endemic areas; however, challenges in their full implementation can derail these efforts.[11] Moreover, the presence of *S. haematobium* infection in pregnant women has been associated with urogenital complications, including hematuria, dysuria, and an increased risk of HIV infection due to parasite-induced mucosal lesions.[12, 21]

A number of preventive measures against urogenital schistosomiasis have been well documented, including avoiding contact with contaminated freshwater and periodic praziquantel administration; however, challenges in implementation persist, particularly among adults and pregnant women who are often excluded from MDA programs.[11,23] This gap contributes to continued transmission and disease burden in this vulnerable population.

Understanding the local epidemiology, including prevalence and risk factors of urogenital schistosomiasis among pregnant women in endemic settings such as Mwanza, is essential for informing public health interventions, strengthening antenatal care screening, and improving maternal and neonatal outcomes. Therefore, this study was designed to assess the prevalence of urogenital schistosomiasis and its associated risk factors among pregnant women attending antenatal clinics in Misungwi and Ilemela districts within Mwanza, Tanzania.

METHODS

Study Area and Population

This study was conducted at Karume health center and Sangabuye health center from Ilemela district and Misungwi district hospital in Mwanza, Tanzania. The study enrolled pregnant women attending antenatal clinics.

Study Design, Inclusion and Exclusion Criteria

This was a hospital-based cross-sectional study conducted from April to July 2024. This study included all adult pregnant women (≥18 years) attending antenatal clinics at the respective sampling sites; those who did not provide sufficient urine samples and those who had taken schistosomiasis treatment 3 months before specimen collection were excluded from this study.

Sample Size Estimation and Sampling Technique

Using the 1965 Kish Leslie formula for sample size estimation, a minimum sample size of 221 was calculated using a prevalence of 17.4% for *S. haematobium* among pregnant women from a previous study; however, this study enrolled a total of 469 pregnant women.[24,25] A serial sampling technique was employed to enroll the study participants until the desired sample size was achieved.

Data Collection Methods

A pretested structured questionnaire was used to collect socio-demographic information, including age and sex, and relevant clinical information such as participants' symptoms. Before urine collection, participants were provided with a clean, dry, sterile container (Mshale Company Limited, Tanzania) for urine collection. Approximately 20 ml of fresh urine was collected, the urine samples were fixed immediately with 10% formalin to preserve the eggs of *S. haematobium*, and the containers were closed to prevent leakage or contamination during cold chain transport. Urine samples were collected between 10:00 and 14:00, a period when peak egg shedding is expected. The collected samples were transported to the parasitology laboratory of the Catholic University of Health and Allied Sciences (CUHAS) for examination. At the laboratory, urine samples were processed using the urine sedimentation technique for *S. haematobium* egg concentration.[26] Briefly, centrifuge tube were filled with 10 mls of the urine sample and centrifuged at 2500rpm for 10 minutes, and supernatant were discarded, by inverting a tube few drop of sediment were placed on a glass slide, stained by iodine and covered by a cover slip then observed at low magnification (10X) on a microscope.[27] Reporting of *S. haematobium* ova involved three well-trained laboratory personnel for validation of results before reporting.

Data Analysis

Analysis was performed using Stata version 15 (Stata Corp, 2017, Stata statistical software, College Station, TX: Stata Corp) Logistic regression analysis was used to determine the association between study variables and the study outcome, a P value of $<.05$ within a 95% confidence interval was considered as statistically significant.[28]

Ethics Consideration

This study obtained ethical clearance from the joint Catholic University of Health and Allied Sciences and Bugando Medical Centre (CUHAS&BMC) joint Research Ethics and Review Committee with a clearance numbers (2991/2024 and 2667/2024). Additionally, permission was granted by the Misungwi and Ilemela district medical officers and the Regional Medical Officer of Mwanza. Informed written consent was obtained from the study participants before specimen collection. To maintain confidentiality, all clinical and demographic data were securely stored in a locked cabinet, and participants were identified using coded identifiers.

