Reviewer's report

Title: Analysis of risk factors for T. brucei rhodesiense sleeping sickness within villages in south-east Uganda

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Reviewer: Florence Fournet

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1. Why do authors choose a 3 years period before the study to select the villages (limiting the size of the cases sample)?

The sample size was limited by the number of cases available for study from the case records of LIRI hospital. On one hand, the quality of records kept for cases older than three years did not appear to be sufficient and on the other hand, the investigators wanted to ensure that changes in village structure and land use over time did not affect the results. Therefore, we chose a limit of 3 years for the occurrence of cases of HAT prior to the beginning of the study. This answer has to be added in the text because it is important.

2. Distribution of the HAT cases has to be studied in the whole district and then hypothesis have to justify the choice of only certain villages. The criterions upon which these villages have been chosen have to be clarified.

For logistic constraints, it was not possible to study all villages in the district (for the spatial analysis, every single household of a village had to be visited). Therefore it was decided – as stated in the manuscript – to carry out the study in those villages most affected (highest number of cases per village among all villages) by the disease in order to increase the probability of reaching statistical significance in the spatial risk factor analysis. A detailed study of district-level factors has been previously published and we make reference to that paper in our manuscript (1. Odiit M, McDermott JJ, Coleman PG, Fèvre EM, Welburn SC, Woolhouse MEJ: Spatial and temporal
risk factors for the early detection of T. b. rhodesiense sleeping sickness patients in Tororo and Busia districts, Uganda.


3. A map of all the villages of the Tororo district would be useful to better understand the geographical situation. It may be interesting to give also a prevalence map of the HAT at the village scale for the whole district. The map may explain better why the authors have chosen the 17 villages of the study and then the 4 other ones.

For the mode of selection of villages for the spatial analysis, please see reply to the comment above.

Analysis of the HAT distribution in the entire district is outside of the scope of this study, and has already been carried out in our earlier work:


A map of the Tororo district is needed and also a map of the 17 villages identified for the behavioural analysis where the 4 villages of the spatial analysis are well identified. The authors have to consider that everybody, particularly in Africa, cannot access to these articles.

4. Why do they chose villages for the spatial analysis upon the basis of 5 to 8 cases? It would be important to give first the number of the cases within each of the 17 villages and to justify this choice.
This decision was taken mainly on logistic grounds.
The answer is not acceptable. What is the smaller number of cases, the highest? Logistic grounds cannot only condition the methodology of such a study.

5. The authors must explain why do they choose a radius range from 400 m to 5000 m between
the wetland and the homestead? Presence of the wetland appears at a risk factor
but is
distance the only determinant of HAT to be considered?
In the manuscript, we state that: “Buffers with a radius ranging from 400m up to 5000m were used
representing the range of the daily spatial activity patterns of the inhabitants.”
and “Proximity of a
homestead to the wetlands as a possible risk factor was assessed by the
proportion of the buffer area
intersecting with the wetland.” In fact, direct distance to the nearest wetland is not the risk factor
investigated – we investigate a more representative measure for such an area
consisting of branched
and irregular shape of the wetlands – proportion of landcover within the radius in question. Due to the
scale of the geographical features in the study zone, with buffers less than 400m
no homestead –
regardless of case or control status – will intersect with the swamp, and the contrary is the case for
buffers over 5000m where all buffers will intersect with the wetlands
I have well understood the method but if the main activities of the population take place along the wetland between 0 to 200 m from it for example, the radius range they have chosen have no spatial sense. And as the authors do not explain precisely where the fields are located, where the roads leading to the villages are located, their choice is not clear. Spatial behaviours of the population generally condition the choice of the radius range when buffer method is used.

What next?: The authors present a spatial analysis of the HAT in SE Uganda so they have to give some spatial information, not only literature references. If they accept to give these details, the article can be published.

**Declaration of competing interests:**

I declare that I have no competing interests