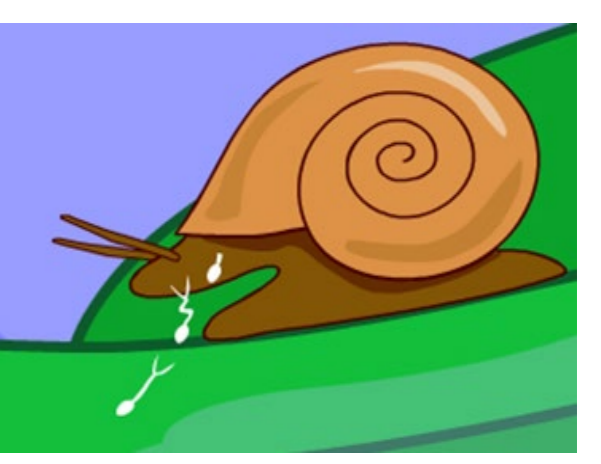




Using WHO schistosomiasis community data analysis tool to identify factors contributing to high prevalence in Mali



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BACKGROUND

- Schistosomiasis (SCH) is endemic in all 75 health districts (HD) in Mali. SCH represents the second most endemic parasitic disease after malaria and constitutes a major public health burden.
- 2018:** 46/75 HDs showed a downward trend of SCH prevalence in most HDs, however, World Health Organization (WHO) guidelines indicated mass drug administration (MDA) with praziquantel needed to continue in these HDs. To avoid over- or under-treatment in HDs, Mali was one of the first countries to implement MDA at the health area (HA) level starting in 2020, as recommended by WHO. In Mali, the HA level corresponds to the first operational level of health activities in the community.
- 2021:** The National Schistosomiasis and Helminthiasis Control Program (PNLSH) updated SCH endemicity by HA using the WHO SCH Community Data Analysis Tool and categorized them according to the WHO decision tree to conduct MDA. The WHO tool categorized HAs in four categories: "0" non- (0% prevalence), "1" low- (<10% prevalence), "2" moderate- (10-49.9% prevalence), and "3" high-endemicity (≥50% prevalence). Of 1,510 HAs categorized, 20.6% (311/1,510) were classified as high prevalence.

STUDY OBJECTIVE

The aim of this study was to identify the factors that determine the high prevalence of SCH in HAs in Mali.

METHODS

- The PNLSH sent the WHO tool to all health center directors (DTCs) in the country via the regional health departments and health districts. The DTCs filled in the tool with environmental and behavioral information about their HAs (type of existing water body, existence of rice fields, main source of water supply, main activities with water bodies, etc.). This data had been collected by DTCs through passive means. All these data were then compiled by the PNLSH.
- This information was re-evaluated during the SCH/STH data review workshop with the PNLSH, and national and international experts. This evaluation and the re-categorization of HAs by SCH endemicity, according to the WHO decision was used to build a logistic model to identify the factors influencing high SCH prevalence in the HAs.



Environmental and behavioral factors associated with SCH transmission

RESULTS

Table 1: Environmental and behavioral factors in health areas

| Environmental and behavioral factors | Effective (N=1,510) | frequency |
|---|---------------------|-----------|
| Bodies of water around the health area | | |
| Riviere and lake | 739 | 48,9 % |
| Pond | 948 | 62,8 % |
| Irrigation canal | 236 | 15,6 % |
| Rice field | 291 | 19,3 % |
| River | 226 | 15 % |
| Wells and boreholes | 5 | 0.3 % |
| Main source of water supply | | |
| Ponds, lakes and riviere | 536 | 35,5 % |
| Wells and boreholes | 1275 | 84,4 % |
| Household pumps | 421 | 27,9 % |
| Tap | 439 | 30,0 % |
| Main activity with water bodies | | |
| Fishing | 718 | 47,5 % |
| Agriculture | 983 | 65,1 % |
| Domestic use | 903 | 59,8 % |

Table 2: Factors associated to high prevalence in health areas (logistic model)

| Parameters | crude OR (95%CI) | adjusted OR (95%CI) | LR-test |
|---|--------------------|---------------------|---------|
| Bodies of water around the health area | | | |
| Irrigation canal : Yes vs No | 3.88 (2.88 - 5.22) | 2.16 (1.41 - 3.29) | < 0.001 |
| Rice field : Yes vs No | 2.2 (1.65 - 2.93) | 2.17 (1.4 - 3.36) | < 0.001 |
| Main source of water supply | | | |
| Lake: Yes vs No | 1.84 (1.42 - 2.36) | 2.67 (1.81 - 3.92) | < 0.001 |
| Main activity with water bodies | | | |
| Fishing : Yes vs No | 1.61 (1.25 - 2.07) | 1.39 (1.26 - 1.59) | < 0.001 |
| Agriculture : Yes vs No | 4.22 (3 - 5.94) | 1.84 (1.19 - 2.84) | 0.005 |

- Out of 1,510 HAs categorized, 20.6% (311/1,510) were classified as high prevalence.
- Environmental and behavioral factors statistically associated with high SCH prevalence were the presence of irrigation canals [OR=3.88, 95% CI (2.88 - 5.22)], rice fields [OR=2.2, 95% CI (1.65 - 2.93)], ponds as a water supply source [OR=1.84, 95% CI (1.42 - 2.36)], agriculture [OR=4.22, 95% CI (3 - 5.94)] and fishing activities [OR=1.61, 95% CI (1.25 - 2.07)] around bodies of water.

CONCLUSION: Identifying these key risk factors for high SCH prevalence will allow the PNLSH to better direct community dialogue messages to influence behavior change, which will complement other SCH control and elimination interventions in Mali.

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