RESULTS

Socio-demographic Information of Study Participants

A total of 469 pregnant women attending antenatal clinics were enrolled in the study, with a median age

of 24 years (IQR: 14 to 42 years). More than half of the participants were from rural settlements 273/469 (58.2%) and the Misungwi district hospital (249/469; 53.1%). Nearly half of the participants had a secondary education level (229/469; 48.8%). Additionally, two-thirds of the participants (315/469; 67.1%) lived close to a water source, as shown in Table 1.

TABLE 1: Sociodemographic Information of the Study Participants (N=469)

Variables	Frequency (%)
Residence	
Rural	273 (58.2)
Urban	196 (41.8)
Education Level	
Primary	203 (43.3)
Secondary	229 (48.8)
Diploma	15 (3.2)
Degree	22 (4.7)
Occupation	
Formal Employment	81 (17.3)
Fish monger	9 (1.9)
Others	61 (13.0)
Peasants	37 (7.89)
Petty business	54 (11.5)
Rice farmer	72 (15.35)
Un employed	155 (33.1)
Living near water source	
Yes	315 (67.2)
No	154 (32.8)
Contact with water source	
Agriculture	22 (4.7)
Domestic activity	191 (40.7)
Fishing	9 (1.9)
Rise farming	41 (8.7)
None	206 (43.9)
Sampling site	
Misungwi district hospital	249 (53.1)
Karume health Centre	130 (27.7)
Sangabuye health Centre	90 (19.2)

Prevalence of Urogenital Schistosomiasis Among Pregnant Women and its Associated Factors

Out of the 469 pregnant women attending antenatal clinics, 15 were positive for *Schistosoma haematobium*, giving an overall prevalence of 3.2%. Prevalence varied slightly across districts, with Misungwi reporting 3.6% and Ilemela 2.7%. In the multivariable logistic regression analysis, painful urination was strongly associated with *S. haematobium* infection. Women reporting dysuria were approximately four times more likely to have schistosomiasis (AOR 4.1; 95% CI, 0.22 to 0.83; $P<.001$). Similarly, women with frequent contact with fresh water bodies had more than twice the odds of infection (AOR 2.3; 95% CI, 0.00 to 0.31), indicating a significant increase in risk. These associations are summarized in Table 2.

TABLE 2: Factors Associated with Urogenital Schistosomiasis Among Pregnant Women

Variables	Urogenital Schistosomiasis Status Yes =15 n (%)	No=454 n (%)	COR (95% CI)	AOR (95% CI)	*P Value*
Residence					
Rural	13 (86.7)	260 (57.3)	1.45 (1.04–2.28)	0.08 (0.38–1.78)	.023
Urban	2 (13.3)	194 (42.7)			
Education level					
Primary	8 (53.3)	195 (43.0)			
Secondary	7 (46.7)	222 (48.9)	1.32 (0.85–2.05)	0.71(0.57–1.43)	.809
Diploma	0 (0.0)	15 (3.3)			
Degree	0 (0.0)	22 (4.8)			

Continue

TABLE 2: Continued

Variables	Urogenital Schistosomiasis Status Yes =15 n (%)	No=454 n (%)	COR (95% CI)	AOR (95% CI)	*P Value*
Occupation					
Formal employment	0 (0.0)	81 (17.8)			
Fish monger	1 (6.7)	8(1.8)			
Others	1 (6.7)	60 (13.2)	2.10 (1.05–3.48)	1.4(0.87–2.28)	.091
Peasants	1 (6.7)	36 (7.9)			
Petty business	0 (0.0)	54 (11.9)			
Rice farmer	5 (33.3)	67 (14.8)			
Un employed	7 (46.7)	148 (32.6)			
Living near a water source					
Yes	10 (66.7)	305 (67.2)			
No	5 (33.3)	149 (32.8)	1.60 (1.10–5.08)	0.31(0.26–3.79)	.967
Contact with the water source					
Agriculture	0 (0.0)	22 (4.9)			
Domestic activity	9 (60.0)	178 (39.3)	3.85 (0.15–0.54)	2.3 (0.0–0.31)	<.001
Fishing	1 (6.7)	8 (1.8)			
Rise farming	5 (33.3)	40 (8.8)			
None	0 (0.0)	206 (45.4)			
Preventive measures					
Yes	2 (13.3)	189 (41.6)	2.95 (1.60–18.45)	2.06 (0.26–16.6)	.028
No	13 (86.7)	265 (58.4)			
Sampling site					
Misungwi DH	9 (60.0)	240 (52.9)			
Karume HC	4 (26.7)	126 (27.7)	1.85 (1.10–3.12)	1.5 (0.63–4.11)	.810
Sangabuye HC	2 (13.3)	88 (19.4)			
Painful urination					
Yes	10 (66.7)	440 (96.9)	4.78 (0.32–0.92)	4.1 (0.22–0.83)	<.001
No	5 (33.3)	14 (3.1)			

