

Research Article

Evaluating Knowledge, Attitudes, and Preventive Practices Regarding Mosquito-Borne Diseases in a Rural Population of Coimbatore, Western Tamil Nadu

Gopalakrishnan Thangavel¹, Uma Murugaiyan², Kiruthiga Veeran Pushpanathan³, Meer Ahamed Ibrahim Munshi⁴, Shilpa Sunil Khanna⁵, M Rajasekar⁶, P E Chandra Mouli⁷, Vinothini K⁸

¹Reader, Department of oral pathology and microbiology, , Sri Ramakrishna Dental College and hospital, The Tamil Nadu Dr MGR medical university, Coimbatore, Tamil Nadu, India

²Principal, Mangayarkarasi college of arts and science for women, Paravai, Madurai, Tamil Nadu, India

³Senior lecturer, Department Of Prosthodontics, Asan memorial dental college and hospital, Chengalpattu, Tamil Nadu, India

⁴Professor and head, Department of oral and maxillofacial surgery, Sri Ramakrishna Dental College and hospital, The Tamil Nadu Dr MGR medical university, Coimbatore, Tamil Nadu, India

⁵Reader, Department of oral and maxillofacial surgery, The Tamil Nadu Dr MGR medical university, Sri Ramakrishna Dental College and hospital, Coimbatore, Tamil Nadu, India

⁶Assistant professor, Department of oral and maxillofacial surgery, ESIC dental college and hospital, kalaburagi, Karnataka, India

⁷Professor and head, Department of Oral Medicine and Radiology, Sri Venkateswara dental college and hospital, Chennai, Tamil Nadu, India

⁸Senior lecturer, Department of conservative dentistry and endodontics, Sri Venkateswara dental college and hospital, Chennai, Tamil Nadu, India

DOI: <https://doi.org/10.24321/0019.5138.202607>

I N F O

Corresponding Author:

Gopalakrishnan Thangavel, Department of oral pathology and microbiology, Sri Ramakrishna Dental College and hospital, The Tamil Nadu Dr. MGR medical university, Coimbatore, Tamil Nadu, India

E-mail Id:

gopalan.jkm@gmail.com

Orcid Id:

<https://orcid.org/0000-0003-0086-5525>

How to cite this article:

Thangavel G, Murugaiyan U, Pushpanathan K V, Munshi M A I, Khanna S S, M Rajasekar, P E Chandra Mouli, Vinothini K. Evaluating Knowledge, Attitudes, and Preventive Practices Regarding Mosquito-Borne Diseases in a Rural Population of Coimbatore, Western Tamil Nadu. J Commun Dis. 2026;58(1):55-59.

Date of Submission: 2025-12-18

Date of Acceptance: 2026-01-29

A B S T R A C T

Introduction: Mosquito-borne diseases remain a significant public health problem in India, particularly in rural communities with poor living conditions. Understanding the knowledge, attitudes, and preventive practices (KAP) of the population is essential for strengthening control programmes and reducing disease transmission.

Aim: To assess the knowledge, attitude, and practices regarding mosquito-borne diseases among residents of a rural area in Coimbatore, Tamil Nadu

Methods: A cross-sectional study was conducted among 500 adults aged 18 years and above between January and May 2024. Systematic random sampling was used to select households. Data were collected using a pre-tested, semi-structured questionnaire and analysed using Microsoft Excel 2019 and SPSS version 21.

Results: All respondents were aware of mosquito-borne diseases. Chikungunya (40%) was the most commonly recognised disease, followed by malaria (29%), dengue (24%), and filariasis (7%). A significant association was found between educational status and knowledge. Fans (39%) and mosquito repellents (16%) were the most commonly used

protective measures, while television was the main source of information. Most participants (97.1%) expressed willingness to seek medical help if infected.

Conclusion: The study revealed good awareness and positive attitudes toward mosquito-borne diseases, but limited knowledge of less common diseases such as Zika and Japanese encephalitis. Strengthened community-based education and targeted interventions are required to improve comprehensive knowledge and promote consistent preventive practices.

