REVIEWER'S REPORT

Manuscript No.: IJAR- 50384   Date: 21/02/2025

Title: "Epidemiology of Dengue and Chikungunya Infection in Bangalore, Karnataka – 2024"

Recommendation:

Accept as it is ....

✓ Accept after minor revision..................

Accept after major revision ....

Do not accept (*Reasons below*) ....

Rating	Excel.	Good	Fair	Poor
Originality		✓		
Techn. Quality		✓		
Clarity		✓		
Significance	✓			

Reviewer Name: Dr. S. K. Nath   **Date:** 22/02/2025

Reviewer's Comment for Publication.

This study offers valuable insights into the epidemiology of Dengue and Chikungunya infections in Bangalore, providing crucial data for public health decision-making. The use of advanced molecular diagnostic tools and detailed serotype analysis are commendable aspects of the research.

However, to improve its impact and scientific rigor, the study should address ethical concerns, incorporate deeper statistical analysis, and provide actionable public health recommendations. Addressing language and formatting issues will also enhance the clarity and professionalism of the manuscript.

Reviewer's Comment / Report

Strengths of the Study

1. **Relevance and Timeliness:** The study addresses the increasing public health threat posed by Dengue and Chikungunya in India, particularly in Karnataka. Given the rising incidence of mosquito-borne diseases, this research is both relevant and timely.

2. **Robust Methodology:** Utilizes Real-Time Polymerase Chain Reaction (RT-PCR) for detecting Dengue and Chikungunya infections, which is a gold-standard diagnostic tool for viral detection. Implementation of High-Resolution Melt Curve Analysis (HRMA) and gel electrophoresis for accurate Dengue serotyping enhances the scientific rigor of the study.

3. **Comprehensive Data Collection:** A significant sample size of 547 suspected cases provides a robust dataset for meaningful epidemiological analysis. The study captures a wide age range (0–82 years), offering insights into infection patterns across various age groups.

4. **Seasonal Analysis:** The paper effectively identifies seasonal trends, with a clear peak in infections observed during the monsoon season (July 2024), which aligns with known patterns of vector-borne disease outbreaks.

REVIEWER'S REPORT

5. Detailed Results on Serotype Distribution: The identification of multiple Dengue serotypes (DEN 1, 3, 4) provides valuable insights into circulating strains in Bangalore, contributing to better outbreak preparedness.

6. Public Health Implications: The study underscores the importance of enhancing diagnostic infrastructure and vector control measures, making it highly relevant for public health policy-making in India.

Weaknesses and Areas for Improvement

1. **Lack of Ethical Approval Documentation:** The paper mentions that ethics approval and consent were "not applicable," which is concerning for a study involving human samples. Ethical clearance is essential, even for observational studies involving human participants.

2. **Limited Discussion on Co-infection Cases:** The study briefly mentions co-infection cases (Dengue and Chikungunya simultaneously) but does not delve into the clinical significance or outcomes of these cases. This is a missed opportunity, as co-infections could complicate disease management.

3. **Lack of Statistical Analysis Depth:** While descriptive statistics are presented, there is no detailed statistical analysis (e.g., regression models, chi-square tests) to determine the significance of associations between variables such as age, gender, and infection rates.

4. **Short Study Duration:** The study spans only seven months (January–July 2024), limiting its ability to assess long-term trends or year-round infection patterns.

5. **Language and Formatting Issues:** There are several grammatical errors and awkward phrasings throughout the manuscript, such as "carry out" instead of "carried out" and "human useful" instead of "useful for public health." Figures and tables are not clearly formatted, making the data difficult to interpret in places.

6. **Limited Discussion of Climatic Factors:** The paper could benefit from an analysis of how climatic factors (rainfall, humidity, temperature) correlate with infection spikes, as these are known contributors to vector-borne disease outbreaks.

7. **Insufficient Focus on Public Health Recommendations:** While the conclusion highlights the need for better diagnostic facilities, more concrete recommendations for public health policy and vector control strategies would strengthen the practical relevance of the findings.

Suggestions for Future Research

1. **Longitudinal Study:** Extend the study duration to cover multiple years to capture seasonal fluctuations and year-on-year trends.

2. **In-depth Analysis of Co-infections:** Conduct targeted research on the clinical implications of Dengue-Chikungunya co-infections, as these cases may require specialized treatment approaches.

REVIEWER'S REPORT

3. **Climatic Data Integration:** Incorporate environmental variables such as temperature, rainfall, and humidity to better understand seasonal surges in infections.

4. **Advanced Statistical Analysis:** Use inferential statistics, including logistic regression or multivariate analysis, to identify risk factors associated with higher infection rates.

5. **Community Awareness Research:** Investigate the impact of community education programs and **vector control interventions** on disease incidence in endemic areas.