Key: DH, District hospital; HC, Health Centre

DISCUSSION

This was a hospital-based cross-sectional study that investigated the prevalence and the associated factors for urogenital schistosomiasis among pregnant women in Mwanza, Tanzania. This study established a overall prevalence of urogenital schistosomiasis at 3.2% among pregnant women in Mwanza, Tanzania. These findings are similar to those published by Rite et al, 2020, who reported a prevalence of 4.5% for urogenital schistosomiasis among women of reproductive age in similar settings.[29] The low prevalence of urogenital schistosomiasis reported by this study may be attributed to community education in high-risk areas within Mwanza Region as a highly effective preventive measure against urogenital schistosomiasis.[30,31] The low prevalence observed in this setting likely reflects the success of the MDA campaigns in pre and primary school children, cutting the transmission dynamics of urogenital schistosomiasis via elimination of egg shedding.[32] According to WHO guidelines, ongoing interventions should continue at the same frequency or potentially be reduced to work towards interrupting transmission. Since annual MDA programs are currently in place, any decision to reduce the frequency of preventive chemotherapy should be accompanied by close epidemiological monitoring to ensure that prevalence does not rebound.

This study identified two key factors that were significantly associated with urogenital schistosomiasis among pregnant women. Frequent contact with freshwater sources emerged as an important predictor of infection. Pregnant women who reported regular exposure to rivers, ponds, or lakes had more than twice the odds of contracting urogenital schistosomiasis compared to those with limited exposure. This association is plausible given that schistosome-infested water bodies are commonly used for daily activities such as bathing, washing clothes, collecting water, and agricultural work, all of which increase the likelihood of skin contact with infective cercariae.[33]

Patients who reported painful urination were significantly more likely to have urogenital schistosomiasis, with affected individuals being approximately four times more likely to test positive for the infection. Painful urination is a well-recognized clinical feature of S. haematobium infection in endemic regions. The symptom arises from the host's inflammatory response to the parasite's eggs, which lodge within the bladder wall and trigger granulomatous inflammation. Over time, this leads to ulceration and irritation of the urothelium, resulting in discomfort or pain during urination.[34,35] Studies in endemic regions have consistently demonstrated a significant association

between painful urination and urogenital schistosomiasis, as evidenced from a cross-sectional study conducted among school children in Tanzania, which reported that dysuria had a positive predictive value for diagnosing *S. haematobium* infection.[5]

The consistent association of dysuria with urogenital schistosomiasis underscores the critical role of symptom-based screening as a practical and cost-effective strategy for early detection, particularly in resource-limited settings. From a public health perspective, recognizing and responding to such clinical indicators can bridge the gap between limited diagnostic infrastructure and the urgent need for timely intervention.[33] In real-life settings, especially in endemic rural areas, integrating symptom-based screening into routine healthcare services empowers frontline health workers to identify at-risk individuals early, initiate prompt treatment, and interrupt disease transmission.[36] This approach not only enhances individual health outcomes but also contributes significantly to broader schistosomiasis control efforts, advancing milestones such as reducing morbidity, preventing long-term complications, and progressing toward the World Health Organization (WHO) goal of eliminating schistosomiasis as a public health problem.[37]

Strengths

This paper demonstrates several important strengths. It provides robust, context-specific evidence on the prevalence of urogenital schistosomiasis among pregnant women in Mwanza, aligning closely with findings from similar studies, which enhances its credibility. The identification of freshwater contact and painful urination as significant predictors of infection adds valuable insight into both behavioral and clinical risk factors. By linking symptom-based screening to practical public health strategies, the study offers cost-effective solutions for early detection in resource-limited settings. Overall, it combines epidemiological rigor with actionable recommendations, making a meaningful contribution to schistosomiasis control and the WHO's elimination goal.

