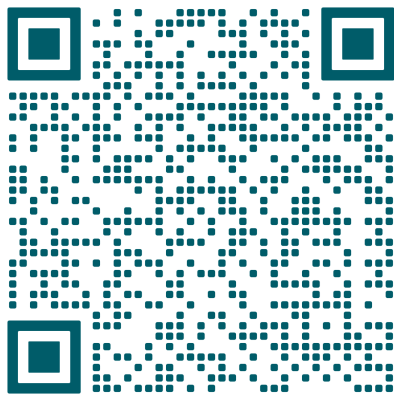


Prevalence mapping of schistosomiasis in rural Madagascar: a cross-sectional study



Introduction

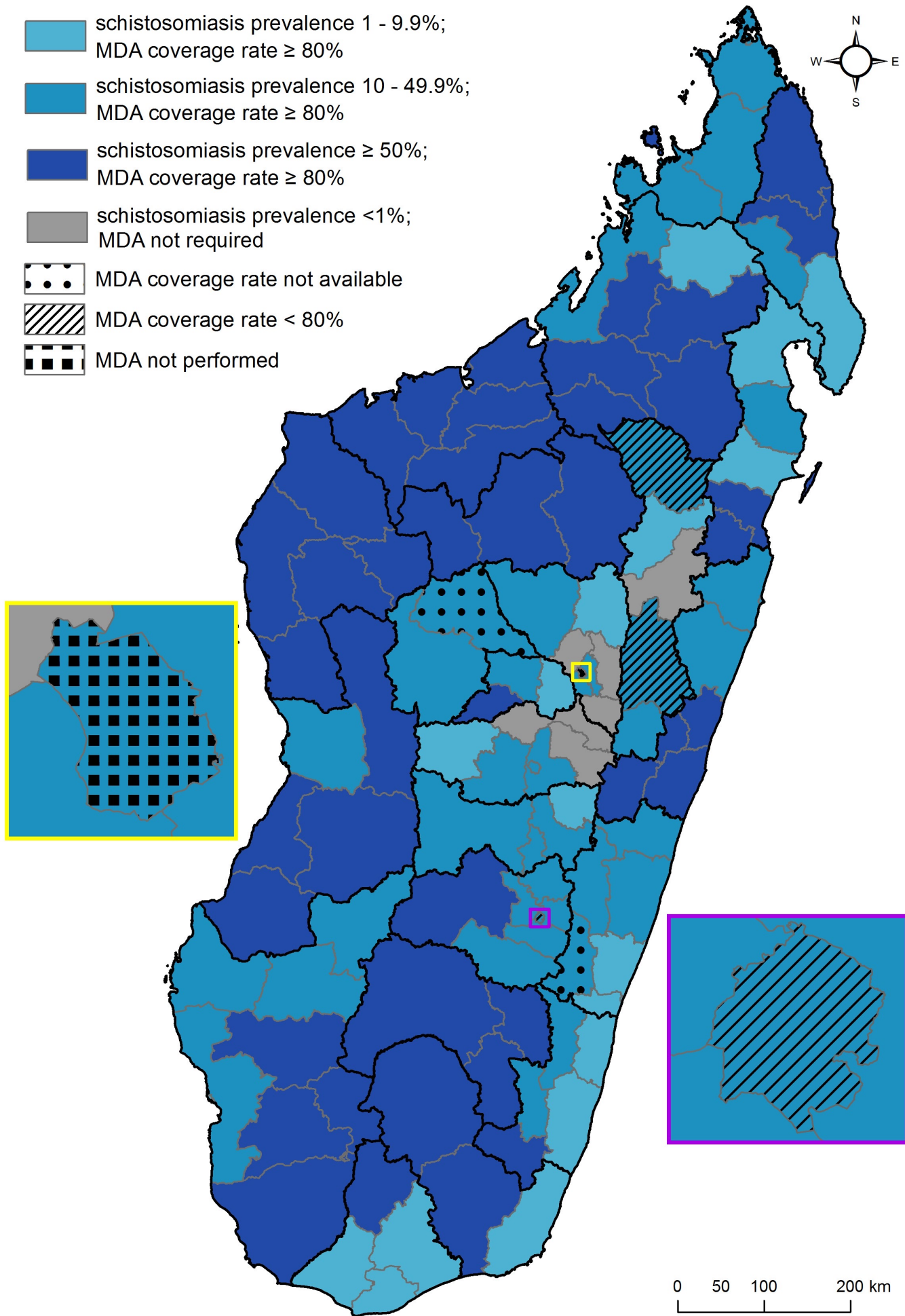


Figure 1. Prevalence of Schistosomiasis and MDA coverage in Madagascar

Schistosomiasis is a parasitic disease of poverty transmitted by freshwater snails. Humans become infected through contact with contaminated freshwater. Mass Drug Administration (MDA) through Praziquantel is the main public health control strategy but is commonly administered only to school children (5-15 years), though the WHO (2022) recommends to intervene with MDAs twice a year if prevalence exceeds 30 per cent.

In Madagascar, 104 out of 117 districts are schistosomiasis-endemic (Figure 1). However, schistosomiasis prevalence at the smallest administrative unit, Fokontany, remains poorly understood.

Scope

This study aims to map schistosomiasis prevalence on Fokontany level and to identify difference in prevalence based on age, sex and occupation.

Methods

- Design:** Cross-sectional study
- Target population:** Residents of Vatomandry District on the east coast of Madagascar.
- Participants Recruitment:** July - October 2022, random sample of 1,215 households from 42 Fokontany. Up to five participants were randomly sampled per household.
- Data collection:** Questionnaires and urine samples on which Point-of-Care Circulating Cathodic Antigen (POC-CCA) test was used to detect schistosomiasis infection.
- Data analysis:** Prevalence of Schistosome infection and 95% confidence intervals (95%-CI) stratified by participants characteristics.

