



Original Article

A Cross-Sectional Study to Assess Knowledge, Attitude and Practices Regarding Dengue Fever Among Families Residing at Urban Area in Hubballi, Karnataka

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ABSTRACT

Background: Dengue fever (DF) is an acute febrile illness caused by a mosquito-borne virus of the Flaviviridae family, primarily transmitted by *Aedes aegypti*. It continues to pose a major public health challenge in India, especially in urban areas, due to improper water storage and lack of awareness about breeding sites.

Objectives: To assess the knowledge, attitude, and practices (KAP) regarding dengue fever among families residing in urban areas of Hubballi, Karnataka.

Materials and Methods: A cross-sectional study was conducted over a period of 3 months in the urban field practice area of the Department of Community Medicine, KMCRI, Hubballi. A total of 200 families were selected using a predesigned semi-structured questionnaire. Data were entered in Microsoft Excel and analyzed using SPSS v.25. Chi-square test was used for assessing associations between KAP and dengue exposure history.

Results: The majority of participants (87%) recognized mosquitoes as the vector for dengue transmission, and 76.5% considered dengue to be a serious illness. Only 28% were aware of the role of *Aedes* mosquitoes specifically. Preventive practices included use of mosquito nets (46%) and bats (47%). A statistically significant association was found between past dengue history and improved attitude ($p=0.019$) and practice ($p=0.034$) scores.

Conclusions: Participants had moderate knowledge and practices related to dengue fever, but gaps remain in specific areas such as mosquito breeding awareness and recognition of symptoms. Targeted health education campaigns are recommended to enhance public knowledge and improve dengue control practices.

Keywords: Dengue Fever; Knowledge; Attitude; Practice; Urban; Vector-Borne Disease.

INTRODUCTION

Dengue fever (DF) is an acute febrile illness caused by a mosquito borne human virus belonging to Flaviviridae family. There are four known serotypes of the virus (DEN 1, DEN 2, DEN 3, and DEN 4). According to the World Health Organization (2024), dengue is considered one of the top ten global public health threats. It is estimated that over 3.9 billion people in more than 129 countries are at risk of dengue infection, and approximately 100–400 million infections occur annually.

The Centers for Disease Control and Prevention (CDC) highlights that urbanization, climate change, global travel, and poor water management significantly contribute to the rising incidence of dengue. The *Aedes* mosquito breeds in clean stagnant water found in containers like tanks, coolers, and discarded tires, making domestic environments a critical control point.

The virus is transmitted by the Aedes mosquito, of which Aedes aegypti is the major vector. Dengue fever presents with sudden onset of high-grade fever, headache, retro-orbital pain, myalgia, arthralgia, rash, and in some cases, hemorrhagic manifestations or shock, especially in severe dengue. There is no specific antiviral treatment, and management is largely supportive.¹

About 30 times increase in dengue cases have been reported globally since the past 50 years.² About half of the world's population is now at risk of dengue with an estimated 100 – 400 million infections occurring each year and it still continues to prevail despite various measures taken.¹ The main cause of dengue fever, according to the health department, is due to large scale breeding of Aedes aegypti Mosquitoes in domestic and peri-domestic situations in water storage containers like cement water tanks, barrels etc. and such other containers which are usually not emptied for a long time in addition to discarded materials like coconut shell, tyres, plastic materials which collect rain.³ An important aspect of dengue control is awareness of dengue signs and symptoms, transmissions and preventive strategies among general population, which is of great importance to improve integrated control measures.⁴

Therefore, the present study aims to understand the knowledge, attitude and practices regarding dengue fever among families residing in urban areas in Hubballi, Karnataka to improve integrated control measures and prevention of dengue cases.

