Original Research Article

DOI: http://dx.doi.org/10.18203/2394-6040.ijcmph20181207

Awareness and practices related to dengue fever among rural high school students: a cross sectional study

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Received: 01 January 2018 Accepted: 02 February 2018

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ABSTRACT

Background: Dengue is an acute viral infection with potential fatal complications and one of the leading cause of childhood Deaths in our country. Being a major international public health concern, the main method to control or prevent its transmission is to combat vector mosquitoes for which awareness about available preventive methods can play a major role. The objective of the study was to study the awareness and practices of the school students with respect to dengue.

Methods: A cross-sectional study was conducted among 369 high school students using pretested structured questionnaire and analysis was done with open Epi and Microsoft excel.

Results: The fact that dengue is caused by mosquito bite was known to 96% students respectively. 43% students knew that female mosquito bites and spread diseases, Only 21% knew that they are caused by Aedes mosquito, 47% knew that it breeds in clean stagnant water and 49% knew that it bites during day. Only 50-60% students took personal protective measures against mosquito bites and check for breeding of mosquitoes. 95% students felt that prevention of these diseases should be taught in schools.

Conclusions: awareness among students is an important factor for preventing dengue in the community. Findings of the study will be helpful to make strategies for students to enhance knowledge on these diseases. Government should utilize methods of mass communication for educating about mosquito borne diseases.

Keywords: Knowledge attitude and practice, High school students, Dengue

INTRODUCTION

Dengue is an acute viral infection with potential fatal complications. The dengue virus belongs to the family Flaviviridae. It comprises four antigenically distinguishable serotypes (DEN-1, DEN-2, DEN-3, and DEN-4), transmitted generally through the bite of various day-feeding mosquitoes, Aedes aegypti is the principal vector responsible for dengue transmission the world over. To a lesser extent, A. albopictus, popularly known as the Asian tiger mosquito. 1,2

In humans, one serotype produces lifelong immunity against reinfection but only temporary and partial immunity against the other serotypes.3

Presently, about 40% of the world's population is at risk and there are 50-100 million cases every year. 2.5% of those affected die.4 In India, dengue is widespread and endemic in most major cities.⁵ A recent study done at the University of Oxford using a map-based approach to model how many dengue cases were occurring in various

parts of the world, estimated that India had the largest number of dengue cases, with about 33 million apparent and another 100 million asymptomatic infections occurring annually.⁶

Dengue viruses can cause a wide variety of clinical illnesses ranging from mildly symptomatic dengue fever (DF) to more dangerous clinical conditions with capillary leakage syndrome such as dengue shock syndrome (DSS) and dengue hemorrhagic fever (DHF).

Currently, no effective antiviral agents to treat dengue infection are available. The management of dengue virus infection is essentially supportive and symptomatic. Intravenous rehydration is the therapy of choice; this intervention can reduce the case fatality rate to less than 1% of severe cases. The dynamic nature of dengue demands close monitoring and repeated clinical and laboratory evaluations.⁸

With limited therapeutic strategies and the current lack of a vaccine, effective vector control methods are an essential component to reduce dengue-related mortality and morbidity. Water-holding containers, eg, plastic, metal drums, and cement tanks facilitate breeding of *A. aegypti*. Vector control methods involve environmental, chemical, and biological management approaches. Utilizing an effective integrated vector control strategy with a combination of approaches, such as social mobilization and integration of chemical and nonchemical vector control methods targeting areas of high human–vector contact, will aid in reducing dengue transmission.⁹

The National Vector Borne Disease Control Program has been initiated to control the emerging threat by vector-borne diseases in India. Despite extensive efforts in developing the effective dengue control measures, several factors pose difficulties in implementing efficient vector control measures, such as large population size, lack of awareness, lack of education, and poverty.

Children shoulder a disproportionate amount of the dengue burden and child education fosters an early appreciation of the disease. This aims to increase awareness of prevention methods and equip children with the knowledge to tackle dengue. Hence an attempt has been made here to assess the awareness level, attitudes and practices of children with respect to dengue infection.

METHODS

Study design; A cross-sectional study

Study period: June 2017 - September 2017

Study setting: All the six high schools (369 students) coming under the area covered by a primary health centre B. G. Nagara.

Selection of participants

All the high school students were selected. Informed consent to participate in this study was taken and the study was approved by the ethical committee.

Methods of measurement

Data was collected using a standardized, confidential, anonymous, self-administered pretested structured questionnaire. It inquired about personal, sociodemographic information, family history of DF and knowledge, attitude, and self-reported practice toward DF.

A pilot study was conducted on 25 students to assess the clarity of the questions and the time required to complete the questionnaire.

Data collection and processing

Data was collected by the same person after necessary introduction given to study subjects to ensure internal validity. Data forms were scrutinized for missing values, Data was appropriately coded and entered, analysed using open Epi and Microsoft excel.

Statistical methods: Percentages, proportions

RESULTS

Out of 369 students, 53.92% were boys and 46.07% were girls. The socio-demographic characteristics of study participants are shown in Table 1.

Table 1: Socio demographic profile of the study subjects.

1	Age in years	n	%
	13-15	233	63.14
	16-18	136	36.85
2	Gender		
	Female	170	46.07
	Male	199	53.92
3	Mothers education		
	Less than 10 th std	301	81.57
	10 th and above	68	18.42
4	Fathers education		
	Less than 10 th std	285	77.23
	10 th and above	84	22.76
5	Type of school		
	Government	247	66.93
	Private	122	33.06
	Total	369	

All children have some but not complete knowledge of dengue. Majority of children (96%) knew that dengue is caused by mosquito bite but only 43% of children could

correctly answer that it is the female mosquito which bites and spread the diseases (Table 2). Around 95% students believe that information about these diseases should be given in school. Almost 98% students felt that

before the seasonal occurrence of these diseases some kind of workshop/seminar should be organized in schools to create awareness about their prevention (Table 3).

