



RESEARCH ARTICLE

ASSESSMENT OF KNOWLEDGE, AWARENESS AND PRACTICES REGARDING DENGUE AMONG URBAN POPULATION

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ABSTRACT

Aim: To conduct a cross-sectional questionnaire survey to assess the level of knowledge, awareness and practices concerning the pathology dengue.

Background: Dengue fever is an acute febrile disease due to a viral infection and presents with severe headache, retro-orbital pain, muscular and joint pain as well as a rash. Therefore, the most important strategy in the prevention and control of dengue lies in the control of its vector, the Aedes mosquito. Due to the absence of a vaccine or a cure, the only effective measure available to prevent and control dengue is by preventing transmission of the disease by the Aedes mosquito.

Materials and Method: Study design: cross-sectional questionnaire survey. Sample size: 100.

Subjects: urban population. The survey was conducted online utilizing the website apps.surveypal.com. Questionnaire in English enlisting 15 questions that primarily focussed on the knowledge, awareness and practices regarding dengue. Data management and statistical analysis were performed using Microsoft-Excel.

Result: On analysis of result obtained under etiology, signs and symptoms, investigation and treatment and prevention. Under the category of etiology, the average mean of awareness is 74%, under signs and symptoms it is 47%, investigation is 64% and prevention and treatment is 57%. Hence, although average knowledge is present it is necessary to promote awareness of dengue to ensure control against this epidemic disease.

Conclusion: Although appreciable knowledge about dengue exists, it did not translate to adoption of preventive measures. Thereby producing need to reduce this knowledge application gap. Thus, understanding people perception and practices could help in identifying the targets areas to control outbreaks and promote awareness.

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INTRODUCTION

The serotypes of dengue virus (DEN-1, DEN-2, Den-3, DEN-4) belonging to the family Flaviviridae are responsible for the cause of the mosquito borne disease dengue (Sharma *et al.*, 2016; Gupta *et al.*, 2012). Due to the issues of morbidity and mortality rates associated with it, It has emerged as a notable public health problem in recent decades (World Health Organization, 1997). According to the World Health Organization (WHO), incidence of dengue it has increased 30 times in the past 50 years. It has been estimated that globally there were 50- 100 million dengue infections taking place every year (The Hindu, 2013). Therefore, it is possible for one to be infected with dengue fever several times during one's lifetime. There are two main forms of dengue disease, dengue fever and the more severe dengue hemorrhagic fever (DHF).

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Infection by any one of the causative agents of dengue will result in asymptomatic infections, mild flu-like symptoms, and the more severe hemorrhagic fever (Pai *et al.*, 2005). In severe cases, patients may experience sudden hypothermia and finally circulatory shock suddenly deteriorate, develop hypothermia and go into circulatory shock, a condition known as dengue shock syndrome (WHO, 2009). This syndrome has a mortality rate of 40-50% if left untreated (Monath, 1994). Dengue is endemic in many parts of India and epidemics are frequently reported from various parts of India (WHO, 2009; Monath, 1994; Fakeeh *et al.*, 2003) and abroad (Kyle and Harris, 2008; Special programme for research, 2009). India emerges in the analysis as the country with the world's highest dengue affected area with a percentage of 34% (Kyle and Harris, 2008). Since the Second World War, dengue has become a global problem and is endemic in more than 110 countries (Kyle and Harris, 2008). The first case of dengue fever in India was reported from Vellore and dengue hemorrhagic fever from Kolkata. The disease is endemic in more than 100 tropical

and sub-tropical countries and 2.5 billion people live in these countries and hence it is a major concern (Special programme for research, 2009). Incidence of dengue has been due to the increased civilisation, urbanisation etc, which has resulted in increase in the mosquito population caused by the global warming (Gubler and Clark, 1995). The rapid increase in human population, lack of awareness among people, environmental changes, social changes and increased breeding of vector mosquitoes resulted in increased dengue transmission (Radha Krishnan, 2000). Water storage drums, cisterns, flower vases, cement tanks, plastic and metal drums, tyres, bottles, tin cans, coconut shells and other such discarded containers which can hold rainwater, overhead tanks, ground water storage tank, etc. are the source of breeding of Aedes mosquitoes (Vu *et al.*, 1998). Since there is no vaccine, vector control is the ideal way to control dengue. Vector control methods can be successful, only if there is community participation. Knowledge, awareness and practice studies serve as an educational diagnosis of a population condition (Malhotra *et al.*, 2014). As there is no vaccine to protect us against dengue, therefore importance is placed on control and preventive measures. Hence, this study was conducted to assess the knowledge, awareness and practices regarding dengue fever among urban population in Chennai are of great importance to improve integrated control measures.

MATERIALS AND METHODS

Study setting: The Saveetha University, an urban medical university located in Chennai, India.

Study design: A descriptive cross-sectional study was conducted concerning Knowledge, Attitudes, and Practices of Dengue prevention among the people in Chennai.

Sample size: Response from 100 subjects was collected.

