

Occurrence of hybrid and mixed genital schistosomiasis with associated infections in men and women of Nsanje and Mangochi districts in Southern Malawi.



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Introduction

Background

- Genital schistosomiasis remains an ignored chronic consequence of urogenital schistosomiasis, affecting male and female genital systems, but not fully described in hybrid infection, an emerging public health concern.
- Hybridization in urogenital schistosomiasis (HUGS) is a 2-year longitudinal population study aimed at investigating transmission biology and epidemiological impact of *S. haematobium*-hybrids in Malawi.

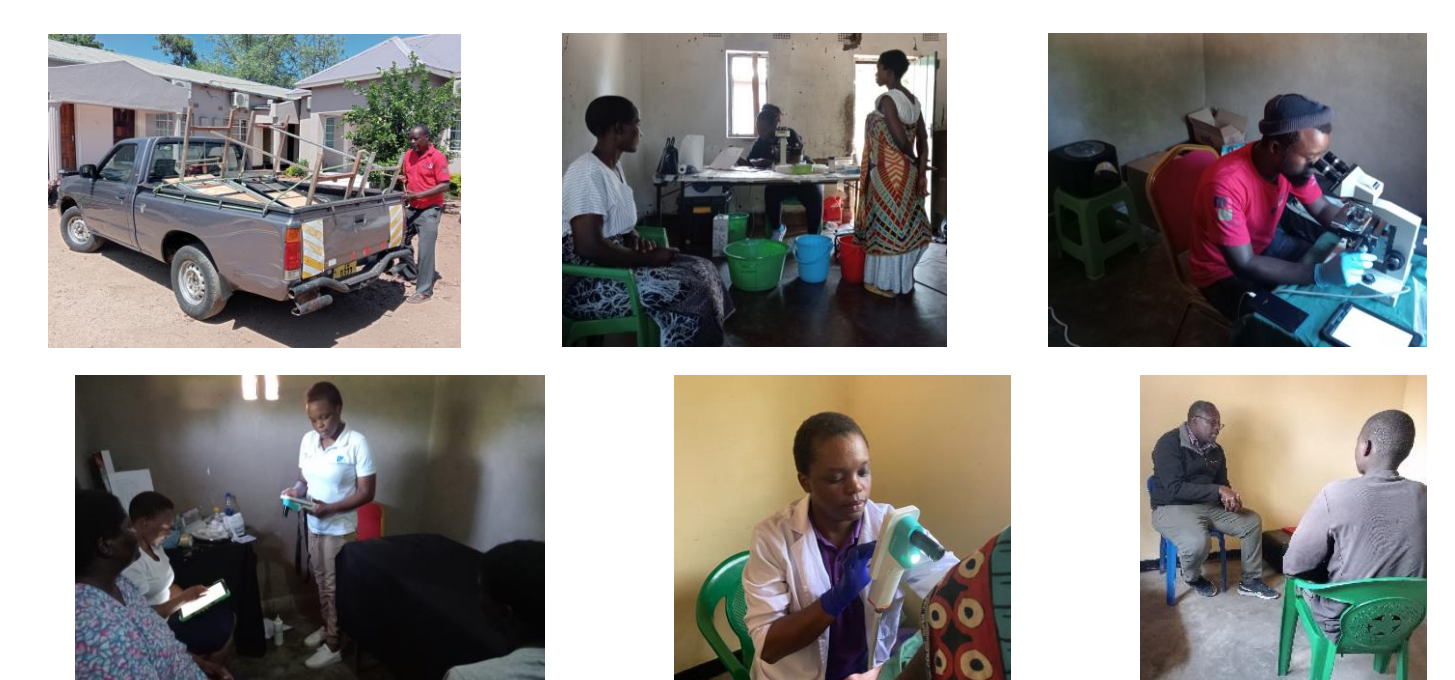
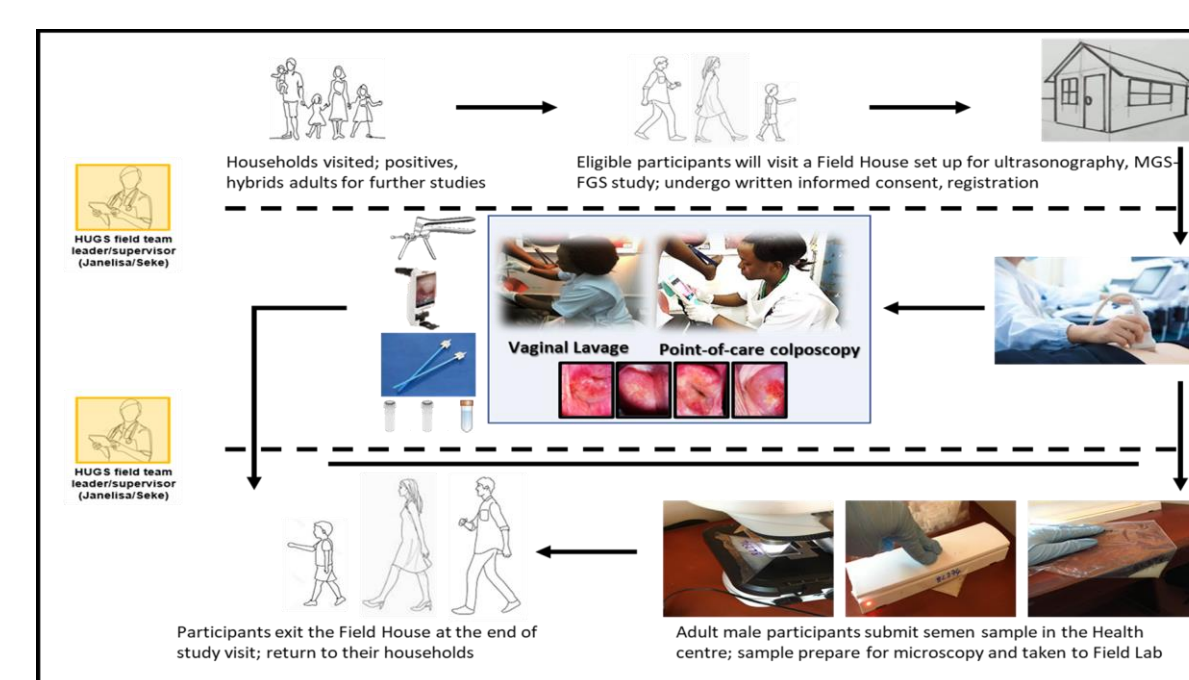
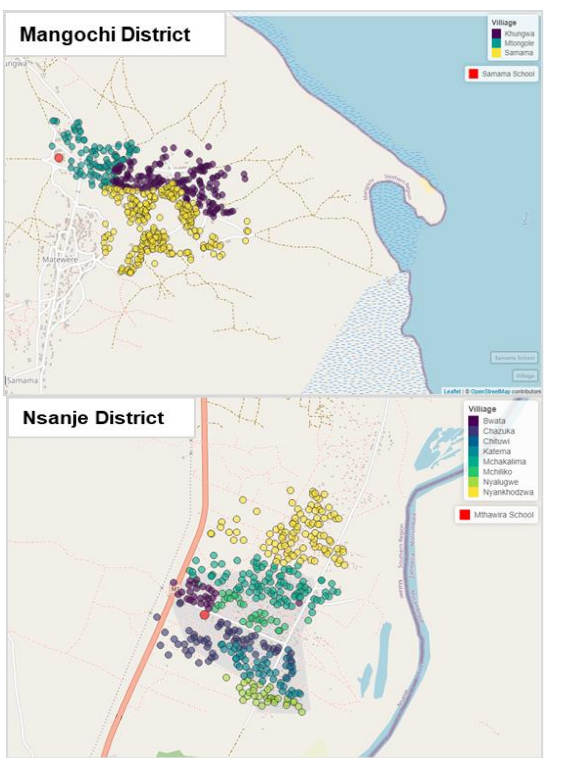
Study objectives

- To assess the prevalence of male and female genital schistosomiasis (MGS and FGS) associated with schistosome hybrids and mixed infections, and other infections among adults in two communities of Nsanje and Mangochi districts.
- To describe the associated infections including sexually transmitted infections (STIs) among the participants.

