

Research Article

# Knowledge, Attitude and Practice regarding Dengue fever among residents of Indira Colony, Ghaziabad

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## I N F O

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## A B S T R A C T

Dengue Fever (DF) is a rapidly spreading mosquito-borne viral illness all over the world. DF has expanded to new countries and from urban to rural areas. DF has emerged as a notable public health problem in recent decades. Rapid urbanization, environmental changes and neglected rural areas result in vector breeding which causes rise in Dengue outbreaks. The objective of this study was to assess the Knowledge, Attitudes and Practices (KAP) regarding DF among residents of Indira Colony, Ghaziabad. Cross-sectional survey was done among residents of Indira Colony using a pre-designed questionnaire. KAP of DF among study population was represented as percentage.

Out of 250 individuals interviewed, 93% identified fever as a cardinal symptom of DF. The knowledge about other symptoms of DF was low among residents. Only 17.5% knew that DF is transmitted by *Aedes* mosquitoes. The correct timing of biting time was known by only 14%. Despite low knowledge, the residents had good attitude and most of them reported good preventive practices against dengue prevention and control. Awareness campaigns can help to protect the health of people against DF and to limit in future spread of DF.

**Keywords:** Dengue Fever, Knowledge, Attitudes and Practices (KAP), Mosquito Borne Viral Illness

## Introduction

Dengue a mosquito borne infection is currently one of the most important Arboviral disease found in tropical and subtropical regions. Dengue virus is transmitted to human being by bite of female *Aedes* mosquito. About 2.5 billion people have been reported living in area of high risk and many tens of millions of cases occurring each year.<sup>1</sup> It is the one of the most rapidly rising mosquito transmitted infection in the world.<sup>2</sup> *Aedes aegypti* is principal dengue vector in India<sup>3</sup> and has wide spread distribution in many

urban<sup>4,5</sup> as well as rural<sup>6,7</sup> areas. During the year 2018 more than 1 lakh cases of Dengue were reported in country by National Vector Borne Diseases Control Programme.<sup>8</sup> Disease is caused by four serotypes DENV1, DENV2, DENV3 and DENV4.

Knowledge of prominent breeding sites is prerequisite for source reduction. It is achieved by vector surveillance that is an important tool for generating entomological data for knowledge of breeding sites and their control measures such as Integrated Vector Management, minimization of

the breeding potential of *Aedes* by water management practices, proper disposal of solid waste, discarded plastic containers and glass bottles by individuals, cleaning of blocked & stagnant water for implementation of urban by laws & health education are recommended for better work of breeding of *Aedes* species.<sup>9</sup>

*Aedes* mosquitoes are highly invasive and can survive almost any climatic condition and transmit a number of major world deadly diseases. The epidemiological activities have been intensified in past 20 years because of rapid population growth, uncontrolled and unplanned urbanization with inadequate system of water and solid waste management, increased frequency of air travel and usages of artificial containers, which provide excellent breeding sites for mosquitoes.<sup>10</sup>

People have inadequate knowledge about dengue and its preventive methods. They need more understanding of dengue fever. There is a need to make rural people aware of different preventive practices and reduce knowledge application gap. There is a need for information education and communication to combat problems related to this disease.<sup>11</sup>

## Material and Methods

A cross-sectional study was conducted in Indira Colony, Rajinder Nagar Industrial Area, Rajendra Nagar, Ghaziabad is a situated in North East Delhi State, India during August 2018. The study was conducted in urban area to collect the information from inhabitants; face-to-face interviews were conducted for data collection. To avoid the biasness, the correct answers to the survey questions were not provided to the respondents.

Prior to interview, an overview of the study aims, risks and benefits was given and explained to potential residents. Participation in this study was voluntary and no incentive was given to the residents. They could stop and leave the same at any time during the interview.<sup>12</sup>

To further improve the precision, sample size of 250 respondents above age of 21 years was taken. Sampling unit of the study was kept as respondent and about 40% females were selected for interview while selecting the household on random bases from the study area. The choice of the first house was guided by the Cross checking team.

A semi structured questionnaire was used for collecting data. The questionnaire covered the following areas: (1) demographic information (district, sex, age, occupation and education); (2) health information relating to whether the respondent had dengue disease or not; (3) knowledge about dengue symptoms, signs, and transmission modes; (4) attitude towards dengue; (5) preventive practices against dengue e.g. methods used to reduce breeding sites and

reduce potential human-mosquito contact (repellents, bed nets and window screens). Intra-domestic water containers were examined in every house for presence of mosquito larvae by removing the cover on it if any, followed by naked eye observation (for small containers & overhead tanks).

