

## Original Research Article

# An awareness program on dengue fever among adults residing in an urban slum area, Coimbatore

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## ABSTRACT

**Background:** Dengue fever is a mosquito borne disease transmitted by the Aedes mosquito. This disease is known to be worldwide problem, affecting the tropical and sub-tropical regions. One third of the world's population is at risk of transmission of disease. So, creating awareness is an effective way of preventing Dengue Fever. The objective of the study was to create awareness on Dengue Fever among adults residing in an Urban Slum area in Coimbatore.

**Methods:** The study was conducted among 150 adults residing in an urban slum area in Coimbatore. After informed consent, pre-test questionnaire was administered to assess their awareness on Dengue Fever. Health education programme was conducted and after one month their improvement in the knowledge on dengue fever was recorded using post-test questionnaire.

**Results:** After the awareness program the improvement in knowledge on Dengue Fever among the study participants was assessed and found to have improved significantly ( $p < 0.001$ ).

**Conclusions:** Health education on Awareness of Dengue Fever among adults aged 20 to 30 years in urban slum at Coimbatore has produced an improvement in knowledge by 48 percent.

**Keywords:** Dengue fever, Health education, Knowledge

## INTRODUCTION

Dengue is a mosquito borne disease transmitted by the Aedes mosquito. It is a febrile illness affecting infants, young children and adults. Dengue is a worldwide problem, affecting the tropical and sub-tropical regions, mostly the urban and semi-urban areas. The incidence of dengue has grown dramatically around the world in recent decades.<sup>1</sup>

Not only is the number of cases increasing as the disease spreads to new areas, but explosive outbreaks are occurring. This disease presents with mild fever, which would reach higher temperature, severe headache pain

behind the eyes, muscles and joint pain and rashes. Annually, 100 million cases of dengue fever and half a million cases of DHF occur worldwide. Ninety percent of DHF subjects are children less than 15 years of age. At present, dengue is endemic in 112 countries in the world.<sup>2</sup>

South-East Asia is one of the regions with highest risk of DF/DHF, accounting for 52% of the global risk.<sup>3</sup>

India accounts for nearly one-third of all dengue cases reported globally. In the last decade, outbreaks and deaths dengue have been reported from northern states of Haryana, Punjab and Uttar Pradesh; southern states of Andhra Pradesh, Tamil Nadu and Karnataka; western

states of Gujarat and Rajasthan; and eastern state of West Bengal.<sup>4</sup>

Dengue prevention and control solely depends on effective vector control measures.<sup>1</sup> The best preventive measure is to eliminate the places where the mosquito lays eggs, primarily artificial containers that hold water.

Items that collect rainwater or to store water like plastic containers, used automobile tires should be covered or properly discarded.<sup>5</sup>

Health education is essential for the control of diseases such as dengue, ensuring that community members understand the mechanisms of infection and the key behaviors or activities that need to be addressed to prevent transmission, reduce severe disease and avoid fatalities.<sup>6</sup>

### Rationale

One third of the world's population is at risk of transmission of disease and the occurrence of dengue in India is also high.

There is no available vaccine against the virus. In addition to this the anti-viral medications are also not available. So, creating awareness on Dengue Fever is the only effective way of preventing Dengue Fever.

### Objectives

#### Primary objectives

To create awareness on Dengue Fever among adults.

#### Secondary objectives

- To assess the level of awareness on Dengue Fever and its preventive measures among the study population,
- To conduct a health educational program on Dengue Fever,
- To find out the effectiveness of the educational program.

### METHODS

- Study design: Interventional study,
- Type of data: Primary data,
- Study population: Adult aged 20 to 30 years,
- Study locale: Urban slum area (Sowripalayam), Coimbatore,
- Sample size: 150 adults,
- Sampling method: Convenience sampling,
- Duration of study: October 2012 to January 2013,
- Ethical consideration: Informed consent, IHEC approval,
- Study materials: Questionnaire, Flip charts,

- Data analysis: proportions, paired t test.