Keywords: Mosquito-Borne Diseases, Knowledge-Attitude-Practice, Rural Population

Introduction

Mosquito-borne diseases are widespread in tropical and subtropical regions. Their occurrence is influenced by a complex interaction of biological, ecological, social, and economic factors. In India, the most common mosquito-borne diseases include malaria, dengue, chikungunya, filariasis, and Japanese encephalitis.^{1,2} Globally, more than one billion people are infected each year, and over one million deaths occur due to vector-borne diseases. These illnesses affect urban, peri-urban, and rural areas but are particularly prevalent in communities with poor living conditions. They have become a serious public health concern in India, causing preventable illness and death.³

The problem has been further aggravated by rapid urbanisation, industrialisation, and the development of infrastructure such as roads, often constructed without consideration for natural surface water drainage.^{4,5}

The National Vector Borne Disease Control Programme (NVBDCP) is among the most comprehensive and multifaceted public health initiatives in India aimed at preventing and controlling mosquito-borne diseases.⁶ However, despite extensive communication and educational efforts, community participation remains far below expectations.⁷

Community involvement depends largely on people's awareness, attitudes, and preventive practices to reduce mosquito breeding and bites at home. The combined efforts of individuals, local governments, and other sectors are vital for the success of any vector control programme. Therefore, it is essential to assess people's knowledge, attitudes, and practices regarding mosquito-borne diseases to develop more effective prevention and control strategies within the community.⁸⁻¹⁰

AIM

To assess the knowledge, attitude, and practices (KAP) of people regarding mosquito-borne diseases in a rural area of Coimbatore, and to develop effective prevention and control strategies

Methodology

This cross-sectional study was conducted in Coimbatore, Tamil Nadu, from January to May 2024. The study included adult participants aged 18 years and above who were permanent residents of the selected wards. A total of 500 households were chosen using systematic random sampling. Individuals below 18 years of age, Temporary residents or visitors to the selected wards of Coimbatore and Individuals who were not willing to provide verbal informed consent were excluded from the study. The study procedures were approved by the Institutional Ethics Committee. (ID: EC/2024/1006/CR-59)

Verbal informed consent was obtained from all respondents. Data were collected using a pre-designed, semi-structured questionnaire covering sociodemographic details as well as knowledge, attitudes, and practices related to mosquito-borne diseases. The collected data were analysed using Microsoft Excel 2019 and SPSS version 21.

Results

Out of 500 respondents, 49% were female, and 51% were male, as shown in Figure 1. The mean age of the study participants was 53.96 ± 13.05 years. Most respondents had attained education up to the primary level (21%), followed by secondary, higher secondary, graduate (20% each), and postgraduate levels (19%). None of the participants was illiterate, as presented in Table 1. A statistically significant association was observed between educational status and gender distribution among respondents ($p = 0.041$).

Regarding awareness of mosquito-borne diseases, all respondents reported being familiar with such diseases. As shown in Figure 2, the most commonly recognised mosquito-borne disease was chikungunya (40%), followed by malaria (29%), dengue (24%), and filariasis (7%). A statistically significant association was found between educational level and knowledge of mosquito-borne diseases ($p = 0.012$), as presented in Table 2.

All respondents believed that mosquito-borne diseases are preventable and indicated that they would seek medical help if required. In terms of preventive practices, 195 (39%) reported using ceiling fans and 80 (16%) reported using mosquito repellents, as shown in Figure 3. A significant association was observed between educational level and adoption of preventive practices ($p = 0.028$). Television emerged as the most common source of information on mosquito-borne diseases, followed by health education programmes, advertisements, and newspapers, as detailed in Figure 4. The association between source of information and awareness level was also statistically significant ($p = 0.034$).

