

## Original Research Article

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# Knowledge, attitude and practices regarding prevention of dengue in an urban area of Central India

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## ABSTRACT

**Background:** Dengue is vector borne disease transmitted by *Aedes* mosquito. Basic vector biology and its knowledge regarding prevention among people are important for the control of dengue outbreak.

**Methods:** 400 houses were selected from dengue outbreak area. Each house was visited and breeding sites were searched and eliminated simultaneously. Face to face interview was conducted to assess knowledge, attitude and practices among people regarding prevention of dengue.

**Results:** 25% of the study participants were not using personal protection to prevent against mosquito bite.

**Conclusions:** Knowledge regarding dengue prevention was average among study participants although they had good attitudes and satisfactory practices.

**Keywords:** Aedes, Dengue prevention, KAP study, Personal protection

## INTRODUCTION

Dengue is one of the six vector borne diseases included in national vector borne disease control programme (NVBDCP). The goal under sustainable development goal (SDG) is to end the epidemic of neglected tropical diseases like dengue by 2030.<sup>1</sup>

Entomological survey has a very important role in the epidemiological surveillance of the dengue. We got an opportunity to conduct health education sessions while conducting this type of survey. Community participation which was one of the principles of primary health care is essential for the control of dengue outbreak. If community participation is ensured, less health services inputs will be required.<sup>2</sup> Hence, people should have adequate knowledge of basic vector biology, breeding places and prevention. This study was conducted during dengue outbreak to assess knowledge, attitude and

practices regarding prevention of dengue among peoples residing in outbreak area.

## METHODS

### *Study area*

The study was conducted in an urban area in central India.

### *Study design*

It was a cross sectional study (descriptive).

### *Study period*

The study was conducted from June to August 2019.

### **Study participants selection criteria**

#### **Inclusion criteria**

Adults (>18 years) residing in dengue outbreak area in an urban area were included in the study.

#### **Exclusion criteria**

Those who were not residing in dengue outbreak area and age <18 years were not included in the study.

The study was conducted in 2019. The area was selected as reported by district surveillance unit (DSU) under integrated disease surveillance programme (IDSP). House to house survey was conducted. Predesigned, pre-structured, pretested proforma was used to assess knowledge, attitude and practices among peoples regarding dengue prevention. Questionnaires were devised in local language. One adult member from each house was selected who was present in the house during the study survey. Information was collected from one person from each house. Face to face interview was collected. Socio-demographic information was collected from study participants.

Actual and potential breeding sites were checked in each house area involving people from that house. Larval breeding sites present in that house. Larval morphology was shown to each house members, so that in the future they can identify it. This study was conducted as part of entomological survey. Larval samples were collected and demonstrated to the undergraduate students using microscope. Breeding sites were checked. Breeding sites were eliminated simultaneously if present in particular house. Information, education and communication (IEC) activities were conducted in each house.

Informed consent was taken from study participants. Permission was obtained from institutional ethical committee. Strict confidentiality was maintained regarding data.

#### **Sample size calculation**

Sero-prevalence of dengue in India is 48.7% from previous study.<sup>3</sup>

$$N = \frac{Z_{\alpha/2}^2 p q}{d^2} = 384,$$

Where,

p=prevalence,

q=p-1,

Z<sub>α</sub>=alpha error 5%,

d=absolute precision=5%.

Total sample size was rounded to 400. Total 400 participants were included in the study, one from each house from outbreak area.

