

## **Response to reviewers**

**Manuscript** "Socioeconomic determinants for malaria transmission risk in areas with active foci in Colombia: An ecological study: Socioeconomic determinants for malaria transmission risk in Colombia"

### **Reviewer A:**

Recommendation: Revisions Required

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#### **1. Relevance of the title to the content of the article**

Regular

— **Answer:** We thank you for the comment. We adjust the title of the manuscript

Remarks

#### **Major comments:**

The author analyzed the effect of different socioeconomic factors on the cumulative incidence of malaria in areas with active foci in Colombia. However, your article is inadequately presented. Furthermore, there are many problems in the different sections as well.

Although the article has scientific rigor, several major flows need to be improved before publication.

— **Answer:** We thank you for the comment.

#### **1. The abstract section can improve—add a focus point in the abstract section.**

— **Answer:** We thank you for the comment. We adjust the abstract section, highlighted in yellow

#### **2. Discussion should be a the conclusion. Rewrite the conclusion (in the abstract) in a more straightforward form.**

— **Answer:** We thank you for the comment. We adjust the abstract section, highlighted in yellow

**3. Reducing the incidence and mortality rate of malaria... Need to add more recent insights.**

— **Answer:** We thank you for the comment. We adjust the introduction section, highlighted in yellow

**4. Authors are suggested to use the full form when used for the first time throughout the manuscript.**

— **Answer:** We thank you for the comment. We adjust the manuscript, highlighted in yellow

**5. The introduction section is poor. Authors can try to include more insights on the related theme.**

— **Answer:** We thank you for the comment. We adjust the introduction section, highlighted in yellow

**6. Aim of the study should need to add as the last paragraph in the introduction.**

— **Answer:** We thank you for the comment. We adjust the introduction section, highlighted in yellow

**7. Material and methods section looks modest. Need a logical flow of the writings with enough references.**

— **Answer:** We thank you for the comment. We adjust the methods section, highlighted in yellow. However, we consider that this section does not require bibliographic references since they are routine statistical analyses.

**8. The results section needs to elaborate more.**

— **Answer:** We thank you for the comment. We adjust the results section, highlighted in yellow.

**9. The discussion is good. The discussion section can improve by including the data from other sources about related works.**

— **Answer:** We thank you for the comment. We adjust the results section, highlighted in yellow. We made the discussion based on the articles available in the scientific literature. Since it is a little researched topic, the available information is scarce. However, we consider that discussion of the manuscript is well focused and reflects the most relevant results of the study, which are compared with the available literature.

**10. The conclusion needs to address future perspectives.**

— **Answer:** We thank you for the comment. We adjust the conclusion section, highlighted in yellow.

**11. Many spacing, punctuation marks problems are found in the tables.**

— **Answer:** We thank you for the comment. We adjust the tables.

**12. Spacing, punctuation marks, grammar, and spelling errors should be reviewed thoroughly. I found so many typos throughout the manuscript.**

— **Answer:** We thank you for the comment. A publishing company reviewed and adjusted the manuscript to the English language

**13. References need to increase.**

— **Answer:** We thank you for the comment. We have added the references available in the scientific literature that allowed us to make the discussion. However, the subject is little investigated, so the available information is scarce. We consider that we should not add more references if they really will not be useful for the discussion.

**2. Summary: Presents the general idea of the topic, objectives, research methods, results and conclusions, written in an objective and concise manner; and are found according to the maximum number of words per section.**

— **Answer:** We thank you for the comment. We adjust the abstract section, highlighted in yellow

**3. Introduction: Presentation of the subject, justification of the problem, objectives, hypotheses and methodological foundation, exposing the subject in an orderly and detailed manner**

— **Answer:** We thank you for the comment. We adjust the introduction section, highlighted in yellow

**4. Methodology: Describes the procedure, methods and techniques used in data collection and analysis.**

— **Answer:** We thank you for the comment. We adjust the methods section, highlighted in yellow

**5. Ethical aspects. Does the manuscript have a paragraph on ethical aspects, where it mentions approval by the ethics committee, informed consent, and strict compliance with research ethics?**

— **Answer:** We thank you for the comment. We added the ethical considerations section, highlighted in yellow

**6. Results: They are presented adequately and it is not redundant with tables or graphs shown.**

— **Answer:** We thank you for the comment. We adjust the tables

**7. Discussion: They present a level of critical analysis in correspondence with the problem presented. Purposes of the article, scope, support theory and proposed methodological design.**

— **Answer:** We thank you for the comment. We adjust the discussion section, highlighted in yellow

**8. Conclusions: Presents the author's inferences and teachings in relation to the investigated topic, it must correspond to the objectives of the study.**

— **Answer:** We thank you for the comment. We adjust the conclusions section, highlighted in yellow

**9. References. Quality of bibliographic references and if they are in accordance with the Vancouver format.**

— **Answer:** We thank you for the comment. We adjust the bibliographic references according to the indications of the journal

**10. Redaction. Is the manuscript correctly written? Does it contain any spelling or grammar mistakes?**

Needs some language corrections

— **Answer:** We thank you for the comment. A publishing company reviewed and adjusted the manuscript to the English language

**11. Contributions. What are the main weaknesses of the manuscript and how the author can do to improve it**

Please see my comments.