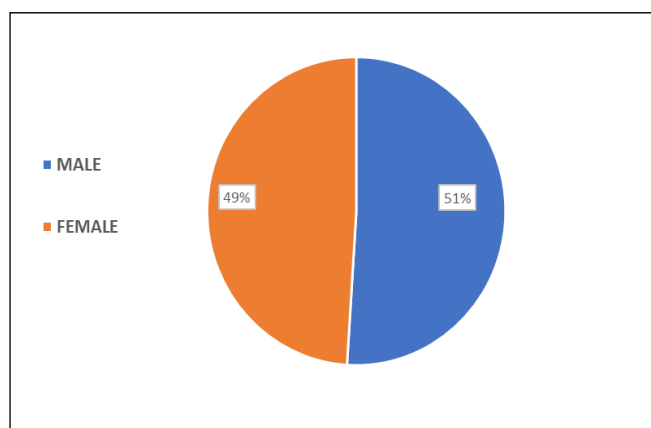


Figure 1. Gender Distribution

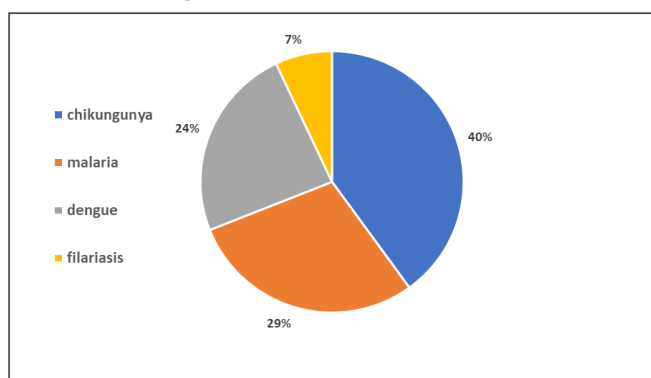


Figure 2. Mosquito-Borne Diseases (chikungunya, followed by malaria, dengue and filariasis)

Table 1. Educational Qualifications of Participants

S. No.	Education Level	Total Number	Percentage
1.	Primary	105	21
2.	Secondary	100	20
3.	Higher Secondary	100	20
4.	Graduate	100	20
5.	Postgraduate	95	19

Table 2. Association of Educational Level of Participants with Mosquito-Borne Diseases

S. No.	Education Level	Dengue	Malaria	Chikungunya	Filariasis
1	Primary	25	30	42	18
2	Secondary	24	29	40	17
3	Higher secondary	24	29	40	17
4	Graduate	24	29	40	17
5	Post-graduate	23	28	38	16

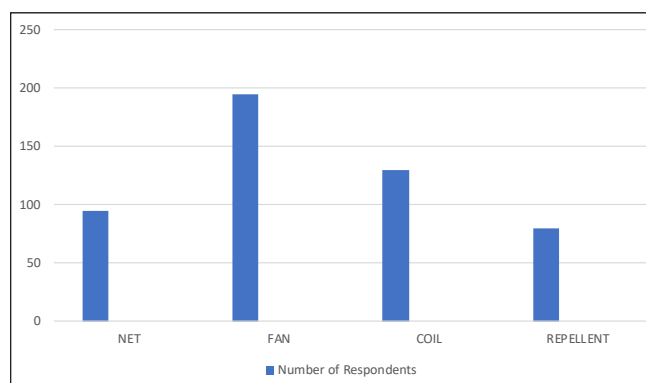


Figure 3. Precautions Towards Mosquito-Borne Diseases

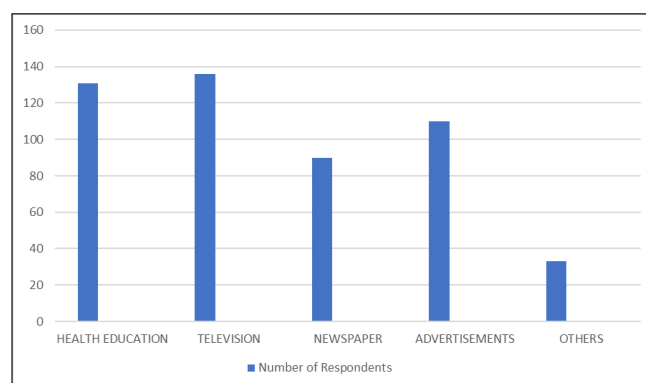


Figure 4. Source of Information of the Respondents

Discussion

In the present study, all participants were aware of mosquito-borne diseases. Chikungunya (40%) was the most commonly identified disease, followed by dengue (24%), whereas in studies conducted by Sharma et al., malaria (94.5%) and dengue (85.9%) were more frequently reported.¹¹ In our study, 98.5% of participants were aware of mosquito-borne diseases, which was slightly better than that reported by Sharma et al. (88.04%).¹¹

