e-ISSN: 0976-822X, p-ISSN:2961-6042

Available online on http://www.ijcpr.com/

International Journal of Current Pharmaceutical Review and Research 2026; 18(4); 138-143

Original Research Article

Understanding Dengue Awareness and Preventive Practices Among Urban Population of Saurashtra, Gujarat

Hardikkumar Bharatbhai Kalariya[1], Chaitanyakumar Mahadevbhai Aghara[2], Parth M. Maheta[3]

[1]Senior Resident, Community Medicine Department, Shri M P Shah Government Medical College, Jamnagar, Gujarat, India
[2]Senior Resident, Community Medicine Department, GMERS Medical College, Morbi, Gujarat, India
[3]Senior Resident, Community Medicine Department, Shri M P Shah Government Medical College, Jamnagar, Gujarat, India

Received: 04-02-2026 / Revised: 03-03-2026 / Accepted: 05-04-2026
Corresponding Author: Dr. Parth M. Maheta
Conflict of interest: Nil

Abstract:

Background: Dengue is a major public health problem in urban India, with recurrent outbreaks causing significant morbidity. Understanding community knowledge, attitude, and practices (KAP) is essential for effective prevention and control.

Objective: To assess the knowledge, attitude, and practices regarding dengue among adults residing in the Urban Health Training Centre (UHTC) area of Jamnagar city, Western Gujarat, and to determine the association between knowledge, attitude, and practices.

Methods: A community-based cross-sectional study was conducted over two months among adults aged ≥18 years residing in the UHTC area of Jamnagar. A total of 500 eligible participants were included using house-to-house visits, with more than one eligible adult interviewed per household when available. Data were collected using a pretested structured questionnaire covering socio-demographic variables and KAP related to dengue. Knowledge, attitude, and practice scores were categorized using median cut-off values. Data were analysed using descriptive statistics and Chi-square test.

Results: Among the respondents, 47.0% demonstrated good knowledge, 90.4% had a good attitude, and 55.6% exhibited good preventive practices regarding dengue fever. High awareness was observed regarding mosquito breeding in stagnant water and common dengue symptoms. However, misconceptions related to disease transmission and reliance on fogging alone were noted. A statistically significant association was found between knowledge and attitude ($p = 0.01$), while the association between attitude and practice was not statistically significant ($p = 0.29$).

Conclusion: Despite a positive attitude towards dengue prevention, gaps in knowledge and preventive practices persist among community members. Strengthening targeted health education and behaviour change communication interventions is essential to translate awareness into effective preventive practices.

Keywords: Dengue Fever; Knowledge; Attitude; Practice; Community-Based Study.

DOI: 10.25258/ijcpr.18.4.24

Introduction

Dengue fever is a major mosquito-borne viral disease and an increasing public health challenge in tropical and subtropical regions. Transmitted primarily by Aedes aegypti, dengue infection ranges from a mild febrile illness to severe forms such as dengue haemorrhagic fever and dengue shock syndrome [1]. Globally, an estimated 390 million dengue infections occur annually, placing nearly half of the world's population at risk [2].

India accounts for a substantial proportion of the global dengue burden, with frequent outbreaks reported across urban and semi-urban areas. Rapid urbanization, population growth, inadequate water storage practices, and favourable climatic conditions have contributed to sustained dengue transmission in several states, including Gujarat [3]. Recurrent outbreaks continue to strain health systems and highlight the need for effective preventive measures.

In the absence of specific antiviral therapy and with limited vaccine applicability, vector control and community participation remain central to dengue prevention [4]. Measures such as elimination of mosquito breeding sites, environmental management, and use of personal protective

practices are essential; however, their effectiveness largely depends on community awareness and behaviour.

Knowledge, Attitude, and Practice (KAP) studies provide valuable insights into community perceptions and behaviours related to dengue prevention. While adequate knowledge can influence positive attitudes, several studies have shown that good knowledge does not always translate into appropriate preventive practices [5,6]. Misconceptions regarding dengue transmission, over-reliance on fogging, and inconsistent household preventive measures have been reported in various settings [7,8].

