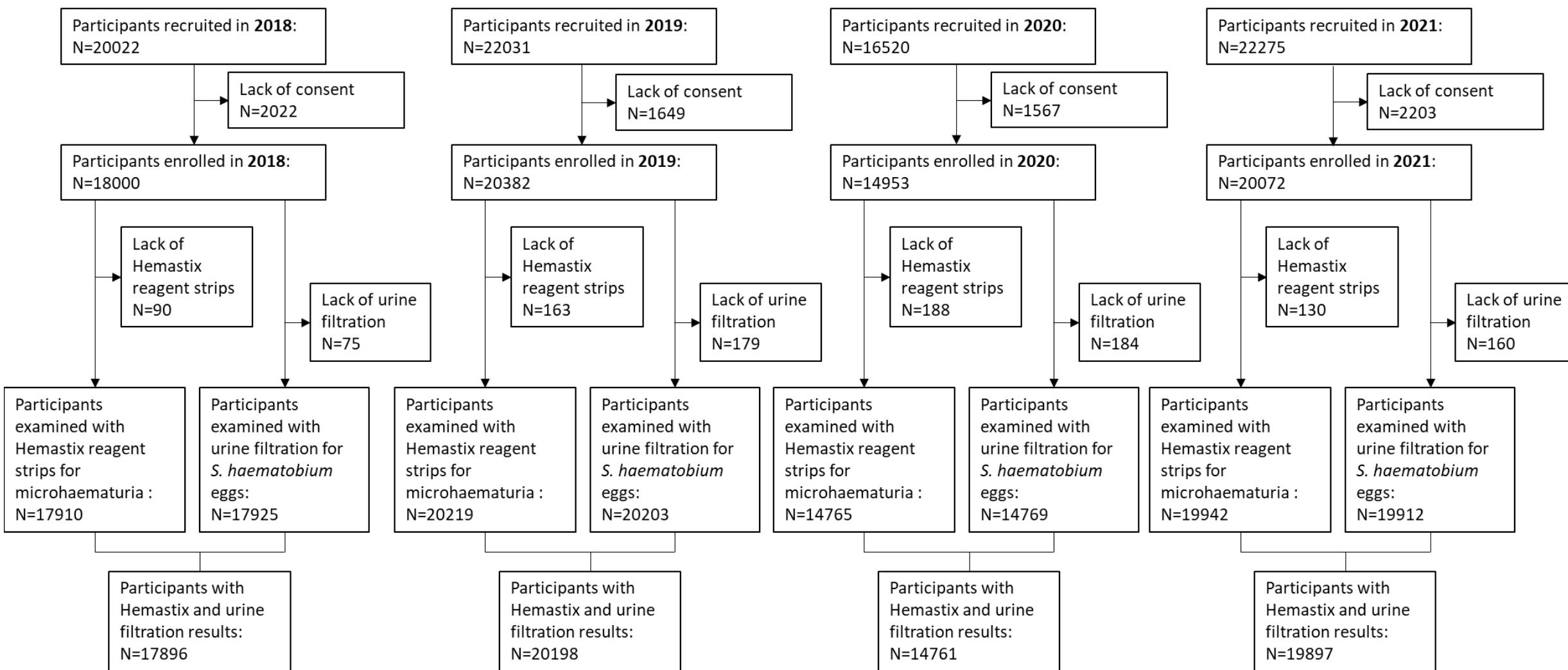