— **Answer:** We thank you for the comment. Comments were reviewed and adjustments were made to the manuscript.

**Reviewer B:**

Recommendation: Revisions Required

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**1. Relevance of the title to the content of the article**

Regular

**Remarks**

This article is pertinent to the journal's publication.

— **Answer:** We thank you for the comment. We adjust the title of the manuscript

**2. Summary: Presents the general idea of the topic, objectives, research methods, results and conclusions, written in an objective and concise manner; and are found according to the maximum number of words per section.**

Regular

— **Answer:** We thank you for the comment. We adjust the abstract section, highlighted in yellow

**Remarks**

Please use high syntax in the abstract/summary.

Is the term "crude" accurate? Could you please use a different word?

— **Answer:** We thank you for the comment. We adjust the abstract section, highlighted in yellow

**3. Introduction: Presentation of the subject, justification of the problem, objectives, hypotheses and methodological foundation, exposing the subject in an orderly and detailed manner**

Regular

— **Answer:** We thank you for the comment. We adjust the introduction section, highlighted in yellow

**Remarks**

Please change accordingly:

**1) Between 2010 and 2014, the number of cases per 1,000 people at risk dropped from 71 to 57. However, from 2014 to 2019, the rate of incidence fell, but it stayed at the same level (4).**

— **Answer:** We thank you for the comment. We adjust the text according to the recommendation, see introduction highlighted in yellow

**2) However, from 2017 to 2018, an increase in the number of cases was recorded, from 54,102 to 63,143 cases, respectively (11,12).**

— **Answer:** We thank you for the comment. We adjust the text according to the recommendation, see introduction highlighted in yellow

**3) However, regional reports show how this decline in this indicator has been accompanied by an increase in the incidence and persistence of epidemic outbreaks (2).**

— **Answer:** We thank you for the comment. We adjust the text according to the recommendation, see introduction highlighted in yellow

**4)The purpose of this study was to examine the effect of various socioeconomic factors on the cumulative incidence of malaria in areas of Colombia with active foci.**

— **Answer:** We thank you for the comment. We adjust the text according to the recommendation, see introduction highlighted in yellow

**4. Methodology: Describes the procedure, methods and techniques used in data collection and analysis.**

Regular

— **Answer:** We thank you for the comment. We adjust the methods section, highlighted in yellow.

Remarks

Please change accordingly

**1) An ecological study was carried out in 1,122 municipalities in Colombia using annual malaria cases from 2010–2019. To identify municipalities with high transmission**

— **Answer:** We thank you for the comment. We adjust the text according to the recommendation, see methods highlighted in yellow

**2) the data was taken from**

— **Answer:** We thank you for the comment. We adjust the text according to the recommendation, see methods highlighted in yellow

**3) All data was saved in Excel (Microsoft, Redmond, USA) and analyzed in Stata 15 (Stata Corporation, College Station, TX, USA). ArcGIS version 10.5 (ESRI, Redlands, California, USA) was used to create the maps. Summary statistics were made for the whole dataset by making absolute and relative frequency measures.**

— **Answer:** We thank you for the comment. We adjust the text according to the recommendation, see methods highlighted in yellow

**5. Ethical aspects. Does the manuscript have a paragraph on ethical aspects, where it mentions approval by the ethics committee, informed consent, and strict compliance with research ethics?**

Yes

— **Answer:** We thank you for the comment. We added the ethical considerations section, highlighted in yellow

**6. Results: They are presented adequately and it is not redundant with tables or graphs shown.**

Regular

— **Answer:** We thank you for the comment. We adjust the tables

**Remarks**

**1. Please use clear Figure 2. It seems so blurred.**

— **Answer:** We thank you for the comment. We adjust the figure

**2. Please use the same font in the Table 1**

— **Answer:** We thank you for the comment. We adjust the tables

**3. Please explain each variable in Table 2 and incorporate it into the paragraph in a way that the general reader will understand.**

— **Answer:** We thank you for the comment. We adjust the text according to the suggestion

**7. Discussion: They present a level of critical analysis in correspondence with the problem presented. Purposes of the article, scope, support theory and proposed methodological design.**

Regular

— **Answer:** We thank you for the comment. We adjust the results section, highlighted in yellow. We made the discussion based on the articles available in the scientific literature. Since it is a little researched topic, the available information is scarce. However, we consider that discussion of the manuscript is well focused and reflects the most relevant results of the study, which are compared with the available literature.