Methodology

Study population, design & area

- Urine, semen, cervicovaginal lavage (CVL) and swabs collected and analysed by urine filtration, direct microscopy of semen and CVL and semen.
- Molecular analysis using novel qPCR assay to detect human, zoonotic and hybrid schistosomes and other infections - STIs.
- Portable colposcopy and histopathology also conducted.



Praziquantel (PZQ) treatment at 40mg/kg offered

MGS – Results

- 22 men recruited, MGS detected in 50.0% on microscopy and 72.7% on qPCR.
- In Nsanje, 50% (n=8) had MGS on qPCR, in Mangochi was 85.7% (n=14).
- Five men with MGS had *S. mattheei*, 3 had *S. mansoni* while one had mixed infection of *S. mansoni* and possible *S. haematobium*-*S. mattheei* hybrid.
- 13 (59.1%) had Human papilloma virus (HPV) with 7 (31.8%) having high-risk HPV 16 and 18 for invasive cervical cancer.

	Nsanje	Mangochi
Total participants	8	14
Positive on semen microscopy	2 (25.0%)	9 (64.3%)
Positive on semen qPCR	4 (50.0%)	12 (85.7%)
Positive on semen qPCR STIs screen	-	2 (40.0%)
Positive for HPV 16	0 (0.0%)	5 (35.7%)
Positive for HPV 18	0 (0.0%)	2 (14.3%)
Positive for HPV others	0 (0.0%)	10 (71.4%)

Among Mangochi participants, 1 had abnormal *S. mattheei* eggs, 2 azoospermia, 1 dead spermatozoa. 1 had *C. trachomatis*, *Ureaplasma spp.*, *T. vaginalis*, *Candida spp.*, *M. hominis*, HSV 1, HSV 2 while another had *Candida spp.*, *M. hominis*, HSV 1

FGS – Results

- 87 women recruited, FGS detected in 18.2% on microscopy, 47.1% on colposcopy, 54.0% on qPCR (65.5% (n=29) Nsanje, 48.3% (n=58) Mangochi).
- Only 5 women with FGS had *S. mattheei* co-infections
- 73.3% co-infected with an STI, *Trichomonas vaginalis* detected by qPCR,
- HPV in 36.7% with 14.9% high-risk HPV 16 and 18 for invasive cervical cancer.

	Nsanje	Mangochi
Total participants	29	58
Positive on portable colposcopy	15 (51.7%)	26 (44.8%)
Positive on CVL microscopy	9 (31.0%)	6 (10.3%)
Positive on CVL, Swab qPCR	19 (65.5%)	28 (48.3%)
Positive on CVL microscopy (<i>T. vaginalis</i>)	2 (6.5%)	7 (11.9%)
Positive on CVL <i>T. vaginalis</i> qPCR	16 (51.6%)	50 (84.8%)
Positive for HPV 16	2 (6.9%)	6 (10.3%)
Positive for HPV 18	1 (3.4%)	4 (6.9%)
Positive for HPV others	10 (34.5%)	18 (31.0%)

Also screened for *C. trachomatis*, *Ureaplasma spp.*, *M. hominis*, *Candida spp.*, *S. agalactiae*; 56 (64.3%) positive: 13 (44.8%) in Nsanje and 43 (74.1%) in Mangochi.

Conclusion

- Genital schistosomiasis caused by human, zoonotic and hybrid schistosomes prevalent, with significant STIs burden, posing a further challenge in control interventions being implemented by the Ministry of Health.
- Could increase the risk of other infections like STIs and HIV, and potential complications on men and women health.



Future research direction

- Annual MGS-FGS follow-up surveys during the Year 2 Human cohort survey.
- MGS and FGS among clients accessing SRH services through STIs and Cervical Cancer Screening clinics; Integration survey (MFIS).

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