# Prevention and Control of Dengue Fever among Urban Population

**Erum Ghani, Suhail Ahmed Bijarani, Muhammad Ilyas Siddiqui, Gulzar Usman, Wali Muhammad Nizamani and Sindhia Javed Junejo**

## ABSTRACT

**Objective:** To assess the perceptions of urban community about Dengue Fever and its preventive & control measures among the patients visiting OPD.

**Study Design:** Descriptive cross-sectional study

**Place and Duration of Study:** This study was conducted at the public sector secondary level health care facility Shah Bhittai Hospital Latifabad Hyderabad from January, 2020 to June 2020 for a period of six months.

**Materials and Methods:** A sample size of 308 was obtained and participants were selected by using non-probability purposive sampling technique and all the patients above 18 years of age of both gender, residing at urban area of district hyderabad, having fever visiting at outpatients department of Shah bhittai Hospital Hyderabad were included after getting the informed and written consent. Ethical approval was taken from the ethical committee of LUMHS, Jamshoro. The data was collected on a pre-tested structured questionnaire. We have used SPSS version 16.0 software for both data entering and analysis.

**Results:** A Total 308, participants, who fulfilled the inclusion criteria were included in this study. Out of them majority (82.5%) of participants were female while (17.5%) were males, whereas majority of the participants belongs to the lower class (73.4%) while 24.4% were having middle class economic status. A substantial number of responded (80%) heard and considered dengue fever as a serious illness.

**Conclusion:** There is satisfactory awareness and practices towards preventive measures against dengue fever while inadequate knowledge about cause, mode of transmission of dengue fever.

**Key Words:** Dengue, vector-borne, urban population

**Citation of article:** Ghani E, Bijarani SA, Siddiqui MI, Usman G, Nizamani WM, Junejo SJ. Prevention and Control of Dengue Fever among Urban Population. Med Forum 2021;32(11): 175-178.

## INTRODUCTION

Dengue fever is a rapidly spreading vector-borne viral disease and an emerging public health problem with high morbidity and mortality worldwide and caused by the dengue virus (DENV) and transmitted to humans by the bite of infected female mosquito of specific species i.e.; Aedes aegypti and Aedes albopictus.[1] Which also acts as vector in transmitting yellow fever, zika infection and Chikungunya like serious diseases.[2]

Despite of adapting modern control measures of vector borne diseases there is dramatic increases in dengue infections, approximately 400 million cases reported yearly in which 500,000 become complicated and

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requires hospitalization while 25,000 died annually worldwide[3]. Ministry of health Pakistan declared the second high alert disease in the country. [4] In 2017 the largest outbreak of dengue fever were reported in Khyber Pakhtunkhuwa province in which a total of 24,807 dengue cases reported out of which 69 people loss their life.[5] Whereas in hyderabad, dengue outbreak took place in 2013 and 2016 in which 576 and 182 cases of dengue fever reported respectively.[6] According to WHO the number of dengue cases increased over eight fold during the last two decades, i.e. from 505,430 cases in 2000 to over 2.4 million in 2010 and in 2019 it reaches to 5.2 million cases, as well as increased in number of reported deaths from 960 in 2000 to 4032 in 2015.[7] Presently it is estimated that 50% population of the world are living in dengue epidemic area and are at risk of dengue arboviral diseases.[8-9] The presence of the enhancing factors for the spread of dengue fever such as, urbanization, population growth and lack of preventive measures pushing the country at the highest risk for the epidemic and outbreaks of the dengue fever.[10] A critical risk factor associated with the incidence of DF outbreaks is marshy land and built-up environment in urban areas in many countries like Malaysia and Thailand. [11-12] It has been observed from the available data that there is a major threat of this

viral disease throughout the country that need to be considered and preventive measures should be taken timely so lives of the peoples can be saved.[13-14].