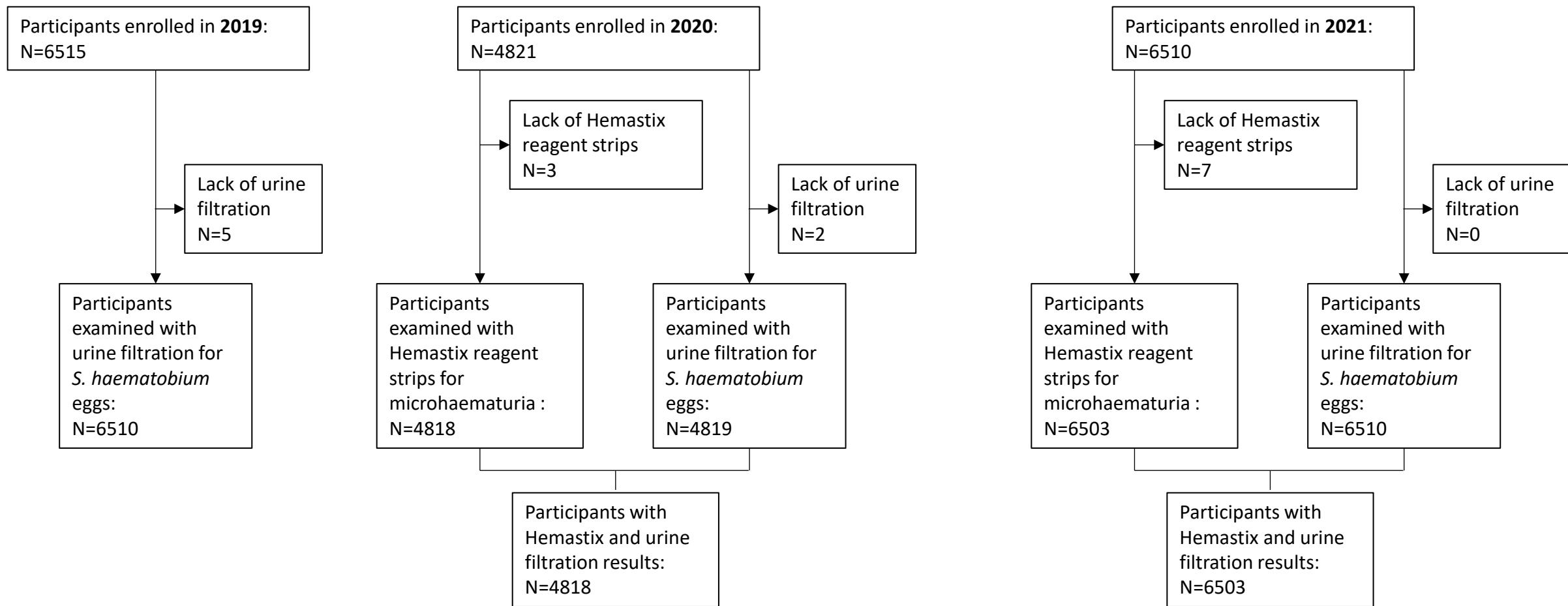