#### **Statistical analysis**

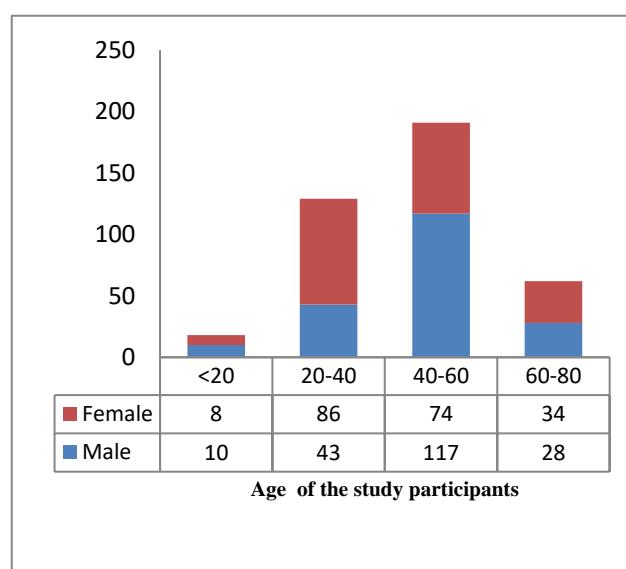
The data was analyzed using R software version 3.6.1. Mean, median and Pearson's correlation coefficient and Cronbach's alpha coefficient were calculated.

## **RESULTS**

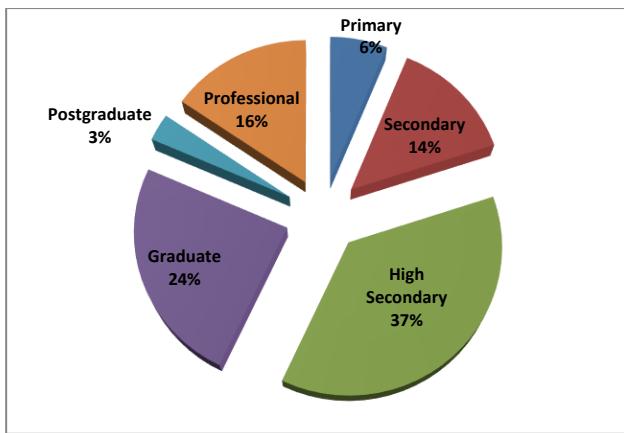
Mean age of the study participants was 46.74 years. Most of the study participants were educated up to higher secondary. Mean income was ₹9835. Mean knowledge score was 2.892. Mean attitude score was 3.754. Mean practice score was 4. Only 40% of the study participants knew symptoms of dengue. 52.5% study participants knew that dengue spread by mosquito bite. Only 1/3rd persons heard about *Aedes* mosquito. Cronbach's alpha coefficients among practices, knowledge and attitude items were 0.7474, 0.349 and 0.023, respectively. Most of the study participants have good attitude regarding prevention of dengue. About 1/4th persons were not using personal protective measures like mosquito nets and repellents.

## **DISCUSSION**

The study was conducted in urban area of Central India involving adults more than 18 years. The mean of age was 46.74 years. Most of the study participants belong to the age group 40-60 years. 202 females and 198 males were included in the study (Figure 1). 80% of the study participants were educated with minimum of higher secondary (Figure 2). Mean per capita per month income of the study participant was ₹9835.



**Figure 1: Distribution of study participants by sex and age group (n=400).**



**Figure 2: Distribution of study participants by educational status (n=400).**

The mean knowledge of the study participant was 2.892. 52% of the study participants knew that dengue is transmitted by mosquito. 3/4th of the peoples knew correctly biting time of *Aedes* mosquito. But only 40% of the people knew symptoms of dengue (Table 1). Conversely in a study conducted in Bihar, 82.5% of the general patients do not know that it is transmitted by *Aedes* mosquito.<sup>4</sup> Similarly in Nepal also knowledge score is poor.<sup>5</sup> In a study by Hairi in Malaysia, 95.5% people know about *Aedes* mosquito. Most of the peoples have good knowledge regarding environmental management of vector.<sup>6</sup> In a study from Cambodia, 96.7% peoples know about mode of dengue transmission.<sup>7</sup> 1/5th peoples do not know about various breeding places and poor knowledge regarding dengue in community noticed in a study conducted in the Delhi.<sup>8</sup>

In present study most of the peoples had good attitude. In current study, 70% of the people had thought that dengue is a preventable disease (Table 2). Similar finding was obtained in a study conducted in Cambodia.<sup>7</sup> In a study despite very low knowledge regarding dengue, their attitude (83%) and practices (37%) scores are good.<sup>5</sup> In a

study by Harapan in Indonesia, overall practices and attitude scores are less as compared to knowledge score.<sup>9</sup> Knowledge and practices scores regarding dengue prevention are poor than attitude score among people in Malaysia.<sup>10</sup>