The Saurashtra region of Gujarat experiences recurrent dengue transmission, yet community-level data on dengue-related knowledge, attitudes, and practices remain limited. Assessing these domains and their interrelationships is essential for designing targeted health education and community-based interventions. Therefore, the present study was conducted to assess the knowledge, attitude, and practices regarding dengue fever among adults in the Saurashtra region of Gujarat and to examine the association between these domains [9,10].

Aims and Objectives: To assess the knowledge, attitude, and practices regarding dengue among people residing in the UHTC area of Jamnagar.

Materials and Methods

Study Design and Setting: A community-based cross-sectional study was conducted over a period of two months in the Urban Health Training Centre (UHTC) area of Jamnagar city, located in the Saurashtra region of Gujarat.

Study Population and Sampling Technique: The study population comprised adults aged 18 years and above residing in the Urban Health Training Centre (UHTC) area of Jamnagar, Gujarat. All eligible adult residents who had been living in the study area for at least six months and who provided informed consent were considered for inclusion in the study.

A community-based cross-sectional study was conducted over a period of two months using a house-to-house survey approach. Universal sampling of households in the UHTC area was undertaken. During each household visit, all eligible adults aged ≥18 years were enumerated, and one or more adults were interviewed per household based on availability, until the required sample size of 500 respondents was achieved. Data were collected using a pretested structured questionnaire.

Individuals aged 18 years and above who were mentally challenged, deaf and mute, refused to participate, or were absent at the time of data collection were excluded from the study.

Study duration: 2 months.

Data Collection Tool: Data were collected through face-to-face interviews using a validated structured questionnaire comprising 16 items assessing Knowledge, Attitude, and Practice (KAP) regarding dengue fever. Reliability testing showed acceptable internal consistency with Cronbach's alpha values of 0.70 (knowledge), 0.82 (attitude), and 0.79 (practice).

Scoring and Classification: Median cut-off values were used due to the absence of standardized scoring criteria for Knowledge, Attitude, and Practice assessment in similar community-based dengue studies:

- **Knowledge & Practice**
  - **Good:** 7–10.
  - **Poor:** 0–6.
- **Attitude**
  - **Good:** 3–6.
  - **Poor:** 0–2.

Statistical Analysis: Data were entered and analysed using statistical software. Descriptive statistics were used to summarize socio-demographic characteristics and KAP responses. The Chi-square test was applied to assess associations between knowledge, attitude, and practice. A p-value < 0.05 was considered statistically significant at a 95% confidence level.

Ethical Issues Considered:

This study was approved by the Institutional Ethics Committee.

Participation in the study was voluntary, and respondents were permitted to withdraw at any time without any adverse consequences.

Results

A total of 500 respondents participated in the study. The study population was equally distributed by gender, with 250 males (50.0%) and 250 females (50.0%). The majority of respondents were in the 30–39 years age group (52.8%), followed by those aged 40–49 years (18.8%) and 20–29 years (16.8%). Most respondents were married (88.4%). Regarding educational status, 66.2% had attained secondary education, while 27.8% had tertiary education. In terms of occupation, more than one-third of respondents were employed in the government sector (36.8%), followed by the private sector (27.2%). The detailed socio-demographic distribution is presented in Table 1.

Knowledge on Dengue Fever

Table 1: Knowledge on dengue fever among respondents (N = 500)

Statements	Agree n (%)	Disagree n (%)
Stagnant water is the main source for mosquito breeding	491 (98.2)	9 (1.8)
Dengue fever affects all age groups	487 (97.4)	13 (2.6)
Dengue fever is caused by the mosquito Aedes aegypti	478 (95.6)	22 (4.4)
Life cycle of the Aedes mosquito is one week	352 (70.4)	148 (29.6)
Dengue epidemics start during hot weather	176 (35.2)	324 (64.8)
Mosquitoes transmitting dengue infection bite only early in the morning	386 (77.2)	114 (22.8)
Transmission cycle is "Man–Mosquito–Man"	334 (66.8)	166 (33.2)
Dengue can be transmitted by direct blood contact	209 (41.8)	291 (58.2)
High fever, headache, muscle and joint pain are symptoms of dengue	480 (96.0)	20 (4.0)
Dengue is a flu-like illness	213 (42.6)	287 (57.4)