### RESULTS

**Table 1: Awareness on mode of transmission of dengue among the study participants, n=150.**

Mode of transmission	Pre-test (%)	Post-test (%)
Mosquito bite	36	94
Water	20	12
Food	8	0
Do not know	36	2

Only 36% of the participants were aware that dengue fever is spread by mosquito bite and the awareness improved to 94% after health education.

**Table 2: Awareness on breeding places of mosquito, n=150.**

Breeding places	Pre-test (%)	Post-test (%)
Artificial stagnant water	22	92
Drainage systems	8	14
Garbage pits	4	0
Do not know	76	6

After the health education programme, most (92%) of the participants were aware that artificial stagnant water is the breeding place of the mosquitoes.

**Table 3: Symptoms of dengue fever, n=150.**

Symptoms	Pre-test (%)	Post-test (%)
Fever	36	52
Headache	12	18
Pain behind the eyes	0	6
Muscle/bone pain	2	12
Rash	0	8
Petechiae	0	2
Do not know	62	18

There was improvement in the awareness on the symptoms of Dengue fever after the health education programme.

**Table 4: Awareness on complications of dengue fever, n=150.**

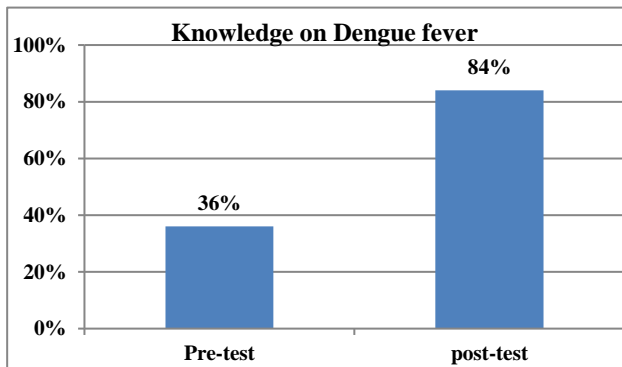
Complications	Pre-test (%)	Post-test (%)
Shock	0	38
Hemorrhage	14	22
Thrombocytopenia	0	8
Do not know	76	34

The awareness on complications of dengue fever among the study subjects improved from 24% to 66 % after the health education.

**Table 5: Knowledge on preventive measures, n=150.**

Preventive measures	Pre-test (%)	Post-test (%)
Remove artificial stagnant water	10	44
Window screens	14	28
Mosquito repellants	6	32
Do not know	82	14

Most (82%) of the participants did not know the preventive measures against dengue fever and after the intervention the ignorance reduced to 14%. So, it is inferred that only 18 per cent of study subjects are aware or having knowledge on preventive measures against dengue fever during the pre-test but later around 86 per cent of the study subjects learned about the preventive measures.



**Figure 1: Improvement in knowledge of the participants on dengue fever, n=150.**

There was 48% improvement in knowledge on Dengue fever after the health education programme.

**Table 6: The impact of health education on dengue fever among the study subjects.**

	Mean score
Pre-test	3.46
Post-test	8.26

After the health education programme there is significant improvement in knowledge on Dengue fever among the study participants ( $p < 0.001$ ).

**DISCUSSION**

In this study, only 36% of the participants were aware that dengue fever is spread by mosquito bite and the awareness improved to 94% after health education. In the study done in South Delhi 55% knew that it spreads through mosquito bite, another 27% said that ‘dirty drinking water’ was the mode of spread.<sup>7</sup>

The vector of dengue / dengue hemorrhagic fever is *Aedes aegypti*, a small, black mosquito with white stripes.