Ceiling fans were the most commonly used protective measure (39%), followed by mosquito nets (19%). However, the usage of both measures was lower compared with the findings reported by Chilakam et al.¹²

The study also revealed that television (27.2%) was the leading source of information about mosquito-borne diseases. This contrasts with findings from Kumar et al., Virk et al., and Malhotra et al., where other sources of information were more prominent.¹³⁻¹⁵

The study revealed that 83.30% of participants believed that mosquito-borne diseases can be controlled through various preventive measures. This proportion is lower compared to the findings of Sharma et al. (90.06%),¹¹ and Malhotra et al. (94.13%).¹⁵ In the present study, only 55.90% of participants showed a positive attitude toward consulting a physician, which is considerably lower than

the results reported by Kumar et al. (96%).¹³ This attitude may be attributed to a lack of adequate knowledge or the poor economic status of the families.

With respect to mosquito breeding sites, 66.1% of participants mentioned drains as the primary source, followed by artificial containers (56.6%). This differs from studies in Gujarat and Puducherry, where drains, polluted water, and stagnant water were most frequently reported as breeding sites.¹⁶⁻¹⁸

Regarding knowledge about mosquito breeding sites responsible for various diseases, 66% of participants reported that dirty water alone serves as the breeding source. This finding is higher than that reported by Matta et al. (45%).¹⁹

All respondents agreed that mosquito-borne diseases are preventable, and a large majority (97.1%) stated that they would consult a doctor if infected. This proportion is much higher than that reported in a similar study by Surendran and Kajatheepan in Jaffna District, northern Sri Lanka.²⁰

Conclusion

This study shows that the majority of people recognise chikungunya as a mosquito-borne disease, about one-fourth are aware of malaria and dengue, and only a small number know about filarial disease. Despite extensive efforts to control malaria, dengue, and chikungunya, these diseases continue to exert a significant impact on the health, well-being, and economic status of the population. In the present study, the knowledge and attitudes of participants regarding mosquito-borne diseases were found to be below average, and the preventive practices adopted by them were also unsatisfactory. Therefore, intensified efforts are required to enhance public awareness and to strengthen both personal protective and community-based measures for the prevention of mosquito-borne diseases. Additionally, there is a need for district health authorities, treating doctors, and physicians to improve the availability of information on mosquito-borne diseases through rural dispensaries and primary health centres, and to actively promote health education among patients regarding appropriate and affordable preventive measures.

Authors' Contribution: we all have equally contributed for the study and to publish the study as a research article.

Declaration of Generative AI and AI-Assisted Technologies in the Writing Process: NO