## MATERIALS AND METHODS

A sample size of 308 was obtained and participants were selected by using Non-probability purposive sampling technique and all the patients above 18 years of age of both gender, residing at urban area of district hyderabad, having fever visiting during the study period (from January 2020 to June 2020) at outpatients department of Shah Bhittai Hospital Hyderabad were included after getting the informed and written consent. . Ethical approval was taken from the ethical committee of LUMHS, Jamshoro. The data was collected on a pre-tested structured questionnaire. We have used SPSS version 16.0 software for both data entering and analysis. Frequencies and standard deviations were calculated and categorical variable were analyzed using chi-square test. P-value of ≤0.05 was taken as statistically significant.

## RESULTS

In this study a total 308 patients were included who presented with the complaint of fever during the data collection period at OPD of Shah Bhittai Hospital, Hyderabad and fulfilled the inclusion criteria. Regarding the socio-demographic status of the respondents were as, the majority (82.5%) of participants were female while (17.5%) were males, whereas majority (73.4%) of the participants belongs to the lower class while (24.4%) belongs to middle class while very few (2.2%) were having upper middle class economic status. Majority, (35.5%) of participants having only primary level education and 23.3% of them secondary level education while 24% were uneducated. Regarding the knowledge of dengue fever majority 248 (80.5) of the participants heard about dengue fever while 45 (19.5%) didn't heard. A substantial number of participants 262 (85.1) recognized dengue fever as a serious illness whereas 28 (9.0%) participants considered it as a non-serious health illness and 18(6.0%) respond don`t know. More than half 194 (62.2%) of the participants assumed that person suffering with DF can be treated at home while 90 (30%) answered no, whereas 90(30%) didn`t know about it. Regarding the breeding place for the mosquitoes 170(55.2%) of the respondents believe that water storage places are the main breeding places as shown in table 1.

Regarding the preventive measures against the dengue fever, it was observed that 160 (51.9) respondents were in favor of using of smoke to drive away mosquitoes while 88(28.5%) were not in favor of using smoke and 60(19.6%) choose don't know option. A substantial number of participants 122(38%) don't know that by tightly covering of water containers can reduce the

mosquitoes while 107(34.7%) had knowledge and doing this practice at their homes. Other preventive measures practices use by the participants as, 265(86%) insecticide sprays, use of fans 185(60%),use of impregnated nets 191(62%), use of repellent cream 128(38.9), and mosquito mats/coils were used by 236(76.6) as a preventive measure from the mosquito bites as shown in table no: 2.

Most common signs and symptoms of dengue fever that respondents chosen fever which were 190(61.6%) while headache was 31(10%) and pain in bones and joints 49(16%).Majority of the participants had good knowledge regarding the sign & symptoms of dengue fever as, Fever 190(61.6%), pain in joints & bones 49 (15.9%) and headache 31 (10%) had been responded as the main sign & symptoms of the dengue fever respectively as shown in figure no:1.

**Table No. 1: Knowledge about Dengue Fever**

| Variable | Frequency (%) Yes | Frequency (%) No | Frequency (%) Don`t Know |
|---|---|---|---|
| Heard About Dengue fever | 248 (80.5) | 45 (14.6) | 15 (4.9) |
| Dengue fever is a serious illness | 262 (85.1) | 28 (9.1) | 18 (5.8%) |
| Dengue fever can be treated at home | 24 (7.8) | 194 (63.0) | 90 (29.2) |
| Occurrence mostly in monsoon rainy season | 162 (52.6) | 78 (25.3) | 68 (22.1) |
| Extra Bushes | 170 (55.2) | 68 (22.1) | 70 (22.7) |
| Fresh water | 172 (55.8) | 35 (11.4) | 101 (32.8) |
| Increase breeding in Humidity and Hot climate | 132 (42.9) | 144 (46.8) | 32 (10.4) |

**Table No. 2: Preventive measures against Dengue Fever**

| Variable | Frequency (%) Yes | Frequency (%) No | Frequency (%) Don`t Know |
|---|---|---|---|
| Use of smoke to drive away mosquitos | 160 | 88 | 60 |
| Covering of water containers | 107 | 84 | 122 |
| Use of insecticide spray | 265 | 43 | 0 |
| Use of fans to reduce mosquitoes | 185 | 91 | 32 |
| Use of impregnated nets | 191 | 80 | 37 |
| Use of mosquitoes repellent creams | 128 | 160 | 20 |
| Use of mosquitoes mats/coils | 236 | 64 | 8 |
| Covering of whole body with clothes | 156 | 80 | 72 |
| Cleaning of Garbage/Trash | 191 | 47 | 70 |