Results

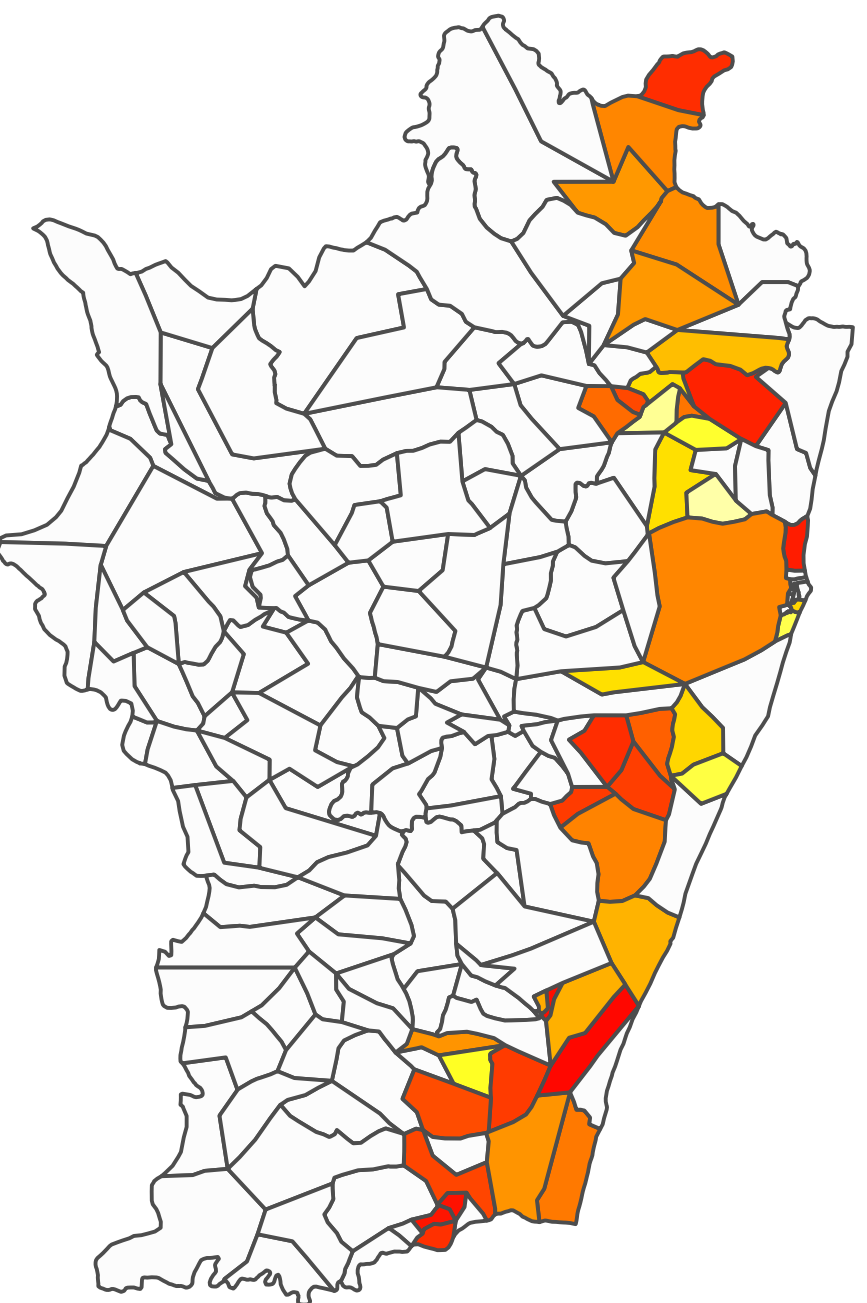