## Participant flow: School cross-sectional surveys



## Participant flow: Community cross-sectional surveys



## Baseline characteristics: School and community cross-sectional surveys

		2018		2019		2020		2021	
Enrolment		Schoolchildren	Community members						
		9184	NA	10237	3451	7610	3045	10135	4608
Sex	Female	8816	NA	10145	3064	7343	1776	9937	1902
	Male	0	NA	0	0	0	0	0	0
	Missing data	0	NA	0	0	0	0	0	0
Age	0-5	0	NA	1518	0	1245	0	1819	14
	6-14	17986	NA	18542	0	13489	0	18013	20
	15-17	8	NA	301	518	214	197	234	95
	18-100	0	NA	4	5988	4	4589	2	6831
	Missing data	6	NA	17	9	1	35	4	0

\* NA =Not assessed

## Outcome measures: School and community cross-sectional surveys

### Primary outcome measure

Number of *S. haematobium* infected individuals detected by the urine filtration method (detecting *S. haematobium* eggs in 10 ml urine) and reagent strip method (Hemastix; detecting microhaematuria in urine) applied on a single urine sample per participant in each annual cross-sectional survey in 2018, 2019, 2020, and 2021.

Of note, no community data were collected in 2018.

Enrolment		2018		2019		2020		2021	
		Schoolchildren	Community members						
Haematuria	Negative	16966	NA	19459	NA	14021	4501	18949	5852
	Positive	944	NA	760	NA	744	317	993	651
	Missing data	90	NA	163	NA	188	3	130	7
<i>Schistosoma haematobium</i>	Negative	17381	NA	19973	6474	14339	4794	19453	6416
	Positive	544	NA	230	36	430	25	459	94
	Missing data	75	NA	179	5	184	2	160	0
	Light intensity infection (1-49 eggs)	437	NA	168	26	337	21	376	87
	Heavy intensity infection (50+ eggs)	107	NA	62	10	93	4	83	7

\* NA =Not assessed

## Outcome measures: School and community cross-sectional surveys

### Secondary outcome measures

- Impact of mass drug administration (MDA) with praziquantel (40 mg/kg) over time measured in 2018, 2019, 2020, and 2021 during the annual cross-sectional school-based and community-based surveys using:
  - S. haematobium* prevalence measured by urine filtration (*S. haematobium* egg absence/presence in 10 ml urine) and measured by reagent strips to assess microhaematuria absence/presence
  - S. haematobium* infection intensity measured by urine filtration (*S. haematobium* egg counts in 10 ml urine)
- Treatment coverage and compliance of MDA with praziquantel (40 mg/kg) preceding the cross-sectional survey, determined with questionnaires in annual cross-sectional surveys (coverage is defined as the percentage of those queried receiving praziquantel tablets during MDA, and compliance is defined as the percentage of those queried swallowing praziquantel tablets in the dose supplied during MDA) in 2018, 2019, 2020, and 2021.

Of note, no community data were collected in 2018.

Enrolment		2018		2019		2020		2021	
		Schoolchildren	Community members						
Haematuria	Negative	16966	NA	19459	NA	14021	4501	18949	5852
	Positive	944	NA	760	NA	744	317	993	651
	Missing data	90	NA	163	NA	188	3	130	7
<i>Schistosoma haematobium</i>	Negative	17381	NA	19973	6474	14339	4794	19453	6416
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	Missing data	75	NA	179	5	184	2	160	0
	Light intensity infection (1-49 eggs)	437	NA	168	26	337	21	376	87
	Heavy intensity infection (50+ eggs)	107	NA	62	10	93	4	83	7
Praziquantel treatment coverage	Did not receive praziquantel	5684	NA	1653	2305	NA	NA	2649	2654
	Received praziquantel	11509	NA	18727	4185	NA	NA	17417	3856
	Missing data	807	NA	2	25	NA	NA	6	0
	Received and took all praziquantel tablets together	NA	NA	NA	3210	NA	NA	NA	3283
	Received but did not take praziquantel as recommended	NA	NA	NA	975	NA	NA	NA	573

\* NA =Not assessed

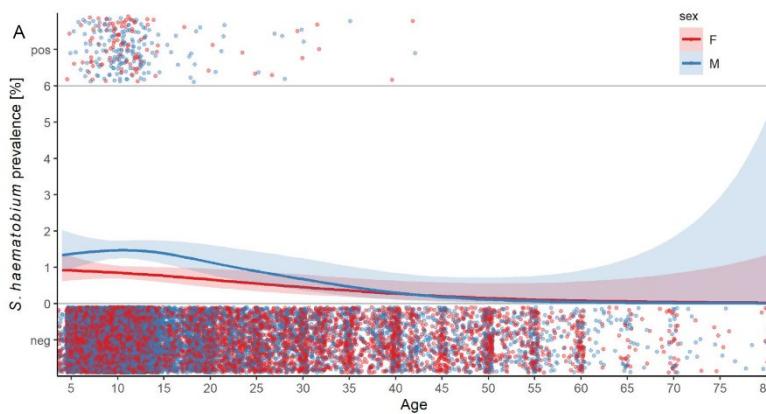
# Outcome measures: School and community cross-sectional surveys

