
ISSN: **2348-5906**
CODEN: **IJMRK2**
IJMR 2025; 12(2): 14-18
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https://www.dipterajournal.com
Received: 07-01-2025
Accepted: 12-02-2025

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# Assessment of knowledge, attitude and practices (KAP) regarding dengue among residents of South Delhi, India

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**DOI:** https://www.doi.org/10.22271/23487941.2025.v12.i2a.828

**Abstract**
**Introduction:** Dengue fever is an arboviral disease transmitted by two species of *Aedes* mosquito, *Aedes aegypti* and *Aedes albopictus*. It poses a global public health challenge, especially in regions such as tropical and subtropical areas where warm and humid climates are ideal for these mosquitoes to thrive. The findings of survey reveals insights into the community's understanding of dengue transmission, their approach to its prevention, and the measures taken by them to avoid infection.
**Method:** This article examines the knowledge, attitude, and practices (KAP) of residents in South Delhi towards dengue prevention, based on a survey conducted in 250 households from September to October 2024. In this survey, eight different localities including two Government Institutions, IGNOU, Maidan Garhi, and IIT Campus, Hauz Khas, and two posh areas Asian Games Village Complex, Khel Gaon and Vasant Kunj have been selected for study. Apart from these two villages, Munirka village and Saidulajab village and two slum areas Bengali camp, Vasant Kunj, and Parvatiya Camp, Sector-4, R.K Puram, New Delhi have also been selected. Data were gathered directly from local residents through in-person interviews.
**Results:** Although 90.8% of respondents know that dengue disease is transmitted by mosquitoes but 76.0% do not know that the primary vector for dengue transmission is the *Aedes* mosquito. Out of 250 respondents, 48.4% of respondents did not know that preventive measures should be taken against dengue. Only 22.4% of respondents knew there was no specific antiviral treatment for dengue.
**Conclusion:** This study suggests that proper educational and health campaigns should be run from time to time so that awareness among general people about dengue transmission by *Aedes* mosquito can be generated and information regarding the preventive measures against dengue disease can be disseminated.

**Keywords:** Knowledge, attitude and practices, *Aedes* mosquito, dengue

## Introduction

Dengue, a mosquito-borne viral infection, remains a major public health concern in India. Dengue fever is an arboviral disease transmitted by two species of *Aedes* mosquito, *Aedes aegypti* and *Aedes albopictus*. It poses a global health challenge, especially in regions with warm, humid climates ideal for these mosquitoes to thrive, such as tropical and subtropical areas. Since there is currently no targeted antiviral treatment for dengue, prevention efforts are crucial. These strategies often focus on educating communities, encouraging active public participation, and promoting protective practices to reduce the risk of infection [1, 2]. In India, *Aedes aegypti* is the primary mosquito responsible for transmitting dengue fever. This species has a significant presence across many urban areas throughout the country, making it a major factor in the spread of dengue within populated regions [3, 4]. As well as rural [5, 6] areas.

*Aedes* mosquitoes are exceptionally resilient and can adapt to diverse climates, allowing them to spread several life-threatening diseases globally. Over the past two decades, epidemiological efforts have intensified, largely due to rapid population growth, unregulated urban expansion, and inadequate water supply and waste management. Additionally, the rise in air travel and the widespread use of artificial containers, which collect stagnant water, have created ideal breeding environments for these mosquitoes, enhancing their proliferation [7].

There is a critical need to improve public understanding of dengue fever, especially regarding effective prevention methods. Many people, particularly in rural areas, have limited awareness of the disease and may lack the practical knowledge to implement preventive practices effectively. Addressing this knowledge gap requires targeted educational efforts, such as information, education, and communication (IEC) initiatives, to equip communities with actionable insights and reduce the impact of dengue [8].