Remarks

**1) Please also compare similar studies conducted in different areas or countries (if possible).**

— **Answer:** We thank you for the comment. We have added the references available in the scientific literature that allowed us to make the discussion. However, the subject is little investigated, so the available information is scarce. We consider that we should not add more references if they really will not be useful for the discussion.

**2) Please change accordingly**

**-In endemic areas, the World Health Organization recommends universal coverage with insecticide-treated nets in populations at risk of contracting malaria (34,5). Mosquito nets treated with insecticide not only act as a physical barrier, but the presence of the insecticide is a protective factor since the insecticide produces two effects. First, it results in the mass mortality of mosquitoes, and second, it has a repellency effect on mosquitoes (36).**

— **Answer:** We thank you for the comment. We adjust the text according to the suggestion

**-and has generated current savings necessary**

— **Answer:** We thank you for the comment. We adjust the text according to the suggestion

**-Even though this study has some flaws, we think the results are very accurate and representative of the country.**

— **Answer:** We thank you for the comment. We adjust the text according to the suggestion

**8. Conclusions: Presents the author's inferences and teachings in relation to the investigated topic, it must correspond to the objectives of the study.**

Regular

— **Answer:** We thank you for the comment. We adjust the conclusion section, highlighted in yellow.

Remarks

Please change accordingly

**This study demonstrates that malaria transmission persistence in Colombian municipalities with high and low endemicity is strongly related to socioeconomic determinants that cannot be addressed solely by the Colombian health system. Malaria transmission is determined by known environmental factors, whereas successful disease control requires an in-depth understanding of the economic and social factors that influence the disease's transmission. Interventions must include strategies to increase access to education and housing, as well as vector control and interventions that ensure timely diagnosis and treatment.**

— **Answer:** We thank you for the comment. We adjust the text according to the suggestion

**9. References. Quality of bibliographic references and if they are in accordance with the Vancouver format.**

Regular

— **Answer:** We thank you for the comment. We adjust the bibliographic references according to the indications of the journal

Remarks

**10. Redaction. Is the manuscript correctly written? Does it contain any spelling or grammar mistakes?**

Needs some language corrections

— **Answer:** We thank you for the comment. A publishing company reviewed and adjusted the manuscript to the English language

**11. Contributions. What are the main weaknesses of the manuscript and how the author can do to improve it**

Author need to compare similar studies conducted in different areas or countries (if possible).

— **Answer:** We thank you for the comment. We have added the references available in the scientific literature that allowed us to make the discussion. However, the subject is little investigated, so the available information is scarce. We consider that we should not add more references if they really will not be useful for the discussion.

reviewer C:

Recommendation: Accept Submission

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### **1. Relevance of the title to the content of the article**

Good

— **Answer:** We thank you for the comment.

Remarks

any

**2. Summary: Presents the general idea of the topic, objectives, research methods, results and conclusions, written in an objective and concise manner; and are found according to the maximum number of words per section.**

Good

— **Answer:** We thank you for the comment.

Remarks

any

**3. Introduction: Presentation of the subject, justification of the problem, objectives, hypotheses and methodological foundation, exposing the subject in an orderly and detailed manner**

Good

— **Answer:** We thank you for the comment.

Remarks

any

**4. Methodology: Describes the procedure, methods and techniques used in data collection and analysis.**

Good

— **Answer:** We thank you for the comment.

Remarks

any

**5. Ethical aspects. Does the manuscript have a paragraph on ethical aspects, where it mentions approval by the ethics committee, informed consent, and strict compliance with research ethics?**

Yes

— **Answer:** We thank you for the comment.

**6. Results: They are presented adequately and it is not redundant with tables or graphs shown.**

Good

— **Answer:** We thank you for the comment.

Remarks

any

**7. Discussion: They present a level of critical analysis in correspondence with the problem presented. Purposes of the article, scope, support theory and proposed methodological design.**

Good

— **Answer:** We thank you for the comment.

Remarks

any

**8. Conclusions: Presents the author's inferences and teachings in relation to the investigated topic, it must correspond to the objectives of the study.**

Good

— **Answer:** We thank you for the comment.

Remarks

any

**9. References. Quality of bibliographic references and if they are in accordance with the Vancouver format.**

Good

— **Answer:** We thank you for the comment.

Remarks

any

**10. Redaction. Is the manuscript correctly written? Does it contain any spelling or grammar mistakes?**

Acceptable

— **Answer:** We thank you for the comment.

**11. Contributions. What are the main weaknesses of the manuscript and how the author can do to improve it**

Any

— **Answer:** We thank you for the comment.