## Secondary outcome measures

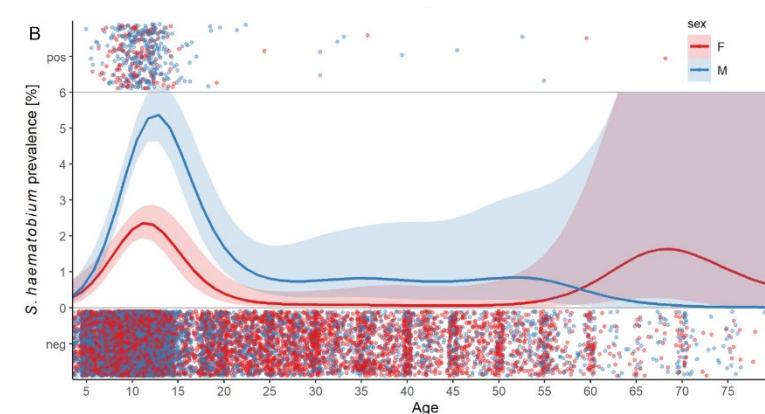
2. Age-prevalence distribution by age and stratified by sex, measured by urine filtration and reagent strips, sex and age will be recorded on enrolment and in 2018, 2019, 2020, and 2021 during the annual cross-sectional school-based and community-based surveys.

Of note, no community data were collected in 2018.

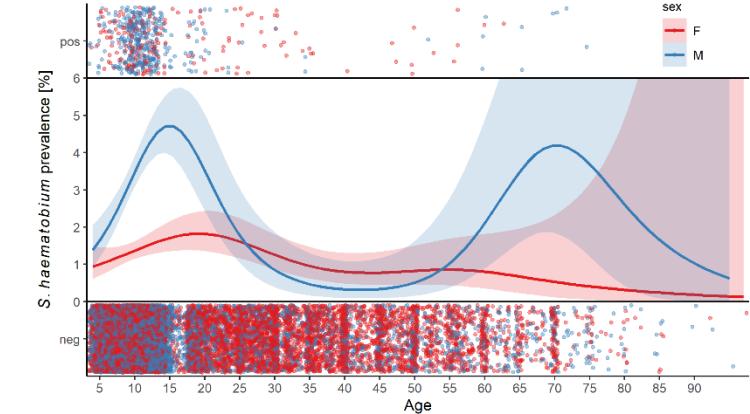
2019



2020



2021



*S. haematobium* prevalence across all ages, stratified by sex, after 11 rounds of MDA in 2019 (A) and a 16-month treatment gap in 2020 (B).

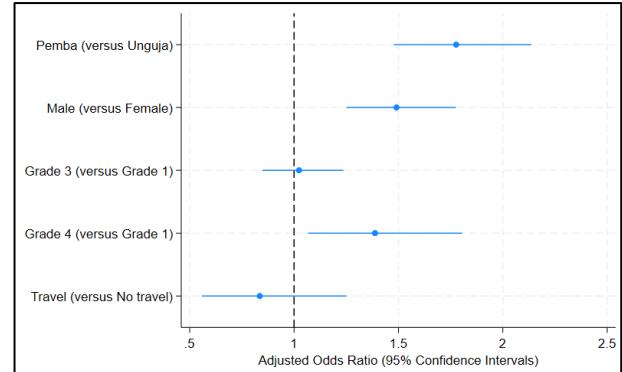
*S. haematobium* prevalence across all ages, stratified by sex, when assessed in Jan-March 2021, 5-7 months after the last MDA (August 2020).

# Outcome measures: School cross-sectional surveys

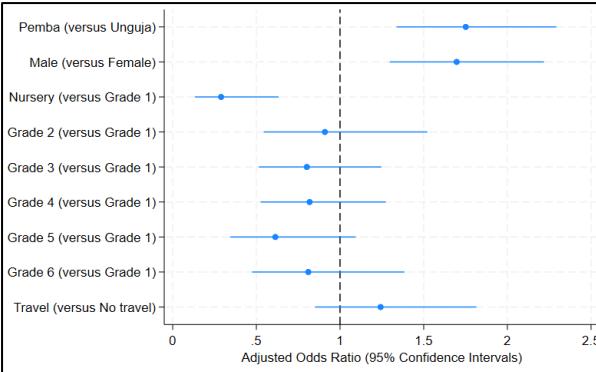
## Secondary outcome measures

4. Risk factors for *S. haematobium* infection determined with questionnaires (query the use of natural open freshwater bodies for washing, bathing and household chores, travel, location of residence and demographic factors) during annual cross-sectional surveys in 2018, 2019, 2020, and 2021