Analysis of individual knowledge items showed that a very high proportion of respondents correctly identified stagnant water as the main breeding site for mosquitoes (98.2%), and recognized that dengue fever affects all age groups (97.4%). Most respondents were also aware that Aedes aegypti is the vector responsible for dengue transmission (95.6%) and correctly identified classical dengue symptoms such as high fever, headache, and muscle and joint pain (96.0%).

However, notable gaps in knowledge were observed. Only 70.4% of respondents were aware that the life cycle of the Aedes mosquito is approximately one week, and 66.8% correctly identified the transmission cycle as "Man–Mosquito–Man". Misconceptions were evident, as 41.8% of respondents incorrectly believed that dengue could be transmitted through direct blood contact, and 42.6% perceived dengue as merely a flu-like illness. The distribution of responses to individual knowledge statements is shown in Table 1.

Assessment of respondents' knowledge revealed that 265 respondents (53.0%) had poor knowledge, while 235 respondents (47.0%) demonstrated good knowledge regarding dengue fever.

Attitude towards Dengue Prevention

Table 2: Attitude towards dengue prevention among respondents (N = 500)

Statements	Agree n (%)	Disagree n (%)
Elimination of larvae breeding is a waste of time	40 (8.0)	460 (92.0)
Dengue prevention is only the responsibility of authorities	79 (15.8)	421 (84.2)
Immediate treatment is unnecessary as there is no cure	103 (20.6)	397 (79.4)
Fogging alone is sufficient for dengue prevention	156 (31.2)	344 (68.8)
The public has the most important role in dengue control	492 (98.4)	8 (1.6)
I am afraid of dengue	486 (97.2)	14 (2.8)

The majority of respondents disagreed that elimination of mosquito breeding sites is a waste of time (92.0%), indicating favourable perceptions towards preventive measures. Similarly, 84.2% rejected the belief that dengue prevention is solely the responsibility of public health authorities, reflecting recognition of shared community responsibility.

Almost all respondents (98.4%) agreed that the public plays the most important role in dengue control, and 97.2% expressed fear of dengue infection, indicating a high level of perceived severity and concern. However, nearly one-third (31.2%) believed that fogging alone is sufficient for dengue prevention, indicating partial reliance on institutional control measures. Detailed responses to attitude statements are presented in Table 2.

Overall, respondents demonstrated a positive attitude towards dengue prevention, with 452 respondents (90.4%) classified as having a good attitude, while 48 respondents (9.6%) exhibited a poor attitude.

Practices towards Dengue Prevention

Table 3: Practices towards dengue prevention among respondents (N = 500)

Statements	Agree n (%)	Disagree n (%)
Cover water storage containers	474 (94.8)	26 (5.2)
Drain water from flower pots	453 (90.6)	47 (9.4)
Use mosquito repellent	437 (87.4)	63 (12.6)
Examine discarded items holding water	426 (85.2)	74 (14.8)
Check mosquito larvae indoors and outdoors	418 (83.6)	82 (16.4)
Participate in community clean-up activities	402 (80.4)	98 (19.6)
Inspect refrigerator water tray	357 (71.4)	143 (28.6)

Participate in community fogging	278 (55.6)	222 (44.4)
Use mosquito net or coil	262 (52.4)	238 (47.6)
Use temephos (Abate)	226 (45.2)	274 (54.8)

Most respondents reported adopting basic household preventive measures, including covering water storage containers (94.8%), draining stagnant water from flower pots (90.6%), and using mosquito repellents (87.4%). A substantial proportion also reported checking discarded items for water accumulation (85.2%) and inspecting indoor and outdoor containers for mosquito larvae (83.6%).