MATERIALS AND METHODS:

The study was conducted for a period of 3 months in an urban field practice area, Department of Community Medicine, KMCRI - HUBBALLI. The survey questionnaire on the KAP of dengue fever has been prepared. Informant (any one member of the family available at the time of survey and gives informed consent) to answer the questionnaire, fulfilling the inclusion criteria. After establishing a good rapport, a written informed consent was obtained from the study subjects. A predesigned semi-structured questionnaire was applied to gather information relating to identification particulars and socio-demographic characteristics of all the study participants. Informants more than 18 years old, mentally sound, and residing in the study area for more than 6 months, and willing to provide written informed consent, were included in the study. Subjects with impairment of speech, hearing, and cognition were excluded from the study. The study proposal was approved by the institutional ethic committee. The sample size is calculated, according to the daily report submitted by MoHFW, Karnataka, dated 06-08-2024, a total of 5464 were suspected cases of Dengue, of which 620 were positive. Accordingly, the prevalence calculated was 11.34%. Thus, $p = 0.11$ and $q = 1 - p = 1 - 0.11 = 0.89$ $\sqrt{n} = z \sqrt{pq} / l^2$; $z = 1.96$ and $l = 0.05$ (error considered as 5%). Replacing all the values; $n = 150$, i.e. $n = 150$, A total of 200 families to be included in the study

Statistical analysis: The data was collected by face-to-face interview, using a semi-structured questionnaire. Collected data was entered in Microsoft Excel 2010, and data analysis was done using SPSS v.25 software. Descriptive statistics such as frequency, percentages were applied. The baseline characteristics of subjects were analyzed using the χ^2 test for nominal variables. Results were expressed in tables and bar diagrams. All p values were based on the two- sided test, and $p < 0.05$ was considered statistically significant.

RESULTS:

Table 1: Sociodemographic characteristics of the participants

Sr. No.	Characteristics	Frequency (n=200)	Percentage (%)
1.	Age in years		
	18 - 30	122	61
	30 - 40	46	23
	40 - 50	16	8
	> 50	16	8
2.	Sex		
	Male	16	8
	Female	184	92
3.	Educational Qualification		
	Illiterate	22	11
	Primary	50	25
	High School	38	19
	SSLC	67	33.5
	PUC	19	9.5
	Degree	4	2
4.	Employment status		
	Unemployed / Housewife	184	92
	Employed	14	7

Student	2	1
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Overall, 184 females and 16 males participated in the study. The adults under age group 18 to 30 years constituted about 61%. About 89 % were literates and 92 % were unemployed or housewives.

