ABSTRACT

Potential Zoonotic Transmission of Strongyloides stercoralis in Rural East Kalimantan, Indonesia: Human Infection Patterns, Environmental Exposure, and One Health Implications

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Background : : Strongyloides stercoralis is a soil-transmitted nematode capable of persistent human infection. Dogs may harbor genetically overlapping parasite lineages, although naturally occurring dog-to-human transmission remains unresolved.

Objective : This study reinterprets historical community infection and environmental data from East Kalimantan through a One Health lens without presuming zoonotic transmission.

Research Methods/ Implementation Methods : We conducted a descriptive secondary analysis of an existing cross-sectional survey of 213 residents from 28 villages in Muara Kaman and Marangkayu, East Kalimantan, undertaken between 1018-2021. Human stool specimens were examined using agar-plate culture and Kato–Katz methods. We extracted reported prevalence and environmental patterns and integrated them with peer-reviewed evidence on canine reservoirs and zoonotic uncertainty. No animal specimen results, parasite genotypes, or linked household animal–human outcomes were available for reanalysis.

Results : Overall, 17/213 participants (8.0%) were reported positive, including 3/95 (3.2%) in Muara Kaman and 14/118 (11.9%) in Marangkayu. Higher positivity was described in strata characterized by lower soil organic carbon, sandy soil containing organic material, and several climatic and elevation categories. However, district and multiple climatic variables share identical reported case distributions, limiting attribution of independent effects. Zoonotic transmission cannot be inferred from these human-only outcome data.

Conclusion/Lesson Learned : The human infection burden and soil-contact environment justify integrated public health and veterinary investigation, but do not establish an animal reservoir in East Kalimantan. Paired sampling, molecular typing, sanitation assessment, and spatially explicit analysis are required to determine whether canine-associated infection contributes to transmission.

Keyword : Strongyloides stercoralis; zoonotic potential; environmental exposure; East Kalimantan; Indonesia