



RESEARCH ARTICLE

PREVENTION METHODS OF DENGUE FEVER FOR THE PEOPLE OF SLUMS IN CHENNAI

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ABSTRACT

Dengue fever is an infectious mosquito borne disease caused by dengue virus. Its symptoms include fever, head ache, muscle and joint pains and rash resembling measles. Even though there are 3000 types of mosquitoes, only 80 types of mosquitoes bite us. It takes five days for a mosquito to develop from an egg into an adult. Adult mosquitoes mate within the first few days after emerging. They use a serrated proboscis to pierce the skin and suck blood. Mosquitoes have been considered as the world's deadliest animal by many countries. Major causes, leading to dengue fever in the study area were illustrated high rates of poverty, illiteracy and bad health status and low earning. Since they do not have any formal education facilities, they are engaged in informal sectors, which are more harmful to them. Though accident is a common factor in these sectors, they are more vulnerable to all types of communicable diseases and malnutrition which causes poor immune to the body system.

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INTRODUCTION

Dengue is one of the major public health problems, which can be controlled with active participation of the community. It is emerging as a major public health problem in India. It is one of the major public health threats in sub-standard settlement. Dengue fever is an infectious mosquito borne disease caused by dengue virus. Its symptoms include fever, head ache, muscle and joint pains and rash resembling measles. The presence of muscle and joint pains gives an alternative name to dengue fever as 'break bone' fever. Classical dengue fever cases sometimes develop to more severe life threatening stage of dengue hemorrhagic fever or dengue hemorrhagic fever with shock. The disease is transmitted by the bite of certain species of female mosquito. Subsequent to the cities in the developing world growing, slums become more densely packed, exposing residents to unsanitary conditions and increasing the risk of contracting infectious disease. Endemic diseases such as dengue fever, swine flu, malaria, and tuberculosis spread quickly, overwhelming limited health services and infrastructure, with health care facilities remote or nonexistent, medication unavailable or unaffordable, health knowledge shaky, and care givers in short supply of medicine. The Union Ministry of Health has announced 1,012 persons who were affected by dengue fever in Tamil Nadu during the last two months (January and February) 2017 and forty five of them have died.

At the all India level, Tamil Nadu ranks the highest in persons affected by dengue fever. Dengue fever spread rapidly in Tamil Nadu during the last year as more than 2000 persons were affected by this disease. In the year 2012 all most 12,826 people affected and 66 persons were died this disease due to scarcity of preventive medicines. Special wards equipped with mosquito nets were established in the government hospitals, an herbal medicine known as 'NilaVembuKasayam' was given to those affected by dengue fever. Dengue fever was controlled by the efficient operations carried out by the health departments.

People affected with dengue in Tamil Nadu

S.No	Year	Number of people affected	Number of deaths
1	2009	1,072	7
2	2010	2,051	8
3	2011	2,501	9
4	2012	12,826	66
5	2013	6,122	0
6	2014	2,804	3
7	2015	1,012	12
8	2016	2,531	5
9	2017	14,000	45

Source: The Hindu dated 16/03/2017.

According to the report, most of the people affected by dengue fever in the year 2012 (50,222) and 2013 (76,808). It is a fluctuating trend during the last seven years. The death rate was more in number in the year 2012. The number of affected people in the current year, 2017 is 15,172 and death rate is only 6 in the survey report.

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People affected with dengue in India

S.No	Year	Number of people affected	Number of deaths
1	2009	15,536	96
2	2010	28,292	110
3	2011	18,860	169
4	2012	50,222	242
5	2013	76,808	193
6	2014	40,425	131
7	2015	1,938	6
8	2016	2507	15
9	2017	15,172	54

Source: The Hindu dated 16/03/2017.

People affected with dengue in different States for the month of February, 2017

S.No	Name of the State	Number of people affected
1	Karnataka	136
2	Puduchery	119
3	Maharashtra	118
4	Gujarat	113
5	West Bengal	85
6	Rajasthan	39
7	Andhra	32
8	Orissa	27
9	Madhya Pradesh	19
10	Teluganna	15
11	Goa	12
12	Andaman Nicobar	6
13	Tamil Nadu	14,000
14	Uttar Pradesh	4
15	Delhi	2
16	Jharkhand	2