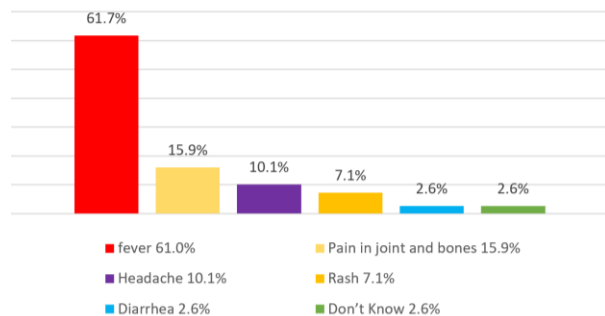| Disposal of waste at proper place | 262 | 0 | 46 |
|---|---|---|---|
| Cleanliness around the houses reduces breeding of mosquitos. | 268 | 0 | 40 |
| Elimination of stagnant water | 252 | 0 | 54 |



**Figure No.1: Signs and symptoms of dengue fever**

## DISCUSSION

Our study which was conducted in the secondary level health care facility in the urban area of the district Hyderabad, Sindh, Pakistan. A total 308 participants visiting the facility and fulfil the inclusion criteria of study and gave the consent were included to assess the basic knowledge about the dengue fever and found that a substantial number of the participants possess basic information regarding the dengue fever and consider the illness to be a grave and follows approximately affordable preventive measures and pursuing treatments these findings are inconsistent with the study conducted in Tanzania. [15] Regarding the early symptoms of DF, majority of the participants identified Fever of more than two days accompanied with headache and or joint pain as main symptoms of the DF suggesting that the basic knowledge of the participants is satisfactory. Similar results were found in studies conducted in Vietnam and in patialia india.[16-17] Many respondents could not correctly identify typical symptoms of DF apart from fever and headache. Several respondents couldn't identified other symptoms of DF, similar findings were found in a study conducted in Nepal, [18] which might be due to low literacy rates. A substantial number of the respondents (80%) had heard about the DF though the mass media which proves that use of mass media for sharing the information regarding the major public health issue and for health education purpose. In the present study, two important sources of information were television i.e. 54.1 percent. In the present study the most important source of information were television 54.1 percent similar finding were reported in a study conducted in New Delhi, India by Chinnakali et.al.[19] In our study a majority of participants (83%) were believed that to control of mosquito borne diseases is the responsibility of government which is inconsistent to a study of Jamaica by Alobuia et al.[20] [-21] Studies published also suggest that efforts to mobilize the communities are essential for the sustainability for the vector-borne diseases.[19-20-21] In our study only 3.8 percent of the respondents had received the information regarding the DG from the health care providers it could be due to overburden and lack of time in the OPDs it also indicate that there is need of mobilizing the healthcare providers for the importance of giving the health education to the patients visiting the health facilities. At present there is no specific treatment or vaccine for the DF, hence the backbone to control this vector-borne disease is adapting preventive measures at mass level such as, abolishing of breeding places, covering of water containers and use of nets, insecticide sprays and repellent creams to prevent mosquito bites.

## CONCLUSION

The study concluded that, there were satisfactory knowledge and practices towards the preventive measures, however there were gaps in causes, mode of transmission of dengue fever.

**Author's Contribution:**

| | |
|---|---|
| Concept & Design of Study: | Erum Ghani |
| Drafting: | Muhammad Ilyas Siddiqui, Sindhia Javed Junejo |
| Data Analysis: | Wali Muhammad Nizamani, Sindhia Javed Junejo |
| Revisiting Critically: | Suhail Ahmed Bijarani |
| Final Approval of version: | Gulzar Usman |

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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