The purpose of this study is to understand the level of knowledge, attitudes, and practices (KAP) related to dengue prevention among a sample population. By analyzing the demographic information, understanding of dengue transmission, attitudes toward prevention measures, and daily practices aimed at preventing mosquito bites and breeding. The objective of present study is to improve the knowledge of residents towards public health programme. This article presents a detailed analysis of the KAP regarding dengue prevention and control based on survey data.

## Materials and Methods

A cross-sectional study was carried out across eight localities in southern part of Delhi from September to October 2024, covering both rural and urban locations.

This article explores the knowledge, attitudes, and practices (KAP) of residents in South Delhi concerning dengue prevention, based on a survey conducted across 250 households. The study was carried out in eight distinct localities, including two government institutions—IGNOU in Maidan Garhi and IIT Campus in Hauz Khas. Additionally, two affluent areas, Asian Games Village in Khel Gaon and Vasant Kunj, were included. The research also covered two villages, Munirka and Saidulajab, as well as two slum areas, Bengali Camp in Vasant Kunj and Parvatiya Camp in Sector-4, R.K. Puram, New Delhi.

Data was gathered directly from local residents through in-person interviews. Before beginning each interview, researchers explained the study's goals, along with potential risks and benefits, to the participants. Participation was entirely voluntary, with no incentives offered, and participants were informed they could withdraw from the interview at any point without any obligation [9].

This study utilized a structured survey divided into four sections:

- **Section 1: Demographic Information:** Information was collected on the participants' sex, marital status, educational level, occupation, and family income. These details provide a context for understanding the KAP variations among different demographic groups.
- **Section 2: Knowledge on Dengue Transmission:** This section assessed the participants' awareness of dengue transmission and its primary vectors, symptoms, treatment options, and preventive measures. The responses were recorded as "Yes," "No," and "Don't Know" to simplify analysis.
- **Section 3: Attitudes towards Dengue Prevention:** This section evaluated attitudes toward dengue prevention, including the perceived importance of taking preventive measures, community participation, use of insecticides, public awareness campaigns, and individual responsibility.
- **Section 4: Practices Related to Dengue Prevention:** This section focused on the actual preventive actions taken by participants, such as using mosquito repellents, wearing protective clothing, covering water containers, and regularly checking for mosquito breeding sites.

Data were analyzed to generate a comprehensive understanding of each aspect, allowing for in-depth discussion on areas where public health education and intervention may be needed.

- **Study Design:** This is a descriptive study based on the analysis of entomological data generated during vector surveillance of 250 houses in eight (08) localities of South Delhi.
- **Study Period:** September & October 2024.
- **Sampling Unit:** 52% of females selected for the interview while selecting the household on a random basis.
- **Data Analysis:** Microsoft excel was used for plotting the graphs.

## Results

The survey findings reveal important insights into the awareness, attitudes, and actions of South Delhi residents regarding dengue prevention.

Table 1 shows the information related to demography of the respondents. The survey captured responses from 250 individuals, with nearly equal representation from males (48%) and females (52%). A significant majority of respondents were married (77.6%), and educational backgrounds varied across illiterate (12%), primary (21.2%), secondary (11.6%), senior secondary (9.6%), graduates (25.6%), and postgraduates and above (20%). In terms of occupation, 10.8% were Govt. employees, 22.4% were employed in private jobs, 22.4% were self-employed, 35.6% were homemakers and 8.8% were students. Family income levels predominantly were below 05 lakh annually (52.4%), while only 2% reported earnings above 10 lakh and 22% of respondents didn't disclose their family income.

Table 2 depicts the Knowledge of Dengue symptoms and its Transmission. A large portion of respondents (90.8%) were aware that dengue is transmitted by mosquitoes, reflecting widespread awareness about its primary mode of transmission. However, only 24% correctly identified *Aedes* mosquitoes as the main vector for dengue, with a concerning 18.4% uncertain about this fact.