Source: The Hindu dated 16/03/2017

Mosquitoes are one of the oldest species living in this planet. But the problems and troubles it creates for us are innumerable. The average weight of a mosquito is 2.5 Milligrams and it has 47 teeth. Even though there are 3000 types of mosquitoes, only 80 types of mosquitoes bite us. It takes five days for a mosquito to develop from an egg into an adult. Adult mosquitoes mate within the first few days after emerging. They use a serrated proboscis to pierce the skin and suck blood. Mosquitoes have been considered as the world's deadliest animal by many countries. The male mosquito is bigger than the female mosquito. Male mosquitoes are vegetarian in nature. They survive by feeding on flower nectar and sweet juices. It is the female mosquito that bites and drinks blood. The mosquitoes bite women in larger numbers when compared to men as they are attracted to the estrogen hormone which is secreted in women. The general saying, where woman is the enemy of a woman is true in this case. In the same way Vitamin B is also the enemy of the female mosquito. Mosquitoes do not bite a person who has more vitamin B in their bodies. The mosquito repellent that we use to drive away mosquitoes has allethrin which is hazardous not only for mosquitoes but can also affect us. Allethrin may cause an asthma like allergy. Long term exposure can cause asthma attacks with shortness of breath, wheezing, cough and chest tightness. Allethrin can cause bronchitis to develop with cough, phlegm, and/or shortness of breath. This chemical may cause liver and kidney damage. If we apply coconut oil or Neem oil on our bodies, a few other insects including mosquitoes may not bite us. This study is aimed at finding out the causes leading to dengue fever and its case fatality based on the variables, people affected with dengue at slums in Chennai.

Primary Objectives of the Study

1. To study early prevention of dengue fever.

2. To promote awareness of dengue.

Specific Objectives

1. To find out causes leading to dengue fever.
2. To explain the growing significance of dengue.

Statement of the Problem

Dengue fever is a virus caused disease spread by mosquitoes. The problem with dengue fever is that there is no available vaccine. The study areas are unclean environment, stagnated water, Narrow Street, small roads, spread of garbage all over the places, in take unhygienic food, more number of persons are living in small huts, usage of contaminated water, low per capita income and poor drainage. These are the reasons found out in the study area for the causes of dengue fever. Therefore, the present study has been selected.

Aim of the study: The present study aims to assess the knowledge and practices related to control of dengue fever and the community involvement and the role of the corporation to prevent dengue fever in the slums.

MATERIALS AND METHODOLOGY

Slums in Chennai City has been selected based on convenience. Then an about half of the families living in the slum and of then 100 persons including children were affected by this disease. Following results shows the number of affected persons in the slum that based on the survey conducted from the respondents, we have got the report of 100 families in slums, and community. According to the report few of the people affected by fever are: dengue fever are 37% children, 31% women, 23% men, 1% differently abled, 3% transgender and 5% senior citizens..Thus, these results show that children in the informal settlements are frequently ill from diseases that are a result of the environment, in which they living although the mothers understand the linkages between illness and the poor environment, their poverty status may hinder them from taking appropriate and effective remedial actions.

Method of Analysis: The present study relates to the patterns of dengue fever among people of slums in Chennai. It was decided to collect the necessary information from approximately 100 respondents. For collecting the data, the respondents were contacted individually and given a brief about dengue fever. Data required for the study were collected through an interview.

Interview Schedule and Data Collection: Pretested structured interview schedule was developed. Pretesting of the interview schedule was conducted in order to improve the clarity of the questions and response options. The questionnaire consisted of questions pertaining to demographic information about slums people in Chennai. It was decided to collect the necessary information from approximately 100 respondents. For collecting the data, the respondents were contacted individually and given a brief about dengue fever. Data required for the study were collected through an interview.

Importance of the Study: Slums are uniformly characterized by inadequate provision of basic infrastructure and public services to sustain health such as water, sanitation, and

drainage. Since many of these settlements are illegal, slum dwellers often have no official addresses and are commonly denied basic rights and entitlements including right to vote, public education and health care etc. Therefore the study has been selected.

Research Design: The descriptive designs are used for this study. In this study the researcher has attempted to find out the major dengue problems and has given suggestions and recommendations for making the people aware and to improve their health status.

Need for the Study: Slums are the portals for major communicable diseases due to unhygienic conditions. The various issues are food hygiene, personal hygiene, household cleanliness, environmental hygiene, water management and disposable waste. There is no proper drinking water, health centre, drainage, and sanitation and garbage cleanliness in the slum areas. There is stagnated water during the rainy season. Therefore, the present study was needed to teach the slum dwellers and also to improve their health status. The disposal of solid waste is a challenging task in urban slums. So, the researcher has taken up the study of dengue fever in slums, Chennai city.

Problem of the Study: Problems of health and hygiene are major issues in the slum. A number of wide spread viral diseases are reported from the study area. Slums are not only a nuisance and danger to the slum dwellers but also to the rest of the population. A slum is usually understood to be an overcrowded place, squalid, clearly built, in the unhygienic housing conditions. For understandable reasons, when compared with other areas of residence, the slum is characterized by local standards of sanitation. The slum is often most neglected by the public services for sanitation. For a variety of reasons it may also be an area of high sickness and death rates. Therefore, the present study was attempted to delve deep into their problem.

