

The effect of climate change on malaria distribution

A systematic literature review on empirical studies



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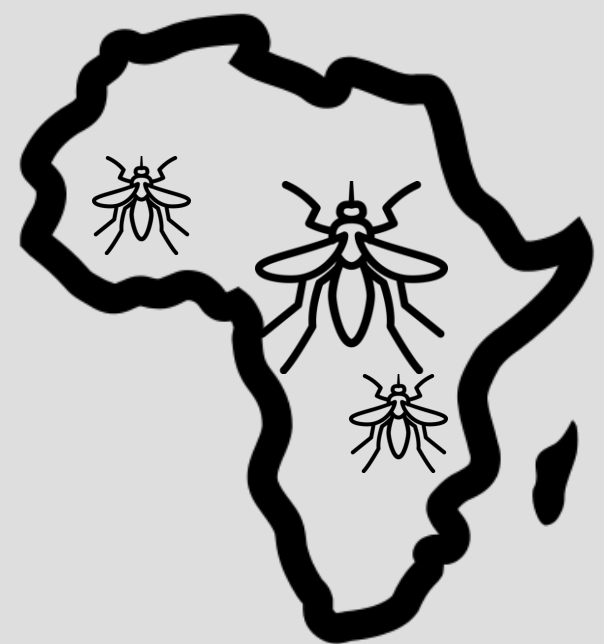


INTRODUCTION

What we know:

- Malaria = threat to economy and health
- Climate change is happening

→ But does climate change affect malaria and malaria distribution?



METHODOLOGY

Systematic literature review - ROSES reporting standards for systematic evidence synthesis.

Databases: PubMed, Scopus, Web Of Science.

Exclusion criteria: limited to 2010-2020, African continent, English language, Anopheles genus as vector of interest, and empirical studies.

Results: 27 research papers included (396 total records identified).



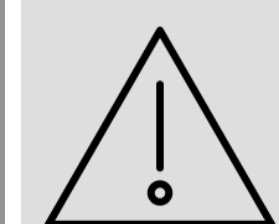
RESULTS

We split climate change in four parts, namely temperature, precipitation, large-scale climate phenomena and geographical features.

- **Temperature** affects mosquito survival rate and development.
- **Precipitation** influences availability of reproduction sites.
- **Geographical features** (the presence of rivers, the orographic effect, elevation and altitude, the wetness of vegetation, and Land cover and land use changes) affect temperature, precipitation and malaria prevalence.
- **Large-scale climate phenomena** (such as the El Niño Southern Oscillation, La Niña, Indian Ocean (subtropical) Dipole, tropical cyclones from the Mozambique Channel, and sea surface temperature variabilities) lead to storms, droughts, rainfall anomalies, changes in humidity and moisture levels, temperatures, and persistence and the quantity of water bodies.
- **Interdependencies** between variables

→ **Low malaria presence: North, South Africa**

→ **High malaria presence in East, West, Central Africa**



CONCLUSION

- Essential role of climate change
 - What about social and economic factors or control measures?
- Further research needed!



POLICY RECOMMENDATION

- Insights in the distribution of malaria in relation to climate change
- Locate, understand and target endemic areas.