Data collection: After enrolment in the study, every respondent was interviewed with a pre-designed questionnaire. Informed consent (verbal or written) was taken from all the respondents and confidentiality was ensured throughout the study. A questionnaire was prepared in English that enlisted 15 questions that primarily focussed on the knowledge, awareness and practices regarding dengue. The sample of 100 students was a randomly selected group of individuals. They were selected after applying a multi-stage random sampling method for selection. They were previously asked questions before the actual questions in the questionnaire in order to avoid bias in our study. The survey had utilised the Survey planet website app. Through the app the survey had been taken, the collected data were organised and analysed. The 100 participants were then required to answer all the questions. The questionnaires were then reviewed, analysed and evaluated.

Statistical analysis: Descriptive statistics for the collected data were recorded and results were shown in percentages. Data management and statistical analysis were performed using Statistical Package for Social Sciences (SPSS version 18.3; SPSS Inc., Chicago, IL, USA).

RESULTS

On analysis of result obtained under etiology, signs and symptoms, investigation and treatment and prevention. Under the category of etiology, the average mean of awareness is

74%, under signs and symptoms it is 47%, investigation is 64% and prevention and treatment is 57%. Hence, although average knowledge is present it is necessary to promote awareness of dengue to ensure control against this epidemic disease. The above table 1 contains the complete information obtained from the data collected compressed to form a table. From the data collected, under the category of knowledge less than 50% of the population has knowledge about the investigation, prevention and distribution. Only 52% of the populations know that the second exposure develops the fatal dengue hemorrhagic fever and about 25.9% of the population think that neem is an important constituent of repellent cream. Under the category of awareness, only 40% of the population is aware of the period of origin of symptoms (fig 2.) and only 56% of the population is aware of the measures to treat dehydration. Under the category of practice, about 44% of the population wrongly administers aspirin to treat the dengue fever. The preventive measures are however followed predominantly by the study population

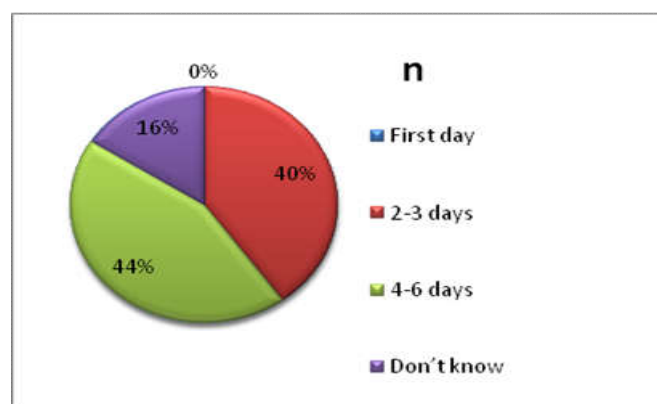


Figure 1. Period of occurrence of symptoms

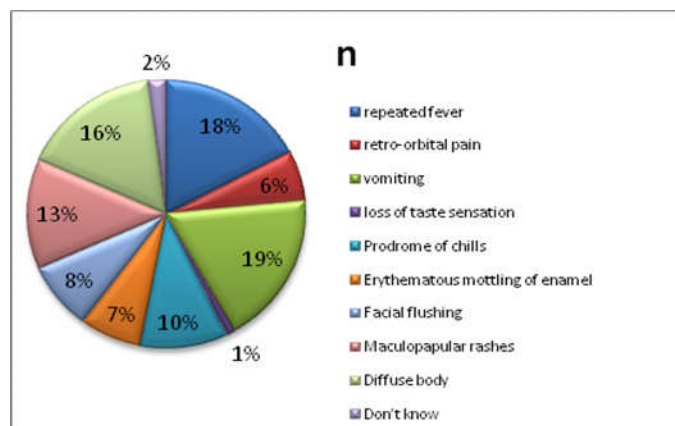


Figure 2. Symptoms of dengue

DISCUSSION

Today, dengue ranks as the most important mosquito-borne viral disease in the world. In the last 50 years, incidence has increased 30-fold (Itrat *et al.*, 2008). The study done by Hairi *et al.*, 2003 found that 78 % subjects knew about dengue. However in our study 100 % of the population was aware of the disease dengue. The possible reasons for better awareness could be repeated exposure to health education messages on dengue and other mosquito-borne diseases. The common symptoms of DF are high fever, severe headache, severe pain behind the eyes, joint pain, muscle and bone pain, rash, and mild bleeding.