Table 2: Knowledge of the respondents regarding dengue.

	Frequency (n=369)	Percentage (%)			
Knows what is dengue					
Yes	354	96			
No	15	04			
Dengue is caused by mosquito bite					
Yes	354	96			
No	15	04			
Knows that dengue can be fatal if not treated					
Yes	121	32.79			
No	248	67.20			
Type of mosquito spreading dengue					
Aedes	78	21			
Anopheles	132	36			
Culex	48	13			
Any	75	20			
Don't know	36	10			
Sex/stage of mosquito which bite					
Male	30	8			
Female	159	43			
Both	93	25			
Larva	69	19			
Don't know	18	5			
Knows the common breeding sites					
Clean storage water	174	47			
Dirty stored/stagnant water	197	40			
Mud	15	4			
Garbage	24	7			
Don't know	9	2			
Time of biting of mosquito of dengue					
Day	183	49			
Night	27	7			
Anytime	159	44			
Knowledge of symptoms (multiple responses)					
Fever	330	89			
Vomiting	138	37			
Headache	207	56			
Joint pain	326	91			
Rashes	237	64			
Bleeding	48	12			
Knows about the personal protective methods against most	juito bite				
Yes	354	95.93			
No	15	4.06			
Knowledge about Govt's programme on these disease					
Yes	279	75.60			
No	90	24.39			
Reported history of dengue infection in family members/neighbourhood/friends and relatives					
Yes	272	73.71			
103					

Table 3: The attitudes of high school students towards dengue fever (n=369)

	Agree (%)	Disagree and can't say (%)
Believing that DF is an important public health problem	300 (81.3)	69 (18.6)
Believing that DF could be prevented and controlled	365 (98.91)	4 (1.08)
That dengue can be fatal if not treated	114 (30.89)	255 (69.10)
Responsibility of DF control		
1.Government	307 (83.19)	62 (16.80)
2.People	45 (12.19)	324 (87.80)
3.Both government and people	26 (7.04)	343 (92.95)
Does school curriculum provide sufficient knowledge about the disease?	156 (43)	213 (57)
Do you think that these diseases should be taught in school?	351 (95)	18 (5)
Do you feel the need of conducting workshop/seminar about these diseases in school?	360 (98)	9 (2)

Table 4: Self reported common preventive practices against dengue.

	N	(%)
Do you or your family members regularly check for mosquito breeding sites in and around your house?		
Yes	158	43
No	211	57
Use of personal protective measures against mosquitoes (multiple responses)		
Wearing full sleeves shirt	268	73
Mosquito repellant cream	144	39
Bed nets	173	47
Insecticide spray	162	44
Electric racquet	133	36
Nothing	7	02
Action taken against mosquito breeding (multiple responses)		
Empty and dry cooler when not in use	206	56
Put kerosene oil in cooler when not in use	88	24
Don't allow water to collect in tyres, broken pots	188	51
Cover overhead tanks	217	59

Regarding personal protective measures 73% students answered that they wear full sleeves shirt, bed nets were used by 47% students. About 2% students did not use any protective measures at all (Table 4).

DISCUSSION

Most of the students were aware that dengue was caused by mosquito bite but only 43% responded correctly that female mosquito bites. This is in contrast to results of study by Taran et al in Malwa region, where 80% of students responded to this correctly. ¹⁰

Knowledge about Aedes mosquito as vector of disease was present only in 21% of students, which is similar to the results obtained by Majra et al in Karnataka. 11

In the present study 7% had misconception that garbage is a breeding place. Pandit et al in their study in Gujarat reported this misconception in 19.3% of students. ¹² In the

present study 76% students had heard of government programme on vector borne diseases. A study done by Kumar et al in Karnataka reported 60% and Patel et al in Rajkot reported that 21.09% of students were aware of government programmes for control of mosquito borne diseases. ^{13,14}

In the present study, two important sources of information were newspapers (90%) and television (77%) which is similar to the results obtained by Taran et al ¹⁰. In a study in New Delhi by Chinnakali et al most important source of information was television (54.9%) and similar results were obtained by studies by Acharya et al in South Delhi, Gupta et al in East Delhi and Hari et al in Kuala Lampur. ¹⁵⁻¹⁸

In a study by Alobuia et al in Jamaiaca, 20% students believed that it is the sole responsibility of the government to prevent these diseases, this is similar to results obtained in the present study. ¹⁹

In the present study knowledge about symptoms of dengue was good which is similar to the results obtained by Dhadulk et al in their study in Jamnagar.²⁰

Practice of measures aimed to prevent mosquito breeding in the present study is higher than as reported by Chinnakali et al in Delhi, Van Benthem et al in Thailand. The present study reported that 57% students felt that school curriculum is not sufficient to provide enough information about these diseases.

CONCLUSION

Awareness among students is an important factor for preventing dengue in the community. There is a need to sensitize school teachers to spread awareness about vector borne diseases in school children. Government should utilize methods of mass communication for sensitizing about mosquito borne diseases.

Funding: No funding sources Conflict of interest: None declared

Ethical approval: The study was approved by the

Institutional Ethics Committee

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Cite this article as: Ramaiah R, Jayarama S. Awareness and practices related to dengue fever among rural high school students: a cross sectional study. Int J Community Med Public Health 2018;5:1402-6.