Data were collected from a total of 250 respondents. Subjects were interviewed through house to house visits. It was ensured that at least one female will be interviewed from each household, in non-availability of female, male respondent was interviewed. The shared the information was filled in the questionnaire.

## Result

A total 250 participants responded to the questionnaire. Table 1 depicts the socio-demographic details of the study subjects. The study showed that the age of the respondents (n=250) varied from 20 to 89 years. Most (33.6%) of the participants were in the age group 31-40 years. There were 160 males and 90 females giving a male to female sex ratio of 1.7:1. Only 9.2% of study participants were illiterate.

**Table 1. Socio-demographic profile of the study population**

(N=250)

Variable	No (%)
21-30	58(23.2)
31-40	84 (33.6)
41-50	53 (21.2)
51-60	25(10)
>60	30 (12)
<b>Sex</b>	
Male	160(64)
Female	90(36)
<b>Marital Status</b>	
Single	34(13.6)
Married	216(86.4)
<b>Education Level</b>	
Illiterate	23(9.2)
Primary	68(27.2)
Secondary	102(40.8)
UG and above	57(22.8)
<b>Occupation</b>	
Service (Labour)	158(63.3)
Business	20(8.0)
Housewife	62(24.8)
Others	10(4.0)

The majority (96%) of the participants were able to identify fever as an important symptom of DF. However, when further queried about the typical symptoms of DF, a significantly lower number of participants were able to correctly identify these. A good percentage of participants (72%) knew that all mosquitoes can transmit dengue but only few (18%) knew that *Aedes* mosquitoes transmit it. On the other hand, more than half of the participants were aware of the fact that flies and ticks do not transmit dengue. About 66% of the participants responded that DF could be contracted through blood transfusion (Table 2).

Figure 1 presents knowledge of participants about biting time of dengue mosquitoes. Only 12.4 % knew that these mosquitoes mostly bite in day time. Figure 2 presents findings on sources of information on DF. The majority of the research participants reported that they had heard of DF through the TV/ Radio (84%) followed by newspaper (42%). Only 35% of respondents said that they were made aware of the diseases by Health workers.

Table 3, summarizes participants' attitude regarding DF. Most of them strongly agreed (50.7%) or agreed (37.2%)

that DF is a serious illness. Thus, 81% of the participants effectively appreciated the serious nature of the disease. None of the participants strongly disagreed on facts related to DF. Also, about 80% of participants strongly agreed (15.2%) or agreed (50.4%) that the disease is preventable. Almost 90% believed that dengue can be prevented by controlling breeding sites of mosquitoes. Nearly half of the participants disagreed to this proposition that it is only governments' responsibility to control mosquitoes. This is indicative of the fact that general public is very much responsible as almost 90% of them thought that everybody should actively participate in controlling mosquitoes.

Almost all respondents stated that preventing mosquito-man contact is the best strategy for the prevention of DF. Table 4 shows the different measures employed by participants to protect themselves from DF. Almost all participants have the habit of using mosquito net. Nearly half of them use insecticidal sprays to reduce mosquitoes and equal number of them used screen windows. Mosquito repellents are also favoured by them. Nearly 74.4% covered water containers at home.

