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Original Research Article

Cross sectional study on knowledge, attitude and practice regarding dengue among adult population visiting a tertiary care hospital in Puducherry, India

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ABSTRACT

Background: Dengue is one of the world's emerging and rapidly spreading pandemic disease of public health importance. High rainfall and low temperatures are associated with increased number of dengue cases.
Methods: A hospital based cross sectional study was conducted between 15th August 2013 and 15th October 2013. With a sample of 200 in a tertiary care multi-speciality hospital in Puducherry using pre-designed and pre-tested questionnaire. The study protocol was approved by ICMR and Institutional (PIMS) Ethical Committee. Participants were included in the study based on the following criteria: (1) More than 20 years of age. (2) Permanent resident of Pondicherry.
Results: Out of the 200 participants 68% were males and 32% were females. Most of them (64%) had gone to schools, while 9.5% were illiterates. Of the 200 participants, 180 (90%) knew that mosquito is the vector for Dengue. 162 (81%) of participants felt hospitalisation is necessary for dengue management. 80% of participants mentioned use of ceiling fan as a predominantly used preventive measure against mosquito bite, whereas 43% of them use mosquito coils to avoid mosquito bites. Majority of the respondents (66%) spend less than Rs.100 ($ 1.47) in a month for various mosquito preventive measures.
Conclusions: The knowledge about dengue was good, although more awareness needs to be created to identify the clinical signs of dengue. The overall attitude and practices of the participants towards dengue care, prevention and control is good.

Keywords: Attitude, Dengue, Knowledge, Practice, Vector control

INTRODUCTION

Dengue is one of the world's emerging and rapidly spreading pandemic disease of public health importance. The word dengue was derived from the "ka-dinga pepo" which means "cramp like seizure" in Swahili. Dengue virus was first isolated in Japan in the year 1943, followed by India at Calcutta (now Kolkata) in 1944 from serum samples of US soldiers.[1] Dengue fever is a viral infection caused by Dengue Virus belonging to *Flaviviridae* family.[2] Dengue virus has four serotypes, DENV-1, DENV-2, DENV- 3 and DENV-4.[3] Infection by serotype provides lifelong immunity against that particular serotype, but further infection with other serotypes leads to deadlier form of dengue infection. But each serotype is able to produce the full spectrum of

disease.[4] It is mainly transmitted by *Aedes aegypti* mosquito and also by *Aedes albopictus*.[2]

The first major epidemic of the DHF occurred after World War II in 1953-1954 in Philippines. This is followed by a quick global spread.[5] An estimated 500 000 people with severe dengue require hospitalization each year and about 2.5% of those affected dies.[6] Currently in India dengue is endemic in 23 states including Tamil Nadu and Pondicherry. The major epidemic in Pondicherry occurred during the year 2012.[7]

High rainfall and low temperatures are associated with increased number of dengue cases.[8] Since there is no specific treatment to control Dengue virus, the vectors involved in transmission are targeted through chemical vector control programs. But they provide only limited feasibility due to personnel and financial requirements, Vector resistance and problems in implementation of Programs.[9,10]

Therefore WHO and Centres for Disease Control and Prevention recommends limited reliance on Vector control and more emphasis on community education that emphasize "individual responsibility in reducing vector breeding sites.[3] This is supported by prior study which reveals that community education can be more effective in reducing dengue vector breeding sites than chemicals alone.[11]

Although various steps has been taken by Government and non-governmental institutions to increase awareness about dengue, no assessment or study has been done in Pondicherry to determine the impact of such interventions. Also dengue prevention and control is not possible without adequate community participation especially in following practices to avoid vector breeding in and around residential areas. Thus evaluation of people's knowledge, attitude, and practice is of great importance, would guide public administrators to plan, design and implement initiatives, programs, and policies for better dengue prevention. Hence, this study was conducted to assess the knowledge, attitude and practice regarding dengue among adults visiting a tertiary care hospital.

METHODS

It is a hospital based study done at Pondicherry Institute of Medical Sciences, Puducherry, a tertiary care multi-speciality hospital located in the East Coast Road which runs along the southern banks of Bay of Bengal. It is a 650-bedded hospital with average OPD of 1500. It is a cross sectional study conducted for a period of 2 months from 15th of August 2013 to 15th of October 2013.The study protocol was approved by ICMR and Institutional (PIMS) Ethical Committee.

Participants were included in the study based on the following criteria: (1) More than 20years of age. (2) Permanent resident of Pondicherry. Not more than a person was interviewed from the same family. Patients and accompanying persons fulfilling the above criteria, visiting PIMS OPD were randomly selected by convenient sampling. Informed written consent was obtained before the interview, and a total of 200 persons were interviewed. Participation in the study was voluntary and no incentives were provided.