Figure 1: Knowledge of participants regarding dengue fever

KNOWLEDGE GRADE 15-21 :-GOOD; 7-14:- SATISFACTORY ; <7 :- POOR

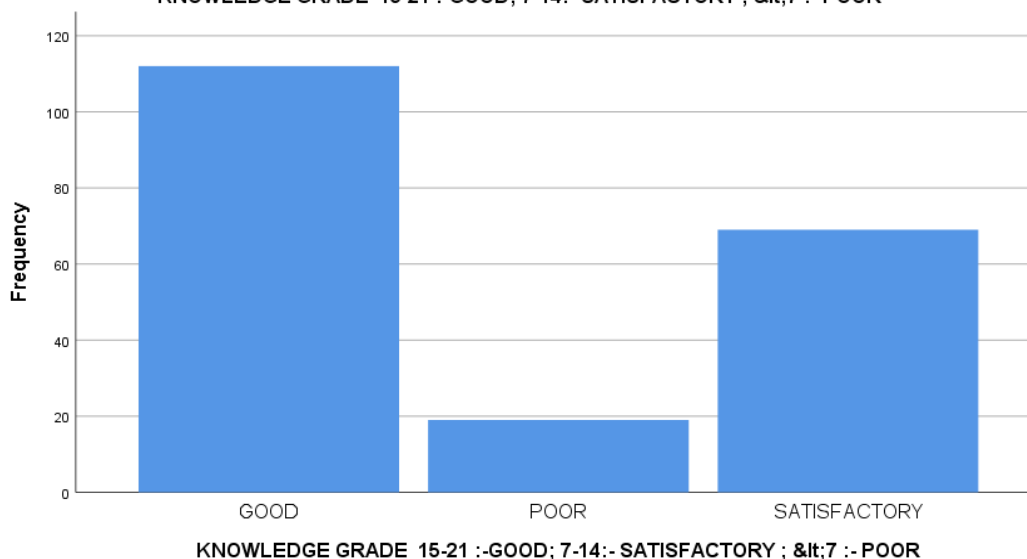


Table 2: Knowledge of participants regarding dengue fever

Sr. No.	Characteristics	Frequency (n=200)	Percentage (%)
1.	Knowledge regarding symptoms and signs		
	Fever and Headache	82	41
	Only fever	51	25.5
	Fever, headache and myalgia	23	11.5
	Fever,headache,nausea, vomiting, bleeding, rashes	25	12.5
	Don't know	19	9.5
2.	Knowledge on dengue transmission		
	Mosquito	174	87
	Flies	6	3
	Others	3	1.5
	Don't know	17	8.5
3.	Knowledge on mosquito breeding places		
	garbage	24	12
	dirty stagnant water	74	37
	dirty stagnant water and garbage both	16	8
	clean stagnant water	62	31
	clean stagnant water and garbage	3	1.5
	clean stagnant water, dirty stagnant water and garbage	1	0.5
	Don't know	20	10
4.	Knowledge regarding mosquito biting habit		
	Anytime	52	26
	Daytime	46	23
	Night	83	41.5
	Don't Know	19	9.5
5.	Knowledge regarding epidemic of dengue fever		
	Winters	3	1.5
	Summers	11	5.5
	Rainy Season	129	64.5
	Anytime	23	11.5
	Don't Know	34	17

6.	Knowledge on personal protective measures		
	Mosquito Repellant / Vapouriser	70	35
	Mosquito Nets	111	55.5
	Coil	59	29.5
	Insecticidal Spray	12	6
	Neem Leaves	7	3.5
	Creams	31	15.5
	Mesh To Doors and Windows	25	12.5
	Government Measures	18	9
	Bat	33	16.5
	Others	4	2
	None	2	1
	Don't Know	2	1
7.	Is dengue a serious disease?		
	Yes	153	76.5
	No	35	17.5
	Don't know	12	6
8.	Is dengue a communicable disease?		
	Yes	158	79
	No	10	5
	Don't know	32	16
9.	Can dengue cause death?		
	Yes	162	81
	No	12	6
	Don't know	26	13
10.	Is Aedes mosquito the vector of dengue?		
	Yes	56	28
	No	28	14
	Don't know	116	58

76.5 % participants reported dengue as a serious illness. 79 % knew it is a communicable disease and 81 % knew that dengue can even cause death. About 87 % participants knew that dengue fever is transmitted by mosquito while 8.5% did not know any vector for transmission. but when asked about Aedes mosquito in particular, only 28 % recalled of having known its name while 58 % did not know about it. Regarding symptoms and signs, 41 % participants gave fever and headache as the main presenting features of dengue fever, followed by 25.5 % saying only fever, 12.5 % as fever, headache, nausea, vomiting, bleeding and rashes , 11.5 % as fever , headache and myalgia and about 9.5 % participants did not know any symptom or sign. About 37 % opted for dirty stagnant water as its breeding place. 41.5 % participants reported that the mosquito bites during Night time and 64.5 % stated epidemics of dengue occur mainly in rainy season.

Regarding knowledge on personal protective equipments using multiple options in questionnaire, 55.5 % reported as mosquito nets, 35 % as repellants / vapouriser, 29.5 % as coil, 16.5 % as bat and only 1 % did not know any personal protective equipment.

Table 3: Source of knowledge about dengue fever and their control measures

Source of Knowledge	Number (n=200)	Percentage (%)
TV	97	48.5
Newspaper	40	20
Friends	26	13
Health Department	90	45
None	20	10
Don't Know	6	3

The source of knowledge regarding dengue fever mainly was television (48.5 %) and health department (45 %).

Table 4: Attitude of participants towards dengue fever

1.	Are you at risk of dengue infection?		
	Yes	56	28
	No	125	62.5
	Don't know	19	9.5
2.	Can you personally contribute to prevent dengue?		
	Yes	173	86.5

	No	10	5
	Don't know	17	8.5
3.	Is it only Government's responsibility to prevent dengue?		
	Yes	80	40
	No	56	28
	Government and Public	45	22.5
	Don't know	19	9.5
	Total	200	100

About 62.5 % reported they are not at risk of dengue infection. 86.5 % agreed that they can personally contribute to the control of dengue fever but 40 % participants thought it is the government responsibility alone to prevent dengue while 22.5 % stated that both government and public should join hands for the same.