**Table 2. Knowledge of symptoms, signs and transmission of dengue fever**

Variables	Yes (%)	No (%)	DNK (%)
Is fever a symptom of DF?	240(96)	6(2.4)	4(1.6)
Is Headache a symptom of DF?	195 (78.0)	42(17)	13(5.0)
Is Joint pain a symptom of DF?	175(70.0)	58(23)	17(7.0)
Is muscle pain a symptom of DF?	110(44.0)	94(38.0)	46(18)
Is pain behind the eyes a symptom of DF?	78(31.0)	56(22.0)	116(46.0)
Are Nausea/ Vomiting symptoms of DF?	180(72.0)	60(24.0)	20(8.0)
Is rash a symptom of DF?	92(37.0)	88(35.2)	70(28)
Is diarrhoea common in DF?	55(22)	74(29.6)	121(48.4)
Is stomach pain common in DF?	60(24)	75(30)	115(46%)
Can all mosquitoes transmit DF?	180(72)	53(21.2)	17(6.8)
Do the <i>Aedes</i> mosquitoes transmit DF?	45(18)	35(14)	170(68)
Do flies transmit DF?	52(20.8)	140(56)	58(23.2)
Do Bugs/ Ticks transmit DF?	34(13.6)	176(70.4)	40(16)
Does person to person contact transmit DF?	60(24)	148(59.2)	42(16.8)
Is DF transmitted through food and water?	143(57.2)	58(23.2)	49(19.6)
Can DF be transmitted by blood transfusion?	165(66)	43(17.2)	42(16.8)
Mosquitoes can breed in clear standing water	196(78.4)	13(5.2)	41(16.4)
Window screen and bed net reduce mosquitoes	238(95.2)	8(3.2)	4(1.6)
Insecticidal spray reduce mosquitoes	240(96)	2(0.8)	8(3.2)
Tightly covering water containers reduce Mosquitoes	188(75.2)	43(17.2)	19(7.6)
Removal of standing water can prevent breeding	193(77.2)	41(16.4)	16(6.4)
Mosquito repellents prevent mosquito bites	190(76)	33(13.2)	27(10.8)
Can you identify <i>Aedes</i> mosquitoes?	18(7.2)	215(86)	17(6.8)

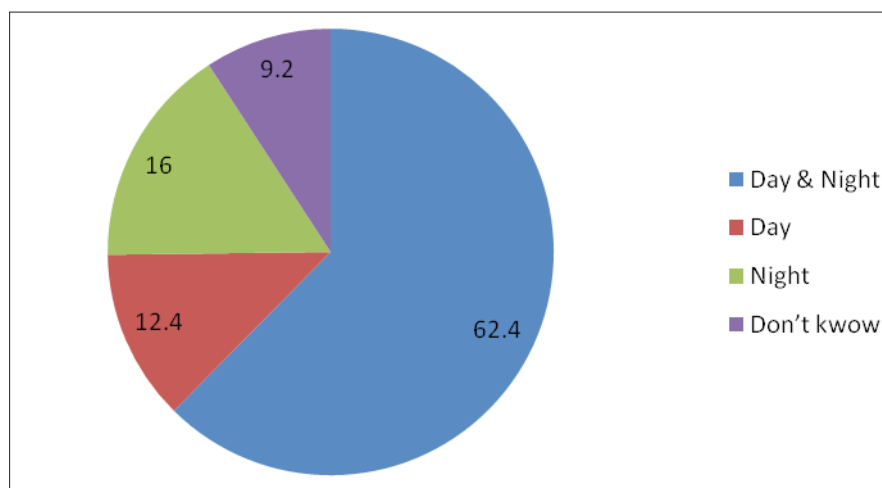


Figure 1. Knowledge of biting time of dengue mosquitoes (N=250)

Table 3. Attitude towards dengue fever (DF)

Variable	Strongly Agree (%)	Agree (%)	Not Sure (%)	Disagree (%)
Is DF a serious disease?				
Response	184(73.6)	43(17.2)	22(8.8)	4(1.6)
Are you at risk of getting diseases?				
Response	20(8)	196(78.4)	18(7.2)	16(6.4)
DF can be treated at home				
Response	40(16)	32(12.8)	69(27.6)	109(43.6)
Can DF be prevented?				
Response	38(15.2)	126(50.4)	29(11.6)	57(22.8)
Is controlling the breeding places of mosquitoes a good strategy to prevent dengue?				
Response	96(38.4)	143(57.2)	8(3.2)	3(1.2)
Do you think that stagnant water around the houses in discarded tyres, broken pots and bottles are breeding places of dengue mosquitoes?				
Response	92(36.8)	126(50.4)	17(6.8)	15(6)
Do you think it is only government responsibility to control mosquitoes?				
Response	56(22.4)	62(24.8)	14(5.8)	104(41.6)
Do you think everybody should actively participate in controlling mosquitoes?				
Response	91(36.4)	119(47.6)	19(7.6)	21(8.4)

Table 4. Preventive measures against dengue fever (DF)

Variables	Yes	No
Use mosquito net	232(92.8)	18(7.2)
Use insecticide sprays to reduce mosquitoes	205(82)	45(18)
Use screen windows to reduce mosquitoes	196(78.4)	54(21.6)
Eliminate standing water around the house to reduce mosquitoes	183 (73.2)	67 (26.8)
Cut down extra bushes in the yard to reduce mosquitoes	195(78)	65(26)
Cleaning of garbage/ trash	210(84)	40(16)
Disposing water holding containers (Tyres, bottles etc)	193(77.2)	57(22.8)
Use mosquito repellent equipment (electric/ coil)	212(84.8)	28(11.2)