It is a day biter and mainly feeds on human beings in domestic and peridomestic situations.<sup>8</sup> The reservoir of infection is both man and mosquito. The transmission cycle is “man-mosquito-man”. *Aedes aegypti* is the main vector. The mosquito becomes infected after the extrinsic incubation period of 8 to 10 days.<sup>9</sup>

In the study conducted on knowledge and practices related to control of dengue fever stated that, 96.3% of the individuals interviewed had heard about dengue. The important sources of information were television (54.9%) and newspaper/magazines (51.7%). Nearly 86% participants were aware of the spread of dengue by mosquitoes while 73% were aware of one of the correct breeding sites of *Aedes mosquito*.<sup>3</sup>

Among the study group, only 22 % were aware that artificial stagnant water is the breeding place of the *Aedes mosquitoes* and after the health education programme the awareness improved to 92%. *Aedes aegypti* mosquito breeds in any type of man made containers or storage containers having even a small quantity of water.<sup>8</sup>

In this study, the awareness on symptoms of Dengue fever improved among the study subjects. The Dengue fever presents with abrupt onset of high fever, severe frontal headache, pain behind the eyes which worsens with eye movement, muscle and joint pains, Measles-like rash over chest and upper limbs, Nausea and vomiting<sup>8</sup>.

In the current study, most (82%) of the participants did not know the preventive measures against dengue fever and after the intervention the ignorance reduced to 14%. In the study on awareness about dengue syndrome and related preventive practices, the common preventive practices prevalent in the community were mosquito repellents (59%), prevention of water stagnation around the house (29%), insecticide spraying (11%), mosquito net was used by very few (5.5%).<sup>7</sup>

The disease can be prevented by removing artificial collection of water sources, use of mosquito repellants and window screens. *Gambusia* fish could be used to reduce the larval stage of the mosquito.

Personal prophylactic measures are use of mosquito repellents creams, liquids, wearing full sleeve shirts and pants with socks and use of bed nets during day time. Biological control can be implemented by using larvivorous fishes in ornamental tanks and use of biocides. Chemical control by use of chemical larvicides like abate in big breeding containers and Aerosol space spray during day time.<sup>8</sup>

In the study conducted done on KAP regarding Dengue fever showed that, knowledge based upon preventive measures was found to be predominantly focused towards prevention of mosquito bites (78.3%) rather than eradication of mosquito population (17.3%). Use of anti-

mosquito spray was the most prevalent (48.1%) preventive measure<sup>10</sup>. In the study conducted at New Delhi, mosquito mats/liquidators were used by 61% of respondents, coils by 56% and repellent creams by 22%<sup>3</sup>. Preventing or reducing dengue virus transmission depends entirely in controlling the mosquito vectors or interruption of human–vector contact.<sup>11</sup>

By community participation we can sensitise and involve the community for detection of *Aedes* breeding places and their elimination<sup>8</sup>. WHO promotes the strategic approach - Integrated Vector Management (IVM) to control mosquito vectors. IVM is 'rational decision-making process for the optimal use of resources for vector control.' This is to improve efficacy, cost effectiveness, ecological soundness and sustainability.<sup>11</sup>

#### ***The environmental and source reduction methods include***

Detection and elimination of mosquito breeding sources, Management of roof tops, proper covering of stored water, Observation of weekly dry day.<sup>8</sup>

In the present study, before health education there was only 36% knowledge on dengue fever and has improved by 48% by the health education ( $p < 0.001$ ). The National Vector Borne Diseases Control Program recommends, to impart knowledge to common people regarding the disease and vector through various media sources like TV, Radio.<sup>8</sup> The goal of the global strategy for dengue prevention and control by WHO is to reduce the burden of dengue with a specific objective to reduce Dengue mortality by at least 50% by 2020.<sup>12</sup> To achieve this, awareness levels among people should be improved through educational intervention and globally coordinated efforts needs to be undertaken.

Dengue prevention and control is a shared responsibility. Key actions include social mobilization (community participation), vector control, case management, surveillance, outbreak response and research. Individuals, communities, private sector and government agencies need to work together to fight dengue.<sup>13</sup> Environmental management of dengue virus vectors can be successfully combined with health education and public health communication, where source reduction activities promoted by local health care workers.<sup>14</sup>

Limitations of the study was; due to time constraints health education was given only once. Since, the study subjects were less the results cannot be generalized to the whole population.

#### **CONCLUSION**

In this study, health education on Awareness of Dengue Fever among adults aged 20 to 30 years in urban slum at Peelamedu has produced an improvement in knowledge by 48%.

#### **Recommendations**

Periodic Health education should be provided to the people living in urban slums about Dengue Fever.

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