Community participation was relatively high, with 80.4% of respondents engaging in community cleanliness activities and 55.6% participating in fogging activities. However, the use of mosquito nets or coils (52.4%) and temephos (Abate®) for larval control (45.2%) was comparatively lower, indicating suboptimal adoption of certain recommended preventive practices. Detailed practice responses are shown in Table 3. With respect to preventive practices, 278 respondents (55.6%) demonstrated good practices, while 222 respondents (44.4%) were categorized as having poor practices.

Association between Knowledge, Attitude, and Practice

Table 4: Association between knowledge and attitude status (n = 500)

Knowledge status	Good attitude n (%)	Poor attitude n (%)	Total	P-value
Good	223 (94.9)	12 (5.1)	235	**0.01**
Poor	229 (86.4)	36 (13.6)	265	

A statistically significant association was observed between knowledge and attitude towards dengue prevention (χ^2 test, $p = 0.01$). Respondents with good knowledge were more likely to exhibit a positive attitude, with 94.9% of knowledgeable respondents demonstrating good attitude compared to 86.4% among those with poor knowledge (Table 4).

Table 5: Association between attitude and practice status (n = 500)

Attitude status	Good practice n (%)	Poor practice n (%)	Total	P-value
Good	255 (56.4)	197 (43.6)	452	
Poor	23 (47.9)	25 (52.1)	48	**0.29**

In contrast, the association between attitude and practice was not statistically significant ($p = 0.29$). Although respondents with good attitude were more likely to demonstrate good practices (56.4%) compared to those with poor attitude (47.9%), this difference did not reach statistical significance (Table 5).

Discussion

The present study demonstrates a high level of knowledge regarding dengue fever among the urban population of Western Gujarat. Awareness about stagnant water as the main breeding site for mosquitoes (98.2%) and the fact that dengue affects all age groups (97.4%) was comparable to findings reported by Gupta et al. and Patel et al., indicating effective dissemination of dengue-related information in urban settings [8,11].

Knowledge regarding the dengue vector was satisfactory, with 95.6% of respondents correctly identifying Aedes aegypti, which is higher than the levels reported by Itrat et al. and Malhotra et al. in their respective studies [12,13]. Awareness of common dengue symptoms was also high (96.0%), similar to observations by Kumar et al. and Matta et al. [14,15].

Despite overall good knowledge, certain gaps were evident. Only 70.4% of participants were aware of the mosquito life cycle, and just 35.2% correctly identified the seasonal pattern of dengue outbreaks. Comparable deficiencies were reported by Lal et al. and Chatterjee et al. [16,17]. Misconceptions regarding transmission were noted, as 41.8% believed dengue could be transmitted through direct blood contact, consistent with findings by Itrat et al. and Yboa et al. [12,18]. Partial knowledge regarding mosquito biting behaviour was also observed, similar to reports by Singh et al. [19].

The present study revealed a largely positive attitude towards dengue prevention among the urban population of Western Gujarat. A substantial majority of respondents disagreed that elimination of mosquito breeding sites is a waste of time (92.0%), indicating favourable perceptions towards source-reduction measures. Similar positive attitudes towards larval control have been reported by Gupta et al. and Patel et al., highlighting increasing public acceptance of preventive strategies [8,11].

Most participants (84.2%) rejected the belief that dengue prevention is solely the responsibility of public health authorities, reflecting recognition of

shared community responsibility. Comparable findings were observed by Itrat et al. and Kumar et al., who reported that community participation was widely acknowledged as essential for dengue control [12,14]. Almost all respondents in the present study agreed that the public plays the most important role in dengue prevention (98.4%), consistent with findings reported by Matta et al. [15].

A high proportion of respondents expressed fear of dengue infection (97.2%), indicating high perceived severity, a factor known to positively influence preventive behaviour. Similar observations have been reported by Chatterjee et al. and Singh et al. [17,19]. However, nearly one-third of participants (31.2%) believed that fogging alone is sufficient for dengue prevention, suggesting over-reliance on institutional measures, a misconception also documented by Lal et al. and Yboa et al. [16,18].