Table 1. Knowledge, practice and awareness of dengue

	ETIOLOGY	SIGNS AND SYMPTOMS	INVESTIGATION	PREVENTION AND TREATMENT
KNOWLEDGE	Most susceptible to dengue <hr/> Urban 32% <hr/> Rural 44% <hr/> tourists 8%	Symptoms of dengue Repeated fever 15.9% <hr/> Prodrome of chills 9.3% <hr/> Facial flushing 7.5% <hr/> Retro-orbital pain 5.6% <hr/> Diffused body pain 15%	Second exposure develops dengue hemorrhagic fever <hr/> Yes 40% <hr/> No 52%	CDC approved ingredients [repellent creams] <hr/> Picardian 13.8% <hr/> Oil of lemon 20.7% <hr/> Eucalyptus 20.7% <hr/> Neem 25.9% <hr/> Aloe Vera 13.8%
AWARENESS	Second exposure develops dengue hemorrhagic fever <hr/> Yes 40% <hr/> no 52%	Origin of symptoms <hr/> First day 0% <hr/> 2-3 days 40% <hr/> 4-6 days 44%	Abnormalities in blood tests <hr/> Leucopenia 24% <hr/> Thrombocytopenia 36% <hr/> Hyponatremia 12% <hr/> Elevated amino S.T 12% <hr/> Elevated aspartate S.T 16%	Aware of measure taken to treat dehydration [fever, vomiting]. <hr/> Yes 56% <hr/> no 28%
PRACTISE	Measures to prevent/control mosquito breeding <hr/> Stagnant water 37.5% <hr/> Overgrown bushes 20.8% <hr/> Chemicals 14.6% <hr/> Water containers 27.1%	Administer aspirin, non-steroidal anti-inflammatory drug <hr/> yes 44% <hr/> no 40%	-	Home remedy treatment <hr/> Sponging (cold) 32% <hr/> Garlic (hot water) 16% <hr/> Ginger tea 16% <hr/> Paracetamol 16% <hr/> Nilavembu 32% <hr/> kashayam

Degallier *et al.*, 2005 and Acharya *et al.*, 2005 reported the adequate knowledge on dengue symptoms. Our respondents showed considerably good knowledge about the symptoms with fever (15.9%) being correctly accounted as the most common symptom. Most respondents were aware of measures to protect themselves against contact with mosquitoes through window screening, mosquito coil / mats, use of bed nets, covering standing water and removal of standing water. Previous studies have reported these methods to be most effective means of prevention. Measures aimed at preventing water stagnation (37.5%), which serves as local breeding sites were the least popular techniques which respondents knew. Cleaning house was also a popular method of vector control than window & door Screen. Similarly according to Matta *et al.* 2006 found that, 79.8% respondents knew about breeding places of mosquitoes. A study done by Pérez-Guerra *et al.*, 2005 regarding attitudes towards dengue prevention revealed that participants insisted that "neighbors" needed to control larval habitats, and the Government had the responsibility to fumigate. Our findings run contrary to findings in his study, as more than 90% of the population were positive towards the adoption of active preventive measures. Degallier *et al.* 2000 and Benthem *et al.* 2008 found that rash or bleeding is a specific symptom of dengue infection indicating to distinguish dengue infection from other diseases. In our study about 16.8% of the population (fig 3.) only were aware of the Prodrome of chills, the distinguishing feature of dengue. Surprisingly, about majority of respondents had wrong knowledge that dengue mosquito breeds in unclean water. Matta *et al.* 2006 found that, 79.8% respondents knew about breeding places of mosquitoes. Most respondents were aware of measures to protect themselves against contact with mosquitoes through window screening, Mosquito mat/coil/liquid vaporizer/ repellent cream, use of bed nets, using fans, use of smoke to drive away the mosquitoes.

Itrat *et al.* 2008 and Hairi *et al.* 2003 had reported these methods to be most effective means of preventions. Hence this proves the positive application of the people's knowledge towards development and cure. However, there was no utilization of insecticide sprays and professional pest control as ways to reduce mosquito and prevent dengue. These strategies may be considered as costly considering that most of the respondents have limited financial capabilities in slum and rural areas of the city. This suggests that government educational campaigns should give more emphasis on cost effective ways of preventing dengue such as environmental measures and control. Hence the above determined values prove the alarming necessity to increase the awareness of symptoms, because the absence the knowledge of symptoms prevents the person affected from identifying the disease to be dengue. Prevention of identification could result in adverse measures of treatment which might further aggravate the pathology. Although the knowledge about the treatment procedures is reasonably high, the absence of knowledge prevents them from identifying the disease. Based on our findings, it is recommended that future campaigns should involve more aggressive health education through active involvement of health workers and community representatives. Mass media can also be used as a tool for community awareness. Health education programs should not only focus on providing knowledge and creating awareness but also ensure that this knowledge gets translated into practice. This study provides important baseline information. It can also help in identifying areas that can be targeted in future campaigns. The knowledge obtained from this study may thus be used to monitor the effectiveness and progress of dengue prevention campaigns by the Government officials for effective implementation of programs. Moreover provides evidence for allocation of resources for preventing dengue in the urban and rural areas.

Conclusion

The knowledge and awareness is adequately high among the urban study population. However, the knowledge of symptoms particularly is inadequately low. Thus it increases the alarming need to educate people on this subject so that when encountered, dengue can be completely cured and a second exposure can be successfully prevented and abolished. Thus, government can maximize the potential use of these educational and health institutions by providing adequate support like information, education and communication (IECs) materials and other visual aids that may effectively communicate the necessary details of dengue.

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