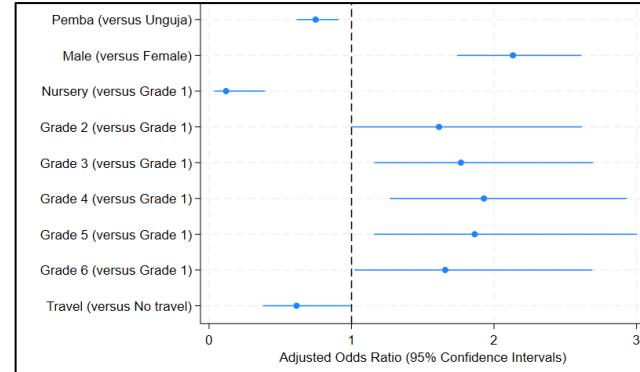
2018



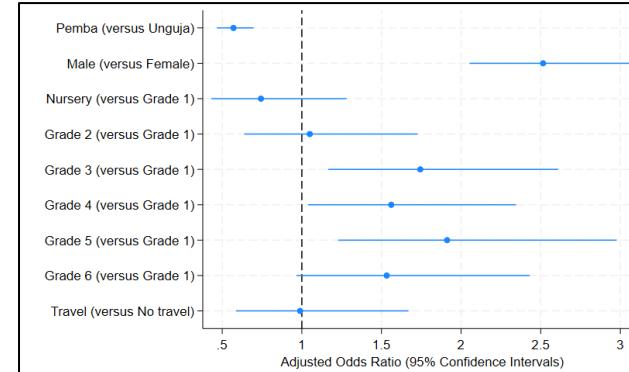
2019



2020



2021



. logit shpos is1\_num sex\_num i.standard1 travel\_num if year==2018, or vce(robust)

Iteration 0: Log pseudolikelihood = -2388.1265  
Iteration 1: Log pseudolikelihood = -2359.9483  
Iteration 2: Log pseudolikelihood = -2359.2341  
Iteration 3: Log pseudolikelihood = -2359.2336  
Iteration 4: Log pseudolikelihood = -2359.2336

Logistic regression  
Number of obs = 17,137  
Wald chi2(5) = 66.89  
Prob > chi2 = 0.0000  
Log pseudolikelihood = -2359.2336

. logit shpos is1\_num sex\_num ib1.standard1 travel\_num if year==2019, or vce(robust)

Iteration 0: Log pseudolikelihood = -1262.6522  
Iteration 1: Log pseudolikelihood = -1239.2041  
Iteration 2: Log pseudolikelihood = -1237.4932  
Iteration 3: Log pseudolikelihood = -1237.4837  
Iteration 4: Log pseudolikelihood = -1237.4837

Logistic regression  
Number of obs = 20,215  
Wald chi2(9) = 47.23  
Prob > chi2 = 0.0000  
Log pseudolikelihood = -1237.4837

. logit shpos is1\_num sex\_num ib1.standard1 travel\_num if year==2020, or vce(robust)

Iteration 0: Log pseudolikelihood = -1944.4034  
Iteration 1: Log pseudolikelihood = -1883.5089  
Iteration 2: Log pseudolikelihood = -1874.2745  
Iteration 3: Log pseudolikelihood = -1873.5756  
Iteration 4: Log pseudolikelihood = -1873.5644  
Iteration 5: Log pseudolikelihood = -1873.5644

Logistic regression  
Number of obs = 14,770  
Wald chi2(9) = 94.22  
Prob > chi2 = 0.0000  
Log pseudolikelihood = -1873.5644

. logit shpos is1\_num sex\_num ib1.standard1 travel\_num if year==2021, or vce(robust)

Iteration 0: Log pseudolikelihood = -2192.4895  
Iteration 1: Log pseudolikelihood = -2122.6506  
Iteration 2: Log pseudolikelihood = -2116.9361  
Iteration 3: Log pseudolikelihood = -2116.9247  
Iteration 4: Log pseudolikelihood = -2116.9247