Table 5: Personal protective measures used by participants

Measures used	Number (n=200)	Percentage (%)
Mosquito Repellent and Vapouriser	34	17
Nets	92	46
Bat	94	47
Mesh	19	9.5
Insecticidal Spray	4	2
Neem Leaves	2	1
Creams	21	10.5
Covering Stored Water	26	13
Emptying And Cleaning Water Storage Vessels	23	11.5
Garbage Disposal	16	8
Covering Yourself	7	3.5
Don't Use Any Methods	1	0.5
Don't Know	16	8

Regarding practices on personal protection using multiple responses, 47 % practiced using bats as personal protective equipment, 46 % used nets and 17 % used repellent. 13 % covered stored water and 11.5 % practiced regular emptying and cleaning water storage vessels. Only 8% practiced safe garbage disposal, while hardly 0.5 % did not use any methods.

Table 6: Association Between Household and Dengue Exposure Factors and KAP Scores Using Chi-Square Test

S. No.	Variables Compared	p-value
1.	Attitude and History of Dengue (past month)	0.019
2.	Practice and History of Dengue (past month)	0.034

Note: Significant level set at $p < 0.05$.

As shown in Table 6, a statistically significant association was found between dengue history and both attitude ($p = 0.019$) and practice ($p = 0.034$), while no significant association was noted with knowledge.

DISCUSSION:

In our study, 174 (87%) participants recognized that dengue fever is transmitted by mosquitoes. Similar findings were reported by Bhaumika et al., where 71.1% of respondents knew the mode of transmission to be mosquito bites.

Regarding the symptoms and signs of dengue fever, 41% of participants identified fever and headache as key presenting features, while 25.5% reported only fever. Studies by Bhaumika et al. reported that 62.3% recognized fever, 51% headache, 37.3% joint/muscle pain, 36.8% periorbital pain, and 24% body rashes.⁵ Matta et al. noted that 61.8% could mention at least one symptom (fever), while 11.2% identified three or more (fever, headache, bleeding).⁶

When questioned about mosquito breeding places, 37% cited dirty stagnant water, 31% clean stagnant water, and 12% garbage. These findings align with those of Shaheen S et al., where 60.48% knew stagnant water as a breeding site, including both dirty and clean water. Samin et al. reported that 70% acknowledged stagnant water and 74% identified the rainy season as the peak dengue period, which concurs with our study's 64.5%.⁷

Only 23% of our participants were aware that dengue-transmitting mosquitoes bite during the day. Vivek et al. similarly found that just 13% recognized this daytime biting pattern, indicating a common gap in specific vector behaviour knowledge.⁸

Regarding personal protective measures, 55.5% used mosquito nets, 35% used repellents, 29.5% used coils, and 16.5% used electric bats. In contrast, Acharya et al. reported that 70.3% were aware of mosquito repellents like mats, vaporizers, and coils. Only 1% in our study had no knowledge of protective methods.⁹

Sources of knowledge primarily included television (48.5%) and health department campaigns (45%). This trend is consistent with Keerti et al., who reported television/radio (51.62%) and newspapers (21.89%) as the main sources.¹⁰ Shaheen et al. noted similar trends with community health workers and friends/relatives as key informants.¹¹

In terms of attitude, only 28% felt at risk of dengue, while 86.5% believed they could personally contribute to prevention. However, 40% still perceived dengue prevention as solely the government's responsibility.

Practices showed 47% used electric bats, 46% mosquito nets, and 17% repellents. Covering stored water and regular cleaning were reported by 13% and 11.5% respectively. Ahmed et al. found 47.1% used vaporizers/coils, while Kamath et al. highlighted that 87.9% of urban residents used mosquito repellents indoors.^{12,13}

Exposure to dengue was significantly associated with improved attitudes and practices. Studies conducted in Puducherry, Bhilai (Central India), and rural Tamil Nadu reinforce this observation showing that past experience with dengue infection increases preventive behaviour and risk awareness.^{14,15}

CONCLUSION:

Dengue fever is widely prevalent in India. From the present study it is concluded that there is good knowledge about vector for dengue and the personal protective measures against dengue but there is a lack of appropriate and adequate knowledge regarding mosquito breeding places, season of dengue outbreaks and signs and symptoms about dengue fever. The attitude of the community needs to be changed and they must be made aware of how much we all are at risk of developing dengue infection. Also, it is responsibility of both the government and the public when they come together the DF can be prevented. The practice of using personal protective measures is of utmost importance as there is very little role of antiviral drugs and any vaccine availability currently against DF in India.