In this study, 86% of the people had kept their surrounding clean and prevent stagnation of water. 92% of the people had kept their water cooler tank clean and dry after summer. 73% of the peoples had used repellent and had slept under mosquito net (Table 3). Peoples from urban area of Pune have more knowledge compared to rural but practice of use of repellent was more consistent among rural people.<sup>11</sup> 90% of the people from Vietnam know that it is transmitted by mosquito and 49% sleep under mosquito nets.<sup>12</sup> In a similar study, it was found that 58% peoples use repellents and 88% people do not use bed nets in Bengaluru.<sup>13</sup>

In a study conducted among factory workers in Punjab regular cleaning of water tank of coolers is not practiced by 88 %.<sup>14</sup> In our study 92% of the people were cleaning water tank regularly. In a study conducted in rural area of Central India 45% peoples use mosquito repellents like coils/liquid. In the same study more than 3/4th peoples know that it is transmitted by mosquito.<sup>15</sup> Peoples living in dengue hotspot area have poor knowledge and attitude as compared to non-hotspot area while practices are same.<sup>16</sup> In a study by Farah in Pakistan found that good knowledge about preventive measures of dengue but not transferring into practices.<sup>17</sup>

There was no significant correlation between knowledge and practice score( $r=0.18$ ). The Cronbach alpha score is 0.7474 among practices items of KAP questionnaire. Almost same score was found among practices items in a study conducted in Nepal.<sup>5</sup> It shows desirable internal consistency among practices regarding dengue prevention. In the same study good internal consistency was found among knowledge and attitude items but in our study it was poor.

**Table 1: Correct responses regarding knowledge about dengue prevention (n=400).**

Questions (knowledge)	Correct responses (%)
<b>Dengue spread by mosquito bite</b>	209 (52.25)
<b>Heard about <i>Aedes</i> mosquito</b>	142 (35.5)
<b>Biting time</b>	302 (75.5)
<b>Know about breeding places</b>	345(86.25)
<b>Knows symptoms</b>	160 (40)

**Table 2: Responses regarding attitude about dengue prevention (N=400).**

Questions (attitude)	Strongly disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly agree (%)
<b>Dengue is transmitted by <i>Aedes</i> mosquito.</b>	0 (0)	12 (3)	117 (29.25)	221 (55.25)	50 (12.5)
<b>Prevention of breeding places is everyone's responsibility</b>	12 (3)	6 (1.5)	55 (13.75)	209 (52.25)	118 (29.5)
<b><i>Aedes</i> mosquito breeds in stagnant and</b>	0 (0)	43 (10.75)	92 (23)	208 (52)	57 (14.25)

Continued.

Questions (attitude)	Strongly disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly agree (%)
<b>clean water.</b>					
<b>Suspected immediately go to health facility</b>	12 (3)	0 (0)	33 (8.25)	220 (55)	135 (33.75)
<b>Dengue is preventable vector borne disease</b>	10 (2.5)	0 (0)	112 (28)	248 (62)	30 (7.5)

**Table 3: Responses regarding good practices about dengue prevention (N=400).**

Questions (practices)	Good practices (Number of yes %)
<b>Keep surrounding clean and prevent stagnation of water</b>	345 (86.25)
<b>After summer season, empty and clean water tank of desert cooler</b>	369 (92.25)
<b>Remove water from refrigerator tray regularly</b>	308 (77)
<b>Use mosquito repellents like coils/cream/liquid</b>	295 (73.75)
<b>Use mosquito net to protect from mosquito bite</b>	295 (73.75)

## CONCLUSION

People in dengue outbreak area have satisfactory practices but have poor knowledge regarding prevention of dengue.

### Recommendations

IEC activities should be conducted along with entomological survey ensuring community participation in a dengue outbreak area.

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