DATA ANALYSIS AND DISCUSSIONS

It is very difficult to identify the causes of this disease however, it can analysis by understanding the following parameters like: source of water for daily usage, disposal of waste, knowledge of storage techniques of water and awareness on prevention and control of dengue fever. The environment and ill health is very closely related as environment plays a crucial role in our lives. The problem is that those who are living in the bad conditions do not understand the impact of it on the health. During the survey, some of the respondents could identify what was wrong with their environment and its consequences on their health and well –being. This study went further to explore in detail dengue fever of slums people, and the reasons for the possible causes. Diseases such as dengue, headache, diarrhea and vomiting, malaria, skin problems etc and common cold/coughs are related to the unhygienic living environments, lack of water and inadequate sanitation system cited by the respondents. The respondents were uneducated, lived in the unhygienic and difficult conditions worked in the informal service sector and consumed a diet low in protein. Health concerns included a variety of acute and chronic conditions both in the respondents and their families.

Table 1. Source of water for daily usage

S.No	Source of water	Number of Response	Percentage
1	Public taps	50	50
2	Water supply through tank	20	40
3	Metro water supply through lorries	28	48
4	Open well	-	-
5	Bore well	-	-
6	Hand pump	12	12
	Total	100	100

Source: Data collated from the respondents

The Table clearly shows that the majority of the people were using the public tap water for drinking, cooking, bathing, and washing clothes. It is followed by 28% water from tank and 20% from tanker Lorries.

Table 2. Disposal of waste

S.No	Methods	Number of Responses	Percentage
1	Throw away on road	18	18
2	Throw away on waste site	26	26
3	Garbage collection tri cycle	2	25
4	Dumping and throw away on garbage collection lorries	52	13
5	Dustbins	12	18
	Total	100	100

Source: Data collected from the respondents

The Table talks about disposal of waste. 18% of the response was thrown away wastage on the road. 26% of the response was thrown away wastage besides the empty land. 12% of the response was dumping the wastage in their place. Most of the response (52%) dumping and thrown away on garbage collection waste bins. 12% Of the respondents dumping dustbins and only 2% of the response were thrown away garbage collection dry cycle.

Table 3. Knowledge prevention on dengue fever

S.No.	Prevention knowledge on dengue	Number of Responses	Percentage
1	Can be prevented	24	24
2	Cannot be prevented	18	18
3	Not known	58	58
4	Total	100	100

Source: Data Collected from the respondents

The table shows that knowledge and awareness about dengue fever was generally inadequate. It is more in other places as compared to the sub standard settlement. Only 24% of the respondents have known dengue fever can be prevented and answered that mosquito was responsible for the transmission of dengue fever. They had insufficient knowledge that dengue mosquito bites at day time and breeds in clean water. 18% of the respondents answered it cannot be prevented. It is evident that 58% of the respondents were not known the syndromes of dengue fever.

Table 4. Method of dengue prevention

S.No	Methods	Number of Response	Percentage
1	Control mosquito by insecticides	15	15
2	By taking medical care	36	36
3	Keeping environment clean	32	32
4	Taking medical care & keeping environment clean	17	17
	Total	100	100

Source: Data collected from the respondents

The above table found that 15% of the respondents had known mosquito control by insecticides. 36% of the respondents had known by taking medical care. Most of the respondents 32% had known mosquitoes can be controlled by keeping environment clean. Only 17% of the respondent known that taking medical care and keeping environment clean is one of the ways of preventing dengue.

Table 5. Storage of water for Usage

S.No	Methods of storage	Number of Response	Percentage
1	Plastic pots	56	56
2	Drum	13	13
3	Plastic bucket	18	18
4	Small Cement tank	13	13
	Total	100	100

Source: Data collected from the respondents

The above table shows that 56% of the respondents store water in plastic pots. 16% of the respondents store water by drums. 18% of the respondents store water in plastic bucket and 13% of the respondents store water by small cement gallery.

Table 6. Duration of water storage

S.No	S Storage of water	Number of Response	Percentage
1	1-2 days	32	32
2	3-5 days	27	27
3	5 days	13	13
4	No Storage	28	28
	Total	100	100

Source: Data collected from the respondents

The present table records that the duration of water storage of people in slums. According to the 100 respondents only 32% of the respondents store water for days. 27% of the respondent's storage water from 3 to 5 days. 28% of the respondent's storage water 5 days and 28% of the respondents do not store water.