Logistic regression  
Number of obs = 19,950  
Wald chi2(9) = 118.19  
Prob > chi2 = 0.0000  
Log pseudolikelihood = -2116.9247

shpos	Robust					
	Odds ratio	std. err.	z	P> z	[95% conf. interval]	
is1_num	1.776843	.1669365	6.12	0.000	1.478011	2.136095
sex_num	1.490531	.13308	4.47	0.000	1.251246	1.775576
standard1						
3	1.024003	.0983765	0.25	0.805	.8482538	1.236165
4	1.388057	.1860411	2.45	0.014	1.067385	1.805069
travel_num	.835585	.1720473	-0.87	0.383	.5581204	1.250989
_cons	.0183837	.0017675	-41.57	0.000	.0152264	.0221957

Note: \_cons estimates baseline odds.

shpos	Robust					
	Odds ratio	std. err.	z	P> z	[95% conf. interval]	
is1_num	1.75122	.240768	4.08	0.000	1.337557	2.292814
sex_num	1.696909	.232441	3.86	0.000	1.297364	2.219501
standard1						
0	.2894324	.115695	-3.10	0.002	.1322196	.6335755
2	.0906623	.2390138	-0.36	0.718	.5434987	1.522384
3	.8016665	.181057	-0.98	0.328	.5148699	1.248217
4	.8183665	.1847151	-0.89	0.375	.5258011	1.273721
5	.6313908	.1810409	-1.66	0.098	.3437823	1.093724
6	.8102023	.2215518	-0.77	0.441	.4740567	1.384703
travel_num	1.242427	.2401655	1.12	0.261	.8506106	1.814727
_cons	.007915	.0017638	-21.71	0.000	.005114	.01225

Note: \_cons estimates baseline odds.

shpos	Robust					
	Odds ratio	std. err.	z	P> z	[95% conf. interval]	
is1_num	.7476913	.0750273	-2.90	0.004	.6141978	.910199
sex_num	2.132786	.2213824	7.30	0.000	1.740174	2.613976
standard1						
0	.1189045	.0724789	-3.49	0.000	.0360034	.3926929
2	1.614056	.3978048	1.94	0.052	.9957014	2.616424
3	1.767481	.3806347	2.64	0.008	.158897	2.695658
4	1.929157	.4122553	3.07	0.002	.1269019	2.932695
5	1.86437	.4532419	2.56	0.010	.157708	3.002378
6	1.657355	.4098232	2.04	0.041	.1.020785	.2.609885
travel_num	.6140589	.051777	-1.97	0.048	.378245	.9967852
_cons	.0144123	.0030131	-20.28	0.000	.009567	.0217116

Note: \_cons estimates baseline odds.

shpos	Robust					
	Odds ratio	std. err.	z	P> z	[95% conf. interval]	
is1_num	.5705742	.0582416	-5.50	0.000	.4671167	.6969456
sex_num	2.514949	.2607411	8.90	0.000	2.02483	3.081618
standard1						
0	.7433495	.2063215	-1.07	0.285	.431456	1.280706
2	1.049849	.2667529	0.19	0.848	.63804	1.727452
3	1.743856	.3586295	2.70	0.007	1.165355	2.609534
4	1.561543	.3242375	2.15	0.032	1.039468	2.345832
5	1.9122	.4317673	2.87	0.000	1.228387	2.976674
6	1.532965	.3607668	1.82	0.069	.9665211	2.431383
travel_num	.8890217	.2645202	-0.04	0.967	.5855265	1.670572
_cons	.0118886	.0025122	-20.97	0.000	.0078571	.0179889

Note: \_cons estimates baseline odds.