Data analysis

Data were collected on participants' knowledge, attitudes and practices regarding dengue using an interviewer-administered pre-designed and pretested questionnaire. The questionnaire included the following domains: (1) demographic information (2) knowledge about dengue symptoms, signs, and mode of transmission; (3) attitude towards dengue and various dengue control measures; (4) preventive practices against dengue. The questionnaire was translated in participants own mother tongue (Tamil). The collected data was entered in Microsoft Excel 2007 and analysed using Software SPSS 16.0 version.

RESULTS

In our study, 200 individuals were interviewed using the pre-designed questionnaire. Of the 200 participants 68% were males and 32% were females. Majority (62.5%) of the study population belong to the age group of 21 – 40 years. Most of them (64%) had gone to schools, while 9.5% were illiterates. Majority (58.5%) of the respondents were non-skilled workers and 2% were un-employed. Most of the participants live in Pucca houses (52%) and semi pucca houses (26%).

Majority (62.5%) of the individuals get water for general purpose from Municipality water pipes. Among the study participants, 40.5% have underground drainage while 25% have open drainage system in their residential area. In our study, the frequency of scavengers visit for garbage collection as mentioned by study participants is 30.5% (daily), 27.5% (once in more than a week) whereas 23.5% said scavengers never visited.

Only 13.5% of the study participants have suffered from dengue fever ever of which majority (63%) were males. In our study, about 4% of study participants have never heard about dengue of whom 25% were illiterates. of the 200 participants, 180 (90%) knew that mosquito is the vector for dengue, and of these 180 participants, 63% are males respondents. Almost half of the participants (50%) answered fever as the presenting symptom whereas 25% don't know any of the symptoms of dengue. Television (57%) was the major source of information about dengue followed by newspaper (25.5%).

Most of the study participants (81%) felt hospital care is necessary for dengue case management. In our study, 94% study participants opined that environmental modification prevents dengue of whom 26.5% are

graduates. 66% of the participants felt that there is no need to isolate persons suffering from dengue fever. Majority of study participants (80%) feel spraying insecticidal agents at mosquito breeding sites control dengue. About the responsibility for vector control, 49% of the participants expressed that it must be a mutual responsibility between Government and individual. In our study, about 80% of participants mentioned use of ceiling fan as a predominantly used preventive measure against mosquito bite, whereas 43% of them use mosquito coils to avoid mosquito bites. Majority of the respondents (66%) spend less than 100rs a month for various mosquito preventive measures.

Table 1: Distribution of knowledge regarding dengue among the study participants (n=200).

Knowledge							
	Vector (n=200)		***Symptoms of dengue (n=192)**			***Source of information (n=192)**	
Parameters	Mosquito (%)	Don't know (%)	Specific (%)	Non-specific (%)	Don't know (%)	Audio-visual (%)	Verbal (%)
Age (years)							
21-40	118 (59)	7 (3.5)	36 (18.7)	76 (39.5)	23 (11.9)	79 (41.4)	45 (23.4)
41-60	42 (21)	4 (2)	9 (4.6)	32 (16.6)	15 (7.8)	34 (17.7)	21 (10.9)
>60	20 (10)	7 (3.5)	3 (1.5)	15 (7.8)	12 (6.2)	21 (10.9)	8 (4.1)
Gender							
Male	126 (63)	10 (5)	27 (14)	78 (40.6)	35 (18)	54 (48)	31 (16.1)
Female	54 (27)	8 (4)	21 (10.9)	45 (23.4)	15 (7.8)	37 (19.2)	20 (10.4)
Education							
Illiterate	16 (8)	4 (2)	5 (2.6)	7 (3.6)	8 (4.1)	11 (5.7)	3 (1.5)
Schooling	117 (58.5)	10 (5)	17 (8.8)	76 (39.5)	32 (16.6)	82 (42.7)	45 (23.4)
Graduates and above	49 (24.5)	4 (2)	26 (13.5)	40 (20.8)	10 (5.2)	41 (21.3)	24 (12.5)
Total	**182 (91)**	**18 (9)**	**48 (25)**	**123 (64)**	**50 (26)**	**134 (70)**	**74 (38.5)**

*Multiple responses; Audio visual = TV, radio, News-paper, Magazines, Banners; Verbal = Friends and Neighbours, Schools, Others; Specific Symptoms = Joint pain, Bleeding manifestations, Rash; Non Specific Symptoms = Headache, Nausea, vomiting, others.

Table 2: Distribution of attitude regarding dengue among the study participants (n=200).