Study Limitation

The study had several limitations. The urine sedimentation method, though common for diagnosing *S. haematobium*, has low sensitivity for detecting light infections, potentially underestimating prevalence, especially in pregnant women whose immune modulation may reduce egg excretion. Reliance on a single urine sample per participant further limited accuracy, since egg output varies during the day. Infection intensity was not measured because egg counts were not performed, restricting assessment of disease burden and its link to clinical outcomes. Additionally, the lack of GPS mapping prevented spatial analysis of infection distribution and environmental risk factors. These constraints reduced the depth of epidemiological insights. Nonetheless, the study provided updated data on the burden and risk factors of urogenital schistosomiasis among pregnant women in Mwanza, Tanzania.

CONCLUSION

This study observed that three out of one hundred pregnant women in Mwanza, Tanzania, have urogenital schistosomiasis. Residing in rural areas, frequent contact with fresh water sources, not adhering to schistosomiasis preventive measures as per clinician recommendation supported by the WHO guideline on schistosomiasis prevention, and painful urination were significantly associated with urogenital schistosomiasis positivity.

RECOMMENDATION

Based on the high prevalence of urogenital schistosomiasis among pregnant women with frequent freshwater exposure, especially in rural areas, this study recommends targeted community education focusing on high-risk activities such as domestic and agricultural water contact. Additionally, routine screening should be integrated into antenatal care, particularly for symptomatic women and those in high-risk settings, to enable early diagnosis and treatment with praziquantel. Strengthening inclusion of pregnant women in control programs and improving WASH interventions is also essential to reduce transmission.

REFERENCES

1. Aula OP, McManus DP, Jones MK, Gordon CA. Schistosomiasis with a focus on Africa. Tropical Medicine and Infectious Disease. 2021;6(3):109. https://doi.org/10.3390/tropicalmed6030109
2. Adenowo AF, Oyinloye BE, Ogunyinka BI, Kappo AP. Impact of human schistosomiasis in sub-Saharan Africa. The Brazilian Journal of Infectious Diseases. 2015;19(2):196-205. https://doi.org/10.1016/j.bjid.2014.11.004
3. Schistosomiasis [Internet]. World Health Organizization. 2021. https://www.who.int/news-room/fact-sheets/detail/schistosomiasis.
4. Mazigo HD, Waihenya R, Mkoji GM, Zinga M, Ambrose EE, Jahanpour O, et al. Intestinal schistosomiasis: prevalence, knowledge, attitude and practices among school children in an endemic area of north western Tanzania. J Rural Trop Public Health. 2010;9:53-60
5. Mazigo HD, Nuwaha F, Kinung'hi SM, et al. Epidemiology and control of human schistosomiasis in Tanzania. Parasites & vectors. 2012;5:1-20. https://doi.org/10.1186/1756-3305-5-274
6. Mazigo HD, Nuwaha F, Kinung'hi SM, et al. Epidemiology and control of human schistosomiasis in Tanzania. Parasites & vectors. 2012;5(1):274. https://doi.org/10.1186/1756-3305-5-274
7. Pazos M, Sperling RS, Moran TM, Kraus TA. The influence of pregnancy on systemic immunity. Immunologic research. 2012;54(1):254-61. https://doi.org/10.1007/s12026-012-8303-9
8. Mazigo HD, Kappas M. Schistosomiasis around the Lake Victoria, Northwest Tanzania. In: Kappas M, GroB U & Kelleher D, ed. Gottingen International Health Network (GIHN). Global Health. A challenge for Interdisciplinary Research. Gottingen: University of Gottingen; 2013: 283–303
9. Wepnje GB, Anchang-Kimbi JK, Ndassi VD, Lehman LG, Kimbi HK. Schistosoma haematobium infection status and its associated risk factors among pregnant women in Munyenge, South West Region, Cameroon following

scale-up of communal piped water sources from 2014 to 2017: a cross-sectional study. BMC Public Health. 2019;19(1):392. https://doi.org/10.1186/s12889-019-6659-7