When asked about the symptoms of dengue, such as fever, headache, joint, and muscle pain, 74% were knowledgeable, but 9.2% did not recognize these symptoms. A notable gap in awareness was evident regarding antiviral treatment options; only 22.4% knew there is no specific treatment for dengue, while a majority (59.2%) believed otherwise. Encouragingly, 68.8% understood that eliminating standing water helps prevent mosquito breeding, and 89.2% knew the importance of using mosquito nets and repellents in dengue prevention.

**Table 1:** Demographic information of the study population of 250 respondents

| Variables | No (%) |
|---|---|
| **Sex** | |
| Male | 120 (48) |
| Female | 130 (52) |
| **Marital Status** | |
| Married | 194 (77.6) |
| Unmarried | 56 (22.4) |
| **Educational Level** | |
| Illiterate | 30 (12) |
| Primary | 53 (21.2) |
| Secondary | 29 (11.6) |
| Sr. Secondary | 24 (9.6) |
| Graduate | 64 (25.6) |
| PG and above | 50 (20) |
| **Occupation** | |
| Govt. Employee | 27 (10.8) |
| Pvt. Job | 56 (22.4) |
| Self Employed | 56 (22.4) |
| House Wife | 89 (35.6) |
| Student | 22 (8.8) |
| **Family Income** | |
| Upto 5 Lakh | 131 (52.4) |
| Upto 6-10 Lakh | 59 (23.6) |
| Above 10 Lakh | 5 (2) |
| Didn't disclosed | 55 (22) |

**Table 2:** Knowledge of Dengue symptoms and its transmission of dengue of the study population of 250 respondents

| Variables | Yes (%) | No (%) | Don't Know (%) |
|---|---|---|---|
| Do you know that dengue is transmitted by mosquitoes? | 227 (90.8) | 21 (8.4) | 2 (0.8) |
| Do you know that *Aedes* mosquitoes are the primary vectors for dengue? | 60 (24) | 144 (57.6) | 46 (18.4) |
| Do you know that dengue symptoms include fever, headache, joint and muscle pain? | 185 (74) | 42 (16.8) | 23 (9.2) |
| Do you know that there is no specific antiviral treatment for dengue? | 56 (22.4) | 148 (59.2) | 46 (18.4) |
| Do you know that eliminating standing water helps prevent mosquito breeding? | 172 (68.8) | 61 (24.4) | 17 (6.8) |
| Do you know that using mosquito nets and repellents can help prevent dengue? | 223 (89.2) | 26 (10.4) | 1 (0.4) |

Table 3 depicts the attitude towards dengue prevention. A little over half (51.6%) of the respondents believed that it is essential to take preventive measures against dengue, though 31.2% disagreed. Community participation in dengue prevention was deemed important by 52.4%, reflecting a moderate level of awareness about collective action.

When it came to specific prevention methods, 68.4% supported the use of insecticide sprays to reduce mosquito populations. Public awareness campaigns were considered effective by 68.8%, while 72% felt that individual responsibility is crucial in preventing dengue. Moreover, 82.8% recognized that keeping their surroundings clean could reduce the risk of dengue transmission.

**Table 3:** Attitude toward dengue prevention of the study population of 250 respondents

| Variables | Yes (%) | No (%) | Don't Know (%) |
|---|---|---|---|
| Do you think it is important to take preventive measures against dengue? | 129 (51.6) | 78 (31.2) | 43 (17.2) |
| Do you believe community participation is essential in dengue prevention? | 131 (52.4) | 84 (33.6) | 35 (14) |
| Do you believe using insecticide spray can help reduce mosquito populations? | 171 (68.4) | 62 (24.8) | 17 (6.8) |
| Do you think public awareness campaigns can effectively prevent dengue? | 172 (68.8) | 61 (24.4) | 17 (6.8) |
| Do you believe it is the responsibility of every individual to prevent dengue? | 180 (72) | 60 (24) | 10 (4) |
| Do you believe that keeping your surroundings clean can prevent dengue? | 207 (82.8) | 42 (16.8) | 1 (0.4) |

Table 4 depicts the practices related to dengue prevention. The survey also explored the preventive practices adopted by the residents. Around 62.4% of respondents regularly used mosquito repellents, and 30.8% reported using mosquito nets while sleeping. Wearing long-sleeved clothing to avoid mosquito bites was a practice for 72% of respondents, reflecting reasonable adoption of physical preventive measures.