Attitude							
	Is environmental modification a need for dengue control (n=200)		**Is hospital care necessary for treating Dengue (n=200)**		**Mosquito control is Responsibility of? (n=200)**		
Parameters	Yes (%)	No (%)	Yes (%)	No (%)	Individual (%)	Government (%)	Both (%)
Age (years)							
21-40	120 (60)	5 (2.5)	109 (54.5)	16 (8)	18 (9)	61 (30.5)	46 (23)
41-60	44 (22)	4 (2)	42 (21)	6 (3)	12 (6)	24 (12)	12 (6)
>60	24 (12)	3 (1.5)	11 (5.5)	16 (8)	4 (2)	13 (6.5)	10 (5)
Gender							
Male	128 (64)	8 (4)	116 (58)	20 (10)	23 (11.5)	75 (37.5)	38 (19)
Female	60 (30)	4 (2)	46 (23)	18 (9)	11 (5.5)	23 (11.5)	30 (15)
Education							
Illiterate	15 (7.5)	4 (2)	11 (5.5)	8 (4)	11 (5.5)	3 (1.5)	5 (2.5)
Schooling	123 (61)	5 (2.5)	108 (54)	20 (10)	18 (90	76 (38)	34 (17)
Graduates and above	50 (25)	3 (1.5)	43 (21.5)	10 (5)	5 (2.5)	19 (9.5)	29 (14.5)
Total	188 (94)	12 (6)	162 (81)	38 (19)	34 (17)	98 (49)	68 (34)

Table 3: Distribution of practice regarding dengue among the study participants (n=200).

Practice					
	Do you keep water containers covered? (n=200)		***preventive practices against mosquito (n=200)**		
Parameters	Yes (%)	No (%)	Chemicals (mats, coils, repellents) (%)	Physical measures (nets, covering with cloths) (%)	No measures taken (%)
Age (years)					
21-40	121 (60.5)	4 (2)	69 (34.5)	13 (6.5)	0 (0)
41-60	46 (23)	2 (1)	33 (16.5)	116 (58)	1 (0.5)
>60	25 (12.5)	2 (1)	22 (11)	20 (10)	2 (1)
Gender					
Male	131 (65.5)	5 (2.5)	76 (38)	102 (51)	3 (1.5)
Female	61 (30.5)	3 (1.5)	48 (24)	47 (23.5)	0 (0)
Education					
Illiterate	18 (9)	1 (0.5)	13 (6.5)	12 (6)	2 (1)
Schooling	123 (61.5)	5 (2.5)	75 (37.5)	90 (45)	1 (0.5)
Graduates and above	51 (25.5)	2 (1)	36 (18)	46 (23)	0 (0)
Total	192 (96)	8 (4)	124 (62)	149 (74.5)	3 (1.5)

*Multiple responses.

DISCUSSION

A hospital based cross-sectional study was conducted to assess the knowledge, attitude and practices about Dengue among adults. In our study, about 4% of the participants have never heard about dengue. Similar finding (3.7%) was found in a hospital based study conducted by Chinnakali et al in 2010.[12] In the current study, about 90% of study participants are aware of the vector of dengue. This finding is similar to the result of a study (83%) done by Boratne et al in coastal area of Puducherry in 2010.[13]

In our study, about half of study participants mentioned fever as the chief presenting symptom of Dengue. In a study conducted by Vector Control Research Centre, Puducherry in 2013, it was found out that 59% of participants mentioned fever as the most common presenting symptom of Dengue.[7] In our study, 64.5% study participants mentioned TV and/or Radio as source of information about Dengue whereas 34.5% mentioned Newspaper and/or Banners as a source of information. In a hospital based study done in 2003 by Matta et al, it was found that 57.2% participants came to know about Dengue through TV and/or radio and 24.2% come to know through newspaper and banners.[14] In our study, 81% of study population considered Dengue as a serious illness and felt need of hospitalisation is necessary for adequate cure. In another hospital based study done in a rural area in Maharashtra by Amar Taksande, it was found that 94% of study participants felt the need for hospitalisation for Dengue treatment.[2] This difference may be due to the non-availability of adequate health care facilities where day care services are provided.

In our study, about 49% of participants felt government is solely responsible for dengue preventive measures whereas 34% felt it is a mutual responsibility between government and individual. However, in the study done by Amar Taksande in Maharashtra in 2003, they found out 86.5% considered dengue control measures as prime responsibility of government alone.[2] The difference may be due to different level of literacy between the two study populations.

In our study, 96% participants keep the water containers at home covered with a lid. In a hospital based study conducted in 2012 by Begonia et al, it was found that 87.5% participants follow the practice of keeping water containers closed at home.[15] In the current study, 43% of study participants mentioned the practice of using mosquito coils as a preventive measure. In a In a similar hospital based study done by Itrat et al, about 47.5% respondents stated the use of mosquito coils/ mat as a preventive measure against mosquito.[16] In our study, about 66% of the respondents spend less than 100 Rupees a month for vector control measures. In a similar study done by Boratne et al in Puducherry in 2010, it was found out that about 62% of respondents spend less than 100 Rupees a month for vector control measures.[17]

CONCLUSION

To conclude, the knowledge about dengue was good, although more awareness needs to be created to identify the clinical signs of dengue. The overall attitude and practices of the participants towards dengue care, prevention and control is good. Thus measures to improve the community participation in Dengue

prevention, control and management has to be reinforced periodically through health education campaigns, mass media and creating awareness at individual level.

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Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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