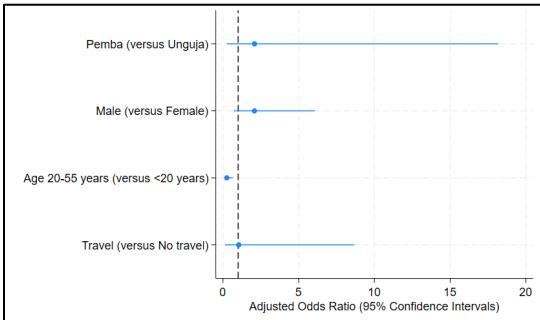
# Outcome measures: Community cross-sectional surveys

## Secondary outcome measures

4. Risk factors for *S. haematobium* infection determined with questionnaires (query the use of natural open freshwater bodies for washing, bathing and household chores, travel, location of residence and demographic factors) during annual cross-sectional surveys in 2018, 2019, 2020, and 2021.

Of note, no community data were collected in 2018.

2019



```
. logit shpos isl_num sex_num i.agegroup ib1.notravel if year==2019, or vce(robust)
```

note: 3.agegroup != 0 predicts failure perfectly;  
3.agegroup omitted and 252 obs not used.

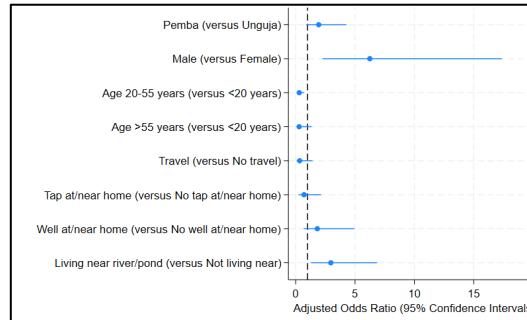
Iteration 0: Log pseudolikelihood = **-104.17852**  
Iteration 1: Log pseudolikelihood = **-101.59996**  
Iteration 2: Log pseudolikelihood = **-98.335773**  
Iteration 3: Log pseudolikelihood = **-98.322802**  
Iteration 4: Log pseudolikelihood = **-98.322793**

Logistic regression  
Number of obs = 3,967  
Wald chi2(4) = 21.16  
Prob > chi2 = 0.0003  
Log pseudolikelihood = -98.322793

shpos	Robust				
	Odds ratio	std. err.	z	P> z	[95% conf. interval]
isl_num	<b>2.078357</b>	<b>2.300206</b>	<b>0.66</b>	<b>0.509</b>	<b>.2374976</b> 18.18784
sex_num	<b>2.07926</b>	<b>1.136799</b>	<b>1.34</b>	<b>0.181</b>	<b>.7120807</b> 6.071394
agegroup					
2	<b>.2482184</b>	<b>.1245441</b>	<b>-2.78</b>	<b>0.005</b>	<b>.0928414</b> .6636303
3	<b>1</b> (empty)				
0.notravel	<b>1.038613</b>	<b>1.125283</b>	<b>0.03</b>	<b>0.972</b>	<b>.1242284</b> 8.683332
_cons	<b>.0053083</b>	<b>.0031761</b>	<b>-8.76</b>	<b>0.000</b>	<b>.0016431</b> .0171497

Note: \_cons estimates baseline odds.

2020



```
. logit shpos isl_num sex_num i.agegroup ib1.notravel tapyes wellyes rivnear if year==2020, or vce(robust)
```

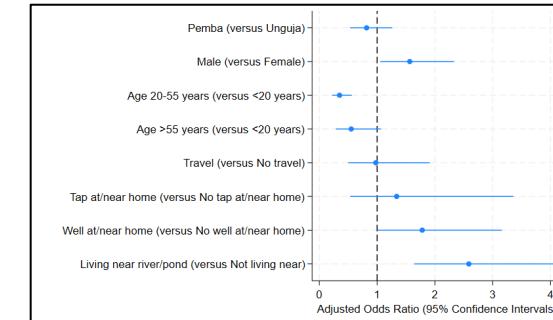
Iteration 0: Log pseudolikelihood = **-156.19925**  
Iteration 1: Log pseudolikelihood = **-139.34953**  
Iteration 2: Log pseudolikelihood = **-133.86707**  
Iteration 3: Log pseudolikelihood = **-133.64494**  
Iteration 4: Log pseudolikelihood = **-133.64446**  
Iteration 5: Log pseudolikelihood = **-133.64446**