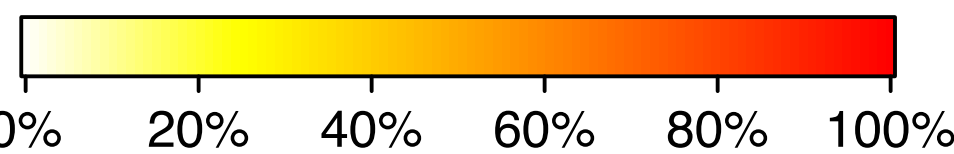
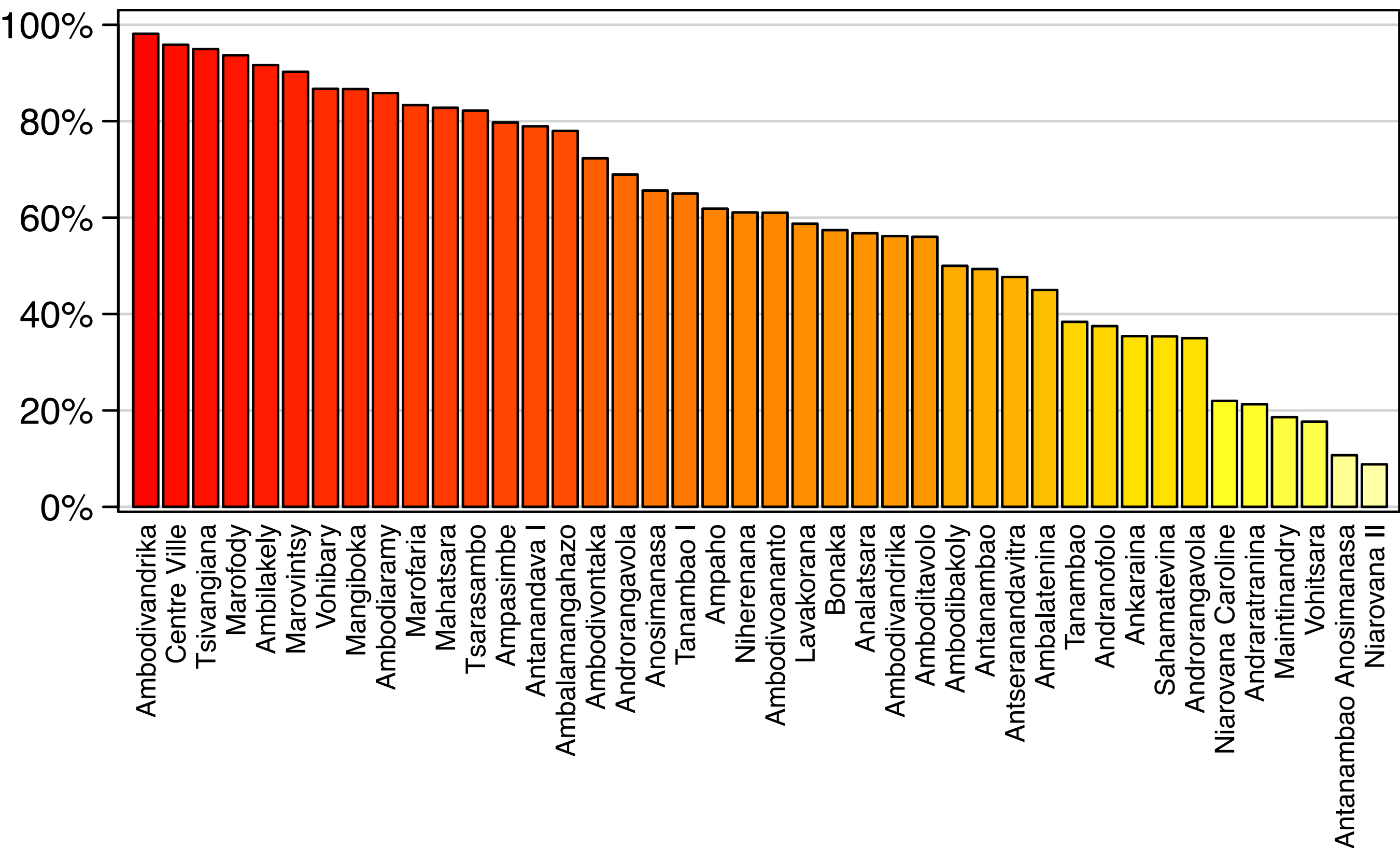