10. Odeniran PO, Omolabi KF, Ademola IO. Epidemiological dynamics and associated risk factors of S. haematobium in humans and its snail vectors in Nigeria: a meta-analysis (1983–2018). Pathogens and global health. 2020;114(2):76-90. https://doi.org/10.1080/20477724.2020.1728164

11. Jember TH. Challenges of schistosomiasis prevention and control in Ethiopia: Literature review and current status. J Parasitol Vector Biol. 2014;6(6):80-6. https://doi.org/10.5897/JPVB2014.0155

12. Wall KM, Kilembe W, Vwalika B, et al. Schistosomiasis is associated with incident HIV transmission and death in Zambia. PLoS neglected tropical diseases. 2018;12(12):e0006902. https://doi.org/10.1371/journal.pntd.0006902

13. Organization World Health. WHO guideline on control and elimination of human schistosomiasis: World Health Organization; 2022. https://www.who.int/publications/i/item/9789240041608 Accessed 3 April 2026

14. Mazadza A, Mtemeli F, Madzivanyika H, Chari T, Shoko R. Reinvigorating the quest for schistosomiasis elimination: addressing challenges, leveraging opportunities, and exploring innovative frontiers. All Life. 2025;18(1):2545931. https://doi.org/10.1080/26895293.2025.2545931

15. Nazareth LC, Lupenza ET, Zacharia A, Ngasala BE. Urogenital schistosomiasis prevalence, knowledge, practices and compliance to MDA among school-age children in an endemic district, southern East Tanzania. Parasite Epidemiology and Control. 2022;18:e00257. https://doi.org/10.1016/j.parepi.2022.e00257

16. Mbwanji G, Mazigo HD, Maganga JK, Downs JA. Female genital schistosomiasis is a neglected public health problem in Tanzania: Evidence from a scoping review. PLOS Neglected Tropical Diseases. 2024;18(3):e0011954. https://doi.org/10.1371/journal.pntd.0011954

17. Ajanga A, Lwambo NJ, Blair L, Nyandindi U, Fenwick A, Brooker S. Schistosoma mansoni in pregnancy and associations with anaemia in northwest Tanzania. Transactions of the Royal Society of Tropical Medicine and Hygiene. 2006;100(1):59-63. https://doi.org/10.1016/j.trstmh.2005.06.024

18. Gouvras AN, Allan F, Kinung'hi S, et al. Longitudinal survey on the distribution of Biomphalaria sudanica and B. choanomophala in Mwanza region, on the shores of Lake Victoria, Tanzania: implications for schistosomiasis transmission and control. Parasites & Vectors. 2017;10(1):316. https://doi.org/10.1186/s13071-017-2252-z

19. Olsen A, Kinung'hi S, Magnussen P. Schistosoma mansoni infection along the coast of Lake Victoria in Mwanza region, Tanzania. The American Journal of Tropical Medicine and Hygiene. 2015;92(6):1240. https://doi.org/10.4269/ajtmh.14-0676

20. Pazos M, Sperling RS, Moran TM, Kraus TA. The influence of pregnancy on systemic immunity. Immunologic Research. 2012;54:254-61. https://doi.org/10.1007/s12026-012-8303-9

21. Nour NM. Schistosomiasis: health effects on women. Reviews in Obstetrics and Gynecology. 2010;3(1):28. PMID: 20508780;

22. Mombo-Ngoma G, Honkpehedji J, Basra A, et al. Urogenital schistosomiasis during pregnancy is associated with low birth weight delivery: analysis of a prospective cohort of pregnant women and their offspring in Gabon. International Journal for Parasitology. 2017;47(1):69-74. https://doi.org/10.1016/j.ijpara.2016.11.001

23. King CH. A12 Schistosomiasis: challenges and opportunities. In: IOM (Institute of Medicine), ed. The causes and impacts of neglected tropical and zoonotic diseases: Opportunities for integrated intervention strategies. Washington, DC: The National Academies Press; 2011.

