Original Research

Community knowledge, awareness and preventive practices regarding dengue fever in Puducherry – South India

S. Jeelani[*], S. Sabesan, S. Subramanian

Vector Control Research Centre, Indian Council of Medical Research (ICMR), Indira Nagar, Gorimedu, Puducherry 605006, India

ARTICLE INFO

ABSTRACT

Objectives: To ascertain the knowledge, attitudes and practices of adult population in Puducherry, India, regarding Dengue Fever (DF).

Study design: A cross-sectional survey was carried out to assess the Knowledge, Awareness and Preventive practices (KAP) among a selected community in Puducherry on DF, following a major dengue outbreak in 2012.

Methods: Between October 2012 & February 2013, an epidemiological survey was conducted among 400 households (HHs) from the most affected areas during dengue outbreak, which came under eight health delivery jurisdictions i.e. Primary Health Centres (PHCs) in Puducherry. Knowledge of dengue and the use of preventive measures were assessed by means of a pre-tested structured questionnaire. Logistic regression analysis was done to examine the association between different levels of education and income status with the knowledge of DF. The DF knowledge map was created based on the results achieved through the questionnaire using Arc GIS 10.2 software.

Results: Although about 86% of the participants had heard of dengue, although there was no adequate knowledge on dengue vector breeding habitat as 68% of the respondents thought drains & garbage as breeding places of dengue vectors. Only 25% of participants were aware of clean water as a breeding habitat. Insufficient knowledge of disease symptoms was found, with fever (59%) being the most common symptom.

Conclusions: There is a lack of in-depth knowledge on dengue epidemiology in the Puducherry community and observation revealed that more needs to be done by the Government as well as community members to prevent vector mosquito breeding.

* *Corresponding author.* Division of Vector Ecology and Surveillance, Vector Control Research Centre (ICMR), Indira nagar, Gorimedu, Puducherry 605006, India. Tel.: +91 7358807101; fax: +91 4132272041.
E-mail address: suhailjeelani@gmail.com (S. Jeelani).

Introduction

Dengue is one of the most dreadful arboviral diseases of humans with over half of the world's population living in areas of risk. An estimated 3.5 billion people, or half the world's population, are at risk for dengue virus (DENV) infection in tropical and subtropical countries.[1] Sporadic outbreaks of Dengue fever (DF) have been reported in India for over two centuries[2,3] but the earliest virologically confirmed outbreak occurred in 1956 in Vellore, Tamil Nadu.[4] The first major outbreak of dengue began in 1963 in Calcutta, West Bengal, from where it spread to other states, eventually affecting most parts of the country.[5] The frequency, magnitude and geographical distribution of epidemic dengue and potential occurrence of life-threatening dengue hemorrhagic fever (DHF) have increased dramatically in the past 40 years as the viruses and the mosquito vectors have both expanded geographically in the tropical regions of the world.[6] The factors responsible for this increase and expansion are societal changes such as population growth, urbanization, changing habitats and behaviour, and lack of effective vector control.[7—9] High human population density and inadequate water supply (water storage practice) are regarded as major contributors to dengue epidemics.[10,11]

The vector mosquitoes transmitting the DENV are *Aedes* species mainly *Aedes aegypti* & *Ae. albopictus*. The infection, earlier restricted to urban/semi-urban areas, can now be seen in rural areas as well.[12] Over the last decade, the geographical distribution of DF has included new countries and more rural areas, making it the most rapidly expanding arboviral disease in the world.[13] Despite mass communication and educational approaches, community participation is far below expectation. Community participation in turn depends on peoples' awareness, knowledge and attitude towards the disease.[14] Several socio-economic studies in different countries indicate variations in knowledge and practice-related to mosquito-borne diseases.[15,16] Puducherry experienced its first major outbreak in 2003 with 60 confirmed cases of infection from the district in 10 urban and 9 rural Primary Health Centres (PHCs).[17] A four-fold increase of dengue cases had been observed in 2011 ($n = 230$ cases). For the year 2012, a six-fold increase had been recorded with a total of 1391 dengue cases. The increasing incidence of DF and the lack of relevant studies on the knowledge, awareness and practice (KAP) of the Puducherry community regarding DF transmission and prevention prompted us to conduct the present study.

Methods

Study area

The study was conducted in Union territory of Puducherry, geographically located at 162 km south of Chennai, surrounded by the Bay of Bengal on the east, and on the other sides by the Cuddalore and Villipuram districts of Tamil Nadu (Fig. 1). Puducherry experiences hot and humid climate with temperature normally varying between 26° and 38 °C.

Sampling design

Areas from where the maximum number of dengue cases have been reported (under 8 PHCs) in the previous year were selected for the study. Knowledge of dengue fever was assessed using questions aimed at ascertaining the community's understanding of the disease epidemiology (symptoms, transmission, etiology and vector) and standard preventive strategies (mosquito nets, mats, water storage). In a population of 165,252, assuming 50% prevalence of good knowledge, with an error margin of 5% at a 95% level of confidence, the minimum number of respondents required to fulfil the objectives of this study was 383. The samples were distributed in proportion to the population in the dengue affected villages.

Field based data collection

A household survey was carried out between October 2012 and February 2013 using a structured questionnaire, translated into local language i.e. Tamil. Head of the family or any adult family member above 18 years of age available at home during the survey was interviewed following informed consent. The questionnaire was divided into three sections. The first section covered the sociodemographic information about the respondents. The second section was about knowledge regarding the symptoms, spread of dengue and preventive practices in use against mosquitoes. The section third consisted of checklists that indicate data on water storage and waste disposal practices within the household, including vector indices.

Ethical clearance

The protocol of this study was approved by the Institutional Human Ethics Committee (IHEC) of Vector Control Research Centre (VCRC) on 14th February, 2012. The objectives of the study were explained to the local community including community leaders and health professionals. Sufficient time was given to ask questions and it was emphasized that participation in the survey was voluntary and they could quit any time during the interview. Those who wished to participate were required to sign a consent form prepared in accordance with the guidelines of IHEC prior to the use of questionnaires.

Data analysis

The data collected from the survey were accessed into an Excel database and later analysed using IBM SPSS version 20. Logistic regression analysis was done to examine the association between different levels of education, and income status with the knowledge of DF. Microsoft Excel version 2013 was used to draw graphs and charts wherever appropriate.

Additionally, each question was assigned with a score (ranging from 0 to 4) depending upon the type of question, and the score achieved by a respondent was described as knowledge score of that particular respondent. The total knowledge score was determined by taking the average of score achieved by all the respondents in a particular area. Location of the areas surveyed was recorded using hand-held global