Major Findings and Suggestions of the Study

A total of 100 respondents were reported at slums. Majority of the cases were reported during the monsoon and post monsoon seasons, in accordance with the reported patterns of dengue transmission. Contaminated water supply is another major problem for their illness. Out of 100 respondents 28% were getting metro water from Lorries. Out of 100 responses 26% thrown away wastage on the waste site. It was a very big problem to mosquito breeding. The garbage is an eyesore in the sub-standard settlement and is a source of diseases. The accumulation of garbage is basically a consequence of lack of dumping sites in the slums and the inability of the city corporation to collect the garbage form an appropriate dumping site. Most of the response (58%) had not known the syndromes of dengue. Stagnant water leads to mosquito breeding which is responsible for malaria; diarrhea among children is a result of playing and eating dirty food; while the type of housing, cold and the bad 'air' cause pneumonia and the frequent coughs and colds. This is an important finding given empirical evidence that has often represents people as ignorant, not knowing what causes illness or believing in forces other than biomedical as being responsible for illness. Thus, living in the dirty environment is invariably responsible for dengue fever. Historically, pockets of poverty appear to have matched pockets of disease in many urban environments,

and the same trend is being reenacted in major urban centers in the developing world. The problems reported by the respondents of the slums are not simple and cannot, therefore, be resolved by the communities, the government and NGOs independently. Any interventions aimed at addressing them would require combined efforts of all, contributing to the process in order to ensure success and sustainability. Essential service packages required to deliver services are the need of the hour, because slum living is an avoidable reality for the respondents. Therefore, sincere efforts must be put in to build the slums into sustainable communities.

At present the only method of controlling or preventing dengue virus transmission is to combat the vector mosquitoes. This can be done by cleaning up the breeding sites of mosquitoes, personal prevention from mosquito bites and control of infected mosquitoes by chemical and bio logical methods.

- Every individual should take efforts to maintain disposal of waste and cleanliness.
- Health care is essential to everyone. Therefore, the Chennai Corporation should send health visitors, health team to spread awareness on dengue fever to the people.
- The Government should be providing mosquito nets to the all slum people without any delay in order to reduce dengue fever.
- The Government should take efforts to build more number of public toilets in their areas in order to reduce open defecation in slums.
- Poor maintenance of public toilets is becoming a breeding place for mosquitoes and birth of diseases. So, health intervention helps to reduce the unhygienic conditions people and the vulnerability
- They should find out the ways and means to safeguard themselves from being bitten by mosquitoes
- We should wear clothes that fully cover our bodies during evenings.
- The windows should be covered with mosquito nets, and the doors should remain closed in the evening.
- Use mosquito nets to cover your bed while sleeping.
- A bunch of Nochi leaves and Neem leaves can be kept in the house. They can be burned and the smoke that is created can drive mosquitoes away.
- A piece of camphor can be placed in a bowl and can be filled with water.
- If we want to use mosquito repellent cream on your body, first we need to apply sun's cream lotion and then the mosquito repellent can be applied on the body.
- The mosquito repellent cream should not be applied on the body of infants and small children. Instead children should wear clothes which cover the entire body, or they should sleep in a place which is covered by mosquito nets
- We should ensure that water does not stagnate in places around the house. Mosquitoes breed in places that are stagnant with water.

Recommendations

- The Government has taken up The National Environment Agency (NEA) to promote awareness on the dengue situation, inspire action to prevent dengue, and encourage advocacy through social media and word of mouth. The campaign also will be designed to help

raise residents' awareness on active cluster areas, through the Dengue Community Alert System, which displays colour coded banners (yellow, red, or green) to indicate the seriousness of the dengue situation.

- The control measures of dengue fever include source reduction activities and also the personal prophylaxis measures.
- The Health Department has intensified the awareness campaign on dengue fever and the mosquito control measures.
- Personal Prevention: Mosquito repellent to be used when outdoors during daytime. Fly wire or screening on doors and windows. Mosquito coils or vapor mats. Mosquito nets for children or elderly who sleep during the day. If none of these are effective by themselves alone, use combination.
- Though the knowledge regarding dengue is good in the general population, adoption of mosquito control was poor in Athuma Nagar. So strengthening of surveillance along with health education to the community and proper training of health personnel can go a long way in control of dengue infection.
- Old water tanks should be disposed or covered or filled with earth. Water stored in tanks should be kept out of mosquitoes. Flower pots, animals water dish and ant traps should be emptied every week.
- Regular Preventive Action-every week have a "dry day". Cleanup, drain, empty, or change all standing water in your place. Check water storage. Tank cover should be in good condition. Check no larvae swimming in water.

Conclusion

As the prevention of dengue fever lacks proper vaccine, the main preventive strategy is the awareness building in the community regarding the source reduction process by emptying the manmade containers or dispose those in a systematic or in a proper way. Many efforts need to be taken to promote the participation of the community in the action programme for eliminating vector breeding sites.

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