Figure 2. Percentage of Schistosome infection positive samplesby Fokontany (n = 42)

- Total of 5.199 participants were sampled.
- 56% were female (2,926 out of 5,198 individuals).
- Median age was 27 (IQR: 15-44).
- 26% of participants were still attending school (1,330 out of 5,200 individuals).
- 33% were engaged in farming (1,719 out of 5,200 individuals).
- The overall prevalence of Schistosome's infection in the Vatomandry District was 58.5% (95%-CI: 57.1-59.8).

- Figure 2:**
- Substantial variance in sample prevalence between communities, ranging from the lowest prevalence in Niarovana II (8.8%; 95%-CI: 3.3-18.2) to the highest in Ambodivandrika (98.1%; 95%-CI: 93.5-99.8).
- Figure 3:**
- Similar prevalence between males (58.0% [57.1, 60.7]) and females (58.9% [55.9, 60.1]).
 - Prevalence varied by age group, lowest among the under 15 (44.5% [41.8, 47.2]) and highest among 46-55 years old (69.5% [65.5, 73.3]).
 - Farmers exhibited the highest prevalence (73.4% [71.3, 75.5]), while students (41.2% [35.5, 47.0]) and the unemployed (41.2% [32.8, 49.9]) had the lowest prevalence.

Prevalence [95%-CI]	Variable	N
58.5%	Total	5199
58.9%	Sex	
58.0%	Female	2926
	Male	2272
44.5%	Age	
55.0%	5-15	1333
65.5%	16-25	1135
66.6%	26-35	899
69.5%	36-45	668
68.2%	46-55	554
63.7%	56-65	396
	older than 65	212
73.4%	Main Occupation	
69.6%	Farmer	1719
62.3%	Other	283
62.3%	Housewife	379
61.1%	Laborer	130
57.5%	Teacher	144
52.7%	Salesperson	285
50.0%	Craftsman	129
42.9%	Shopkeeper	118
41.2%	Driver	56
41.2%	Student	294
	Unemployed	136

Figure 3. Prevalence by sex, age and occupation

Conclusion

Overall, a high prevalence was found. Our preliminary data suggests that the geographical distribution of schistosomiasis varies greatly the smallest administrative units (Fokontany) in the district of Vatomandry.