The present study demonstrated generally good preventive practices towards dengue among the urban population of Western Gujarat. A high proportion of respondents reported adopting household-level source-reduction measures such as covering water storage containers (94.8%) and draining water from flower pots (90.6%). Similar high adoption of household preventive practices has been reported by Gupta et al. and Patel et al., emphasizing the effectiveness of community awareness initiatives in urban settings [8,11].

Use of personal protective measures such as mosquito repellents was reported by 87.4% of respondents, comparable to findings by Itrat et al. and Kumar et al., who observed widespread reliance on repellents as a primary protective strategy [12,14]. Regular inspection of discarded items and checking for mosquito larvae indoors and outdoors was reported by more than four-fifths of participants, reflecting proactive preventive behaviour, consistent with observations by Matta et al. [15].

Community-level participation was also notable, with 80.4% of respondents engaging in cleanliness drives and 55.6% participating in fogging activities. Similar trends of moderate community participation have been documented by Chatterjee et al. and Singh et al. [17,19]. However, comparatively lower use of mosquito nets or coils (52.4%) and larvicides such as temephos (45.2%) suggests suboptimal adoption of certain recommended preventive measures. This pattern has also been reported by Lal et al. and Yboa et al., highlighting gaps between knowledge and consistent practice [16,18].

Limitations: Being a cross-sectional study, causal relationships could not be established. Self-reported practices may be subject to social desirability bias. The study was conducted in a single urban field practice area, which may limit generalizability.

Conclusion

The present community-based cross-sectional study conducted in the UHTC area of Jamnagar highlights that while the urban population demonstrated generally satisfactory awareness and a highly positive attitude towards dengue prevention, important gaps persist in knowledge and preventive practices. Although most respondents were well informed about the breeding sites, vector, and common symptoms of dengue, misconceptions regarding the mode of transmission, seasonal occurrence, and mosquito life cycle were evident. Attitudes towards dengue prevention were overwhelmingly favourable, with strong recognition of community responsibility and high perceived severity of the disease. Preventive practices at the household level were encouraging; however, the adoption of certain recommended measures such as the use of larvicides and mosquito nets remained suboptimal. The significant association between knowledge and attitude underscores the importance of accurate information in shaping positive perceptions, while the lack of a significant association between attitude and practice suggests barriers to translating awareness into consistent preventive behaviour. These findings emphasize the need for sustained, targeted health education and behaviour change communication strategies focusing on correcting misconceptions and strengthening community engagement to improve comprehensive dengue prevention and control.

Bibliography

1. Dengue and severe dengue [Internet]. [cited 2025 Dec 30]. Available from: https://www.who.int/health-topics/dengue-and-severe-dengue#tab=tab_1
2. Bhatt S, Gething PW, Brady OJ, Messina JP, Farlow AW, Moyes CL, et al. The global distribution and burden of dengue. Nature [Internet]. 2013 Apr 25 [cited 2025 Dec 30];496(7446):504–7. Available from: https://pubmed.ncbi.nlm.nih.gov/23563266/
3. Home :: National Center for Vector Borne Diseases Control (NCVBDC) [Internet]. [cited 2025 Dec 30]. Available from: https://ncvbdc.mohfw.gov.in/
4. Wilder-Smith A, Ooi EE, Horstick O, Wills B. Dengue. The Lancet [Internet]. 2019 Jan 26 [cited 2025 Dec 30];393(10169):350–63. Available from: https://pubmed.ncbi.nlm.nih.gov/30696575/
5. Factors affecting dengue fever knowledge, attitudes and practices among selected urban, semi-urban and rural communities in Malaysia - PubMed [Internet]. [cited 2025 Dec 30]. Available from: https://pubmed.ncbi.nlm.nih.gov/23682436/
6. Wong LP, AbuBakar S. Health beliefs and practices related to dengue fever: a focus group