In terms of insecticide use, 50.4% of respondents used sprays inside their homes, although 49.6% did not. A high percentage of participants (92.4%) covered water containers to prevent mosquito breeding, and 86.4% regularly checked their surroundings for mosquito breeding sites, demonstrating a strong commitment to environmental control measures.

**Table 4:** Practices related to dengue prevention of the study population of 250 respondents

| Variables | Yes (%) | No (%) |
|---|---|---|
| Do you regularly use mosquito repellents? | 156 (62.4) | 94 (37.6) |
| Do you use mosquito nets while sleeping? | 77 (30.8) | 173 (69.2) |
| Do you wear long-sleeved clothing to prevent mosquito bites? | 180 (72) | 70 (28) |
| Do you use insecticide sprays inside your home? | 126 (50.4) | 124 (49.6) |
| Do you cover water containers to prevent mosquito breeding? | 231 (92.4) | 19 (7.6) |
| Do you regularly check for mosquito breeding sites in your surroundings? | 216 (86.4) | 34 (13.6) |

## Discussion

The results highlight both strengths and areas for improvement in the community's approach to dengue prevention. General awareness about dengue transmission, among respondents about the *Aedes* mosquito as the primary vector is lacking. This gap could hinder targeted prevention efforts, as residents may not fully understand the behavior and breeding preferences of *Aedes* mosquitoes, which primarily breed in clean, stagnant water. In a study from Bengalore in 2017, only 9.2% of respondents knew that the *Aedes* mosquito was responsible for dengue fever transmission [9], but in a study on dengue outbreak in Bangladesh, 60.3% of respondents were aware that the *Aedes* mosquito is the vector for dengue transmission **[10]**. Limited awareness about the lack of antiviral treatments for dengue also suggests an area for improvement in public health education. These findings are also in agreement with the findings of one of the KAP surveys related to dengue fever in the Ghaziabad district during August 2018 [11]. The community's attitude is moderately positive, with over half of the respondents recognizing the importance of preventive measures and community involvement. However, the substantial percentage of individuals who did not view prevention as essential reflects a need for heightened awareness campaigns. Educational initiatives focusing on the impact of dengue and the role of individual actions could strengthen community engagement and responsibility in dengue control.

Practical measures, such as the use of repellents, mosquito nets, and environmental cleanliness, are being adopted, but there is room for improvement. For instance, while repellent use is relatively common, fewer households use nets while sleeping, which could reduce nighttime exposure to mosquito bites. The high rate of checking for breeding sites and covering water containers is promising, indicating good adherence to preventive behaviors. Increased distribution of mosquito nets and insecticides could further enhance protective measures.

Research has frequently highlighted fever as a primary symptom of dengue fever (DF) in numerous studies. However, aside from fever and headache, many participants were unable to accurately recognize other characteristic symptoms associated with DF [12, 13, 14].

## Conclusion

This study suggests that proper educational and health campaigns should be run from time to time so that awareness among general people about dengue transmission by Aedes mosquito can be generated and information regarding the preventive measures against dengue disease can be disseminated. The survey highlights that while general awareness about dengue and its transmission is high among South Delhi residents, there are gaps in specific knowledge, such as identifying the *Aedes* mosquito and the lack of antiviral treatments. However, the community's attitude towards preventive measures is largely positive, and many have adopted crucial practices such as using repellents, covering water containers, and checking for breeding sites. Further public awareness efforts should focus on addressing the knowledge gaps and promoting comprehensive preventive practices, especially in high-risk areas. By enhancing both individual and community-based actions, dengue transmission can be effectively controlled.


## Sources of funding

There is no source of funding for the study.


## Conflict of interest statement

There is no conflict of interest.

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