24. Kish L. Sampling organizations and groups of unequal sizes. American Sociological Review. 1965;30(4):564-572. https://doi.org/10.2307/2091346

25. Gadoth A, Mvumbi G, Hoff NA, et al. Urogenital schistosomiasis and sexually transmitted coinfections among pregnant women in a schistosome-endemic region of the Democratic Republic of Congo. The American Journal of Tropical Medicine and Hygiene. 2019;101(4):828. https://doi.org/10.4269/ajtmh.19-0024

26. Otuneme OG, Akinkuade F, Obebe OO, et al. A study on the prevalence of Schistosoma haematobium and Schistosoma intercalatum in a rural community of Ogun State, Nigeria. South East Asia Journal of Public Health. 2014;4(1):67-71. https://doi.org/10.3329/seajph.v4i1.21845

27. Ajibola O, Gulumbe BH, Eze AA, Obishakin E. Tools for detection of schistosomiasis in resource limited settings. Medical Sciences. 2018;6(2):39. https://doi.org/10.3390/medsci6020039

28. Acock AC. A Gentle Introduction to Stata: Stata Press, 2008.

29. Rite EE, Kapalata SNw, Munisi DZ. Prevalence, intensity, and factors associated with urogenital schistosomiasis among women of reproductive age in Mbogwe District Council, Geita Region, Tanzania. BioMed Research International. 2020;2020(1):5923025. https://doi.org/10.1155/2020/5923025

30. Kaatano G, Mazigo HD, Bakuba EM, Kreibich S, Parisi S, Mueller A, et al. Impact of a Test and Treat approach combined with intensive information campaign and community engagement to increase coverage of Mass Drug Administration against schistosomiasis infection for the high-risk adult population in Mwanza region, Tanzania. Tanzania Journal of Health Research. 2022;23:87

31. Fukushige M, Chase-Topping M, Woolhouse ME, Mutapi F. Efficacy of praziquantel has been maintained over four decades (from 1977 to 2018): A systematic review and meta-analysis of factors influence its efficacy. PLoS Neglected Tropical Diseases. 2021;15(3):e0009189. https://doi.org/10.1371/journal.pntd.0009189

32. Montresor A, Mwinzi P, Mupfasoni D, Garba A. Reduction in DALYs lost due to soil-transmitted helminthiases and schistosomiasis from 2000 to 2019 is parallel to the increase in coverage of the global control programmes. PLoS neglected tropical diseases. 2022;16(7):e0010575. https://doi.org/10.1371/journal.pntd.0010575

33. Colley DG, Bustinduy AL, Secor WE, King CH. Human schistosomiasis. The Lancet. 2014;383(9936):2253-64. https://doi.org/10.1016/S0140-6736(13)61949-2

34. Khalaf I, Shokeir A, Shalaby M. Urologic complications of genitourinary schistosomiasis. World journal of urology. 2012;30:31-8. https://doi.org/10.1007/s00345-011-0751-7

35. Barsoum RS. Urinary schistosomiasis. Journal of Advanced Research. 2013;4(5):453-9. https://doi.org/10.1016/j.jare.2012.08.004

36. Bustos JA, Ninaquispe BE, Rodriguez S, Castillo Y, Yang SY, Gilman RH, et al. Performance of a sandwich antigen-detection ELISA for the diagnosis of porcine Taenia solium cysticercosis. The American journal of tropical medicine and hygiene. 2019;100(3):604. https://doi.org/10.4269/ajtmh.18-0697

37. WHO. Ending the neglect to attain the Sustainable Development Goals: A Road Map for Neglected Tropical Diseases 2021–2030. Geneva: World Health Organization; 2021:196. https://www.who.int/publications/i/item/9789240010352 . Accessed 3 april 2026.

Peer Reviewed

Competing Interests: Authors declare no competing interests.

Funding: The study did not receive any funding.

Received: 21 Jan 2026; **Accepted:** 31 March 2026

Cite this article as Falle ZM, Mzava S, Nagabona N, Rukyaa J, Kaji M, Bhuko J, Justine CN. Prevalence and Risk Factors for Urogenital Schistosomiasis Among Pregnant Women Attending Antenatal Clinics in Mwanza, Tanzania: A Hospital-Based Cross-Sectional Study. *East Afr Science J.* 2026: 8(2): 179-185. https://doi.org/10.24248/easci.v8i2.120

© The East Africa Science Journal 2026. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are properly cited. To view a copy of the license, visit http://creativecommons.org/licenses/by/4.0/. When linking to this article, please use the following permanent link: https://doi.org/10.24248/easci.v8i2.120