study. PLoS Negl Trop Dis [Internet]. 2013 [cited 2025 Dec 30];7(7). Available from: https://pubmed.ncbi.nlm.nih.gov/23875045/
7. Awareness about dengue syndrome and related preventive practices amongst residents of an urban resettlement colony of south Delhi - PubMed [Internet]. [cited 2025 Dec 30]. Available from: https://pubmed.ncbi.nlm.nih.gov/16294811/
8. Knowledge, attitude and practices related to dengue in rural and slum areas of Delhi after the dengue epidemic of 1996 - PubMed [Internet]. [cited 2025 Dec 30]. Available from: https://pubmed.ncbi.nlm.nih.gov/9914677/
9. K - Park's SPM 26th Edition (Latest) PDF | PDF [Internet]. [cited 2025 Dec 30]. Available from: https://www.scribd.com/document/681803049/K-Park-s-SPM-26th-Edition-Latest-PDF
10. Gubler DJ. Dengue, Urbanization and Globalization: The Unholy Trinity of the 21st Century. Trop Med Health [Internet]. 2011 [cited 2025 Dec 30];39(4 Suppl):3. Available from: https://pmc.ncbi.nlm.nih.gov/articles/PMC3317603/
11. Mohapatra S, Aslami AN. Knowledge, attitude and practice regarding dengue fever among general patients of a rural tertiary-care hospital in Sasaram, Bihar. Int J Community Med Public Health [Internet]. 2016 [cited 2025 Dec 30];3(2):586–91. Available from: https://www.ijcmph.com/index.php/ijcmph/article/view/757
12. Itrat A, Khan A, Javaid S, Kamal M, Khan H, Javed S, et al. Knowledge, Awareness and Practices Regarding Dengue Fever among the Adult Population of Dengue Hit Cosmopolitan. PLoS One [Internet]. 2008 Jul 9 [cited 2025 Dec 30];3(7):e2620. Available from: https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0002620
13. Malhotra G, Yadav A, Dudeja P. Knowledge, Awareness and Practices Regarding Dengue among Rural and Slum Communities in North Indian city, India. Int J Med Sci Public Health. 2014;3(3):295.
14. Studies on community knowledge and behavior following a dengue epidemic in Chennai city, Tamil Nadu, India - PubMed [Internet]. [cited 2025 Dec 30]. Available from: https://pubmed.ncbi.nlm.nih.gov/20962733/
15. C. P, S. AK, S. M. Awareness and practice towards dengue fever in Kannamangala village, Bangalore, Karnataka, India. Int J Community Med Public Health [Internet]. 2016 Dec 28 [cited 2025 Dec 30];3(7):1847–50. Available from: https://www.ijcmph.com/index.php/ijcmph/article/view/322
16. Dhimal M, Aryal KK, Dhimal ML, Gautam I, Singh SP, Bhusal CL, et al. Knowledge, Attitude and Practice Regarding Dengue Fever among the Healthy Population of Highland and Lowland Communities in Central Nepal. PLoS One [Internet]. 2014 Jul 9 [cited 2025 Dec 30];9(7):e102028. Available from: https://pmc.ncbi.nlm.nih.gov/articles/PMC4090170/
17. Nijhawan DM, Upadhye AJ, Upadhye JJ. Knowledge, awareness and practices regarding dengue fever. International Journal of Scientific Reports [Internet]. 2018 Feb 24 [cited 2025 Dec 30];4(3):49–53. Available from: https://www.sci-rep.com/index.php/scirep/article/view/392
18. Yboa BC, Labrague LJ. Dengue Knowledge and Preventive Practices among Rural Residents in Samar Province, Philippines. Am J Public Health Res [Internet]. 2013 Apr 20 [cited 2025 Dec 30];1(2):47–52. Available from: https://pubs.sciepub.com/ajphr/1/2/2/index.html
19. Verma R, Bhalla K, Dhankar M, Kumar R, Dhaka R, Agrawal G. Practices and knowledge regarding dengue infection among the rural community of Haryana. J Family Med Prim Care [Internet]. 2019 [cited 2025 Dec 30];8(5):1752. Available from: https://pubmed.ncbi.nlm.nih.gov/31198749/