Analysis Tutorial Prospectus

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1. Title

Mapping the distribution of malaria cases in Ethiopia using epidemiological data to assess the impact of Anopheles stephensi

1. Research Questions(s)

How has the presence of *Anopheles stephensi* influenced malaria transmission in Ethiopia? What trends in malaria cases can be observed before and after *Anopheles stephensi* was detected*?* How can we develop a tool for visualizing the transmission pattern of this invasive species?

1. Objective(s)
2. Develop a distribution map to visualize and analyze malaria case trends over time in Ethiopia
3. Integrate epidemiological data to assess the occurrence of Anopheles stephensi and its potential links to malaria case trends and transmission patterns
4. Use statistical and spatial analysis tools to identify high-risk areas and support malaria control efforts
5. Approach

This project will create a distribution map to analyze malaria epidemiological data from Ethiopia, focusing on trends in cases and the impact of *Anopheles stephensi.*  By mapping malaria cases over time and integrating data on mosquito occurrence, the study will help identify potential links between the spread of *An. stephensi* and changes in malaria transmission. It will integrate filters for key variables such as mosquito net usage, insecticide spraying and travel history. In communication with ChatGPT, I will build this application using R and leveraging packages like tidyverse, ggplot2, ggmap, and data.table. The map will provide an accessible platform for decision making in malaria control effort, supporting researchers and public health officials in developing targeted intervention strategies. The goal is to provide researchers and public health officials with a data-driven tool to support malaria control efforts and targeted interventions.

1. Selected References

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