Source of Funding: SELF FUNDING

Conflict of Interest: NIL

References

1. Fouque F, Reeder JC. Impact of past and on-going changes on climate and weather on vector-borne diseases transmission: a look at the evidence. *Infect Dis Poverty*. 2019;8(1):51. [PubMed] [Google Scholar]
2. Gupta I, Chowdhury S. Economic burden of malaria in India: the need for effective spending. *WHO South East Asia J Public Health*. 2014;3(1):95-102. [PubMed] [Google Scholar]
3. Kulkarni RR, Biradar MK. A cross sectional study to assess perception regarding mosquito borne diseases in urban areas of Belagavi city. *Int J Community Med Public Health*. 2017;4(4):1039-42. [Google Scholar]
4. Kinung'hi SM, Mashauri F, Mwanga JR, Nnko SE, Kaatano GM, Malima R, Kishamawe C, Magesa S, Mboera LE. Knowledge, attitudes and practices about malaria among communities: comparing epidemic and non-epidemic prone communities of Muleba district, north-western Tanzania. *BMC Public Health*. 2010;10:395. [PubMed] [Google Scholar]
5. Patel AB, Rathod H, Shah P, Patel V, Garsondiya J, Sharma R. Perceptions regarding mosquito borne diseases in an urban area of Rajkot city. *Natl J Med Res*. 2011;1(2):45-7. [Google Scholar]
6. Prakash A, Bhattacharyya DR, Mohapatra PK, Goswami BK, Mahanta J. Community practices of using bed nets & acceptance & prospects of scaling up insecticide treated nets in north-east India. *Indian J Med Res*. 2008;128(5):623-9. [PubMed] [Google Scholar]
7. Gunasekaran K, Sahu SS, Vijaykumar KN, Jambulingam P. Acceptability, willing to purchase and use long lasting insecticide treated mosquito nets in Orissa State, India. *Acta Trop*. 2009;112(2):149-55. [PubMed] [Google Scholar]
8. Nanjesh KS, Hegde R, Badiger S, Kiran KG. A study of mosquito borne diseases awareness, attitude and practices among the rural population in Karnataka, India. *Int J Community Med Public Health*. 2017;4(11):4178. [Google Scholar]
9. De M, Mukherjee D, Paul S, Biswas R, Halder A. A study on knowledge and practices regarding malaria among adult urban population of Siliguri. *IOSR J Dent Med Sci*. 2015;14(9):33-6. [Google Scholar]
10. B. Anil Kumar, K. V. Phani Madhavi. "Knowledge and practice regarding vector borne diseases among urban slum dwellers of Guntur district, Andhra Pradesh". *Journal of Evolution of Medical and Dental Sciences* 2013; Vol2, Issue 26, July 1; Page: 4756-4762
11. Sharma A, Gupta V, Khandelwal A. The knowledge, attitude and practices regarding commonly occurring mosquito borne diseases among people in catering area of urban health and training centre. *Int J Community Med Public Health*. 2017;4(8):2864. [Google Scholar]
12. Chilakam N, Lakshminarayanan V, Keremutt S, Rajendran A, Thunga G, Poojari PG, Rashid M, Mukherjee N, Bhattacharya P, John D. Economic burden

- of mosquito-borne diseases in low- and middle-income countries: protocol for a systematic review. *JMIR Res Protoc.* 2023;12:e50985. [PubMed] [Google Scholar]
13. Soorya S, Menon VTK, Saju CR, Rafi M, Joshy VM. The Knowledge, Attitude and Practices on Mosquito Borne Diseases among People in a Rural Area in Thrissur. *J Commun Dis* 2020; 52(4): 66-69.
 14. Virk A, Gaira P, Kalia M, Gupta BP. A study to identify gaps in knowledge and practices regarding dengue in a rural population of Punjab. *J Commun Dis.* 2016;48(3):13-8. [Google Scholar]
 15. Malhotra V, Kaur P. The community knowledge, attitude and practices regarding dengue fever in field practice area of urban training health centre of Patiala. *Int J Res Dev Health.* 2014;2(1):19-26. [Google Scholar]
 16. Mayur V, Umed P, Nirav J, Dipesh Z, Chirag B, Ankit V. Knowledge and practices regarding commonly occurring mosquito borne diseases among people of urban and rural areas of Rajkot District, Gujarat. *J Res Med Dent Sci.* 2013;1(2):46-51. [Google Scholar]
 17. Mehta D, Solanki H, Patel P, Umat P, Chauhan R, Shukla S, Singh MP. A study on knowledge, attitude & practice regarding mosquito borne diseases in an urban area of Bhavnagar. *Healthline J.* 2015;6(2):29-32. [Google Scholar]
 18. Boratne AV, Jayanthi V, Datta SS, Singh Z, Senthilvel V, Joice YS. Predictors of knowledge of selected mosquito-borne diseases among adults of selected peri-urban areas of Puducherry. *J Vector Borne Dis* [Internet]. 2010 Dec [cited 2020 May 6];47(4):249-56. Available from: https://www.researchgate.net/publication/49702312_Predictors_of_knowledge_of_selected_mosquito_borne_diseases_among_adults_of_selected_peri_urban_areas_of_Puducherry [PubMed] [Google Scholar]
 19. Matta S, Bhalla S, Singh D, Rasania SK, Singh S. Knowledge, attitude & practice (KAP) on dengue fever: a hospital based study. *Indian J Community Med.* 2006;31(3):185-6. [Google Scholar]
 20. Surendran SN, Kajatheepan A. Perception and personal protective measures toward mosquito bites by communities in Jaffna District, northern Sri Lanka. *J Am Mosq Control Assoc.* 2007;23(2):182-6. [PubMed] [Google Scholar]