Use mosquito repellent cream	156(62.4)	94(37.6)
Use mosquito repellent oil	47(18.8)	203(81.2)
Use smoke to drive away Mosquitoes	194(77.6)	56(22.4)
Use fan to drive away mosquitoes	206(82.4)	44(17.6)
Covering body with clothes	202(80.8)	48(19.2)
Cover water containers at home	186(74.4)	64(25.6)

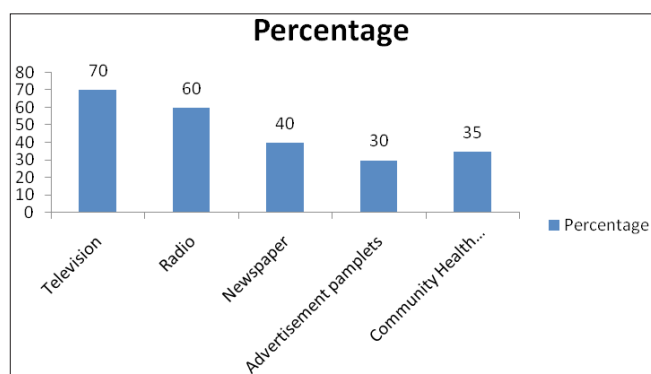
## Discussion

The findings of our study suggest that there are relatively average knowledge, attitudes and practices regarding DF and its control among residents.

Fever as an important symptom of DF was identified by many studies.<sup>12,13,14</sup> Many respondents could not correctly identify typical symptoms of DF apart from fever and headache. A study done in Nepal identified similar findings.<sup>15</sup>

Although our study showed a little less knowledge among respondents about different symptoms of DF when compared to a study done by Itrat et al in a cosmopolitan city.<sup>16</sup> The reason for the difference might be attributed to the low literacy level among participants. This is an area which needs attention because it is important for the modification of health seeking behaviour by early identification of severe cases and their prompt and timely management.

62.4% of the residents on enquiry of biting time of Mosquitoes said that mosquitoes bite during both day and night only 12.4 % were of the opinion that mosquitoes bite during day time (Figure 1).



**Figure 2. Sources of Information of DF**

Most respondents in our study reported that television and radio had been their predominant sources of information on DF followed by newspapers and health professionals. Similar findings were reported from Jamaica, Laos and the Philippines.<sup>17,18,19</sup> In the present study only less than one third of the participants had received information about DF from health professionals. This indicates that

health professionals in this area should be more adequately mobilized for awareness raising programmes and thus Information, Education and Communication (IEC) materials need to be developed and distributed so that health workers can maximize the benefits of health facility visits by also communicating correct information about DF and its prevention (Figure 2).

Majority of the participants in our study may be classified as having good attitude. However this result might also be partially influenced by Bihari culture of trying to please the enumerators, who are regarded as great doctors, by agreeing or strongly agreeing to interview questions. 2/5<sup>th</sup> of the participants agreed that it is Governments responsibility to control mosquitoes. While the Government can erect an initial framework to eradicate the disease, capacity building measures of the community. Initiatives for self help can go a long way in dengue control as suggested by Swaddiwudhipong W et al.<sup>20</sup>

Overall in our study, the reported use of preventive measures was found to be higher than the knowledge. A study done in Thailand also found similar results.<sup>21</sup> One of the reasons for higher practice levels attained in this study may be that many questions on practice level were related to daily practices for the control of other common mosquito borne diseases in this area like malaria and mosquito nuisance in general.

We conclude that there is a low level of good or sufficient knowledge on DF in our sample population. Despite this low level of knowledge, the practice level was fair and attitude level was good. Therefore, there is an urgent need for awareness programmes to raise the knowledge of people of this area regarding DF. These can be achieved through the development of IEC/ BCC activities on DF and more use of social as well as other source of media to spread messages regarding symptoms of DF and its control. Most importantly, it should be included in school and university curricula to raise awareness among students and use them as multipliers.

The results of our study must be interpreted with caution because the study was cross sectional, I and did not account for the dynamics of relationships between the factors analysed. It is possible that some respondents might have



provided socially desirable responses to some questions, especially in the attitude domain, since the survey was conducted by an interviewer base use of a semi structured questionnaire. Our sample might not be a representative for the whole community. However, this study provides crucial baseline information on the overall KAP of people regarding DF.

**Conflict of Interest:** None

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