Recommendations:

The health department should actively involve to explain regarding dengue fever, its vector, signs and symptoms, personal protective measures, environmental sanitation interrupting vector breeding and climatic factors as to when epidemic trends are known to occur. Health promotion and specific protection should be explained in detail to interrupt transmission. IEC activities regularly in field practice areas, schools and colleges will strengthen the knowledge, attitude and practices of DF in people. Government should regularly undertake fogging activity at community level. Public awareness should be created on a large scale which can be achieved by proper advocacy, social mobilization and strict legislation.

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REFERENCES:

1. *Dengue guidelines, for diagnosis, treatment, prevention and Control* (no date) World Health Organization. Available at: <https://www.who.int/publications/i/item/9789241547871> (Accessed: 27 June 2025).
2. Marano M. The increasing burden of dengue fever in a changing climate [Internet]. The Rockefeller Foundation. 2022 [cited 2024 June 16]. Available from: <https://www.rockefellerfoundation.org/blog/the-increasing-burden-of-dengue-fever-in-a-changing-climate/>
3. <https://www.livemint.com/Science/8HNMYkhzxe4piYIfB5I7nM/Uncleared-garbage-intermittent-rains-contributeto-dengue-feverg.html> (cited on 11/06/25)
4. Sharma B, Regmi S, Aryal B, Neupane S M, Lopchan M. Knowledge and Attitude of Dengue Fever among Clients from Dengue Prevalent Areas International Journal of Pharmaceutical & Biological Archives. 2012;3(6):1383-8.
5. Matta S, Bhalla S, Singh D, Rasania KS, Singh S. Knowledge, Attitude & Practice (KAP) on Dengue fever: A Hospital Based Study Indian J Community Med. 2006;31(3):185-6.

6. Shaheen S, Motakpalli K, Bendigeri ND, Jamadar D. Knowledge, awareness and practices regarding dengue fever among people attending at UHTC, KBNIMS, Kalaburgi. *Int J Community Med Public Health*. 2018 Jul;5:2797-801.
7. Qadir S, Ahmad I, Akhtar NM, Naeem H. Knowledge, Attitude and Practice about Dengue Fever among local population. *Gomal Journal of Medical Sciences*. 2015;13(2):87-90.
8. Vivek L, Dinesh C and Shiv DG. Knowledge of dengue and related preventive attitude and practices among urban slum dwellers of Jaipur city, Rajasthan, India. *Dengue Bulletin*. 2012;36:197- 205.
9. Acharya A, Goswami K, Srinath S, Goswami A. Awareness about dengue syndrome and related preventive practices amongst residents of an urban resettlement colony of south Delhi. *J Vector Borne Dis*. 2005;42:122–7.
10. Keerti SJ, Pravin NY. The Community Knowledge and Practices Regarding Dengue Fever in an Urban Slum Area of South India. *People's J Scientific Res*. 2013;6(1):13-5.
11. 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*. 2008;3(7):1-6. 13.
12. Kamath R, Gupta R, Chandrasekaran V, Pattanshetty S. Assessment of environmental factors associated with dengue transmission in Udupi Taluk, Karnataka. *J Scientific Society*. 2013;40(3):159-61.
13. Valantine, B. *et al.* (2017) 'Cross sectional study on knowledge, attitude and practice regarding dengue among adult population visiting a tertiary care hospital in Puducherry, India', *International Journal Of Community Medicine And Public Health*, 4(3), p. 623. doi:10.18203/2394-6040.ijcmph20170531.
14. Khobragade, A.W. and Meshram, T.T. (2021) 'Knowledge, attitude and practices regarding prevention of dengue in an urban area of Central India', *International Journal Of Community Medicine And Public Health*, 8(6), p. 3030. doi:10.18203/2394-6040.ijcmph20212010.
15. Jayaseelan, V. *et al.* (2018) 'Household survey on public awareness and attitudes toward dengue infection in rural Tamil Nadu, South India', *Journal of Education and Health Promotion*, 7(1), p. 171. doi:10.4103/jehp.jehp_81_18.