Logistic regression  
Number of obs = 4,767  
Wald chi2(8) = 62.77  
Prob > chi2 = 0.0000  
Log pseudolikelihood = -133.64446

shpos	Robust				
	Odds ratio	std. err.	z	P> z	[95% conf. interval]
isl_num	<b>1.940073</b>	<b>.7824974</b>	<b>1.64</b>	<b>0.100</b>	<b>.8800339</b> 4.276974
sex_num	<b>6.248195</b>	<b>3.257182</b>	<b>3.51</b>	<b>0.000</b>	<b>2.249176</b> 17.35744
agegroup					
2	<b>.2962832</b>	<b>.1307962</b>	<b>-2.76</b>	<b>0.006</b>	<b>.1247207</b> .7038426
3	<b>.2933511</b>	<b>.2290656</b>	<b>-1.57</b>	<b>0.116</b>	<b>.0634922</b> 1.355362
0.notravel	<b>.3330184</b>	<b>.2472007</b>	<b>-1.48</b>	<b>0.139</b>	<b>.0777354</b> 1.426652
tapyes	<b>.7058326</b>	<b>.3988995</b>	<b>-0.62</b>	<b>0.538</b>	<b>.2331564</b> 2.136761
wellyes	<b>1.821212</b>	<b>.92878</b>	<b>1.18</b>	<b>0.240</b>	<b>.6702939</b> 4.948294
rivnear	<b>2.963778</b>	<b>1.270011</b>	<b>2.54</b>	<b>0.011</b>	<b>.1279666</b> 6.864276
_cons	<b>.0016931</b>	<b>.0015942</b>	<b>-6.78</b>	<b>0.000</b>	<b>.0002674</b> .0107192

Note: \_cons estimates baseline odds.

2021



```
. logit shpos isl_num sex_num i.agegroup ib1.notravel tapyes wellyes rivnear if year==2021, or vce(robust)
```

Iteration 0: Log pseudolikelihood = **-487.21208**  
Iteration 1: Log pseudolikelihood = **-470.61343**  
Iteration 2: Log pseudolikelihood = **-462.32807**  
Iteration 3: Log pseudolikelihood = **-462.24948**  
Iteration 4: Log pseudolikelihood = **-462.24944**

Logistic regression  
Number of obs = 6,494  
Wald chi2(8) = 53.13  
Prob > chi2 = 0.0000  
Log pseudolikelihood = -462.24944

shpos	Robust				
	Odds ratio	std. err.	z	P> z	[95% conf. interval]
isl_num	<b>.8183587</b>	<b>.1809393</b>	<b>-0.91</b>	<b>0.365</b>	<b>.5305701</b> 1.262248
sex_num	<b>1.564518</b>	<b>.3179981</b>	<b>2.20</b>	<b>0.028</b>	<b>1.050433</b> 2.330197
agegroup					
2	<b>.3505651</b>	<b>.0841757</b>	<b>-4.37</b>	<b>0.000</b>	<b>.2189691</b> .5612475
3	<b>.5523536</b>	<b>.1857722</b>	<b>-1.76</b>	<b>0.078</b>	<b>.2857156</b> 1.067826
0.notravel	<b>.9771912</b>	<b>.3346208</b>	<b>-0.07</b>	<b>0.946</b>	<b>.4994609</b> 1.911866
tapyes	<b>1.338114</b>	<b>.6286737</b>	<b>0.62</b>	<b>0.535</b>	<b>.5328204</b> 3.360511
wellyes	<b>1.780472</b>	<b>.520631</b>	<b>1.97</b>	<b>0.049</b>	<b>1.003769</b> 3.158177
rivnear	<b>2.586801</b>	<b>.5995248</b>	<b>4.10</b>	<b>0.000</b>	<b>1.642426</b> 4.074178
_cons	<b>.0087132</b>	<b>.0051917</b>	<b>-7.96</b>	<b>0.000</b>	<b>.0027101</b> .0280132

Note: \_cons estimates baseline odds.