

**Knowledge And Practice on Prevention and Control of Dengue Among Homemaker in Bharatpur Metropolitan, Chitwan****Sudip Adhikari,<sup>1</sup> Pradeep Choudhary,<sup>1</sup> Hari Prasad Upadhyay,<sup>2</sup> Alina Adhikari,<sup>3</sup> Kamal Kalakheti,<sup>1</sup> Prativa Sedain<sup>4</sup>**<sup>1</sup>Department of Public Health, Shree Medical and Technical College, <sup>2</sup>Department of Statistics, Birendra Multiple Campus, <sup>3</sup>Chitwan Sakriya Woman's Foundation, Bharatpur, Chitwan, Nepal, <sup>4</sup>Department of ENT, BP Koirala Memorial Cancer Hospital, Bharatpur, Chitwan, Nepal.**ABSTRACT****Background:** Dengue is a viral infection transmitted to humans through the bite of infected mosquitoes. The dengue virus (DENV) is one of the mosquito-borne viral diseases in the world today. Two main arthropod vectors are responsible for transmission of dengue viruses: *Aedes aegypti* and *Aedes albopictus*. The *Aedes aegypti* mosquito is the main vector for the spread of dengue fever.**Methods:** An analytical cross-sectional study was conducted among home makers of Bharatpur. Data was analyzed using descriptive and inferential statistical tools in SPSS-20. p-value <0.05 was considered as statistically significant.**Results:** In this study 60.0% have Fair level of knowledge 39.8% have poor level of knowledge. There was no good practice. The majority of respondents 78.6% show Good level of practice and minority 22.4% showed poor level of practice.**Conclusions:** We can conclude that majority of the respondents had fair knowledge regarding dengue. Despite of the fair knowledge level, the majority of the respondent had good practices such as use of mosquito net, covering household containers, covering water tank, invert the water holding containers.**Keywords:** Dengue; Prevention; Knowledge; Chitwan**Received:** 23<sup>th</sup> January 2023**Accepted:** 7<sup>th</sup> June 2023**Published:** 6<sup>th</sup> June 2023**INTRODUCTION**

Dengue is a viral infection transmitted to humans through the bite of infected mosquitoes.<sup>1</sup> The dengue virus (DENV) is one of the mosquito-borne viral diseases in the world today. Two main arthropod vectors are responsible for transmission of dengue viruses: *Aedes aegypti* (commonly known as yellow fever mosquito) and *Aedes albopictus* (commonly known as tiger mosquito).<sup>2</sup> The *Aedes aegypti* mosquito is the main vector for the spread of dengue fever. It can infect humans through the bite of an infected mosquito. The virus that causes dengue fever is called the dengue virus (DENV). There are four DENV serotypes and it is possible to be infected four times. *Aedes aegypti* is a daytime feeder. The peak biting periods are early in the morning and in the evening before dusk.<sup>1</sup> The virus is transmitted to humans through the bites of infected female mosquitoes, primarily the *Aedes aegypti* mosquito.<sup>3</sup> The number of dengue cases reported to WHO (World Health Organization) increased over 8 fold over the last two decades, from 505,430 cases in 2000, to over 2.4 million in 2010, and 5.2 million in 2019. Reported deaths between the year 2000 and 2015 increased from 960 to

4032, affecting mostly younger age group. The total number of cases seemingly decreased during years 2020 and 2021, as well as for reported deaths. However, the data is not yet complete and COVID-19 pandemic might have also hampered case reporting in several countries. The first dengue case was reported from Chitwan district in a foreigner. The earliest cases were detected in 2005. Since 2010, dengue epidemics have continued to affect lowland districts as well as mid-hill areas. This trend of increased magnitude has since continued with number of outbreaks reported each year in many districts- Chitwan, Jhapa, Parsa (2012-2013), Jhapa, Chitwan (2016-2016), Rupandehi, Jhapa, Mahottari(2017), Kaski (2018) and Sunsari, Kaski, Chitwan (2019).<sup>5</sup> In 2019, we experienced the outbreak at Sunsari (Dharan), Chitwan (Bharatpur) and Kaski (Pokhara) and since then the number of cases are increasing till 2020.<sup>5</sup> The number of reported dengue cases has significantly increased from 3424 in FY 2075/76 to 10808 in F/Y 2076/77. The major cause of increasing the reported case is the impact of dengue outbreak in Nepal. The majority of cases have been reported from Chitwan, Kathmandu, Ru-

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pandehi and Kaski.<sup>5</sup>

## METHODS

Descriptive cross-sectional study design was used for knowledge and practice on prevention and control of dengue among homemaker in Bharatpur Metropolitan city. District during the 22<sup>nd</sup> August to 3<sup>rd</sup> September 2021. A study conducted by Meghnath Dhimal et al. showed that 77% of the respondents had knowledge about dengue.<sup>4</sup> Sample size was determined by using the formula  $(n) = Z^2pq / \{e^2 + (Z^2pq / N)\} = (1.96)^2 * 0.77 * 0.23 / (0.06)^2 = 188$ . Adding 10% non-response rate,  $188 + 10\%$  of  $188 = 206$ . The pre-testing was done among 10% sample of similar characteristics at different place and required modification were done in data collection. Cross checking of collected data was done in order to reduce the error. And analysis was done using SPSS 20.

## RESULTS

Regarding age the majority of the respondent

**Table 1. General sociodemographic characteristics of the respondents. (n=206)**

| Variables          | Frequency (%) |
|--------------------|---------------|
| <b>Age (years)</b> |               |
| 20-34              | 59(28.60)     |
| 35-49              | 91(44.2)      |
| 50-64              | 43(20.9)      |
| >65                | 13(6.3)       |
| <b>Sex</b>         |               |
| Male               | 7(3.4)        |
| Female             | 199(96.6)     |
| <b>Religion</b>    |               |
| Hindu              | 186(90.3)     |
| Buddhists          | 18(8.7)       |
| Christian          | 2(1)          |
| <b>Ethnicity</b>   |               |
| Brahmin            | 67(32.5)      |
| Chhetri            | 79(38.3)      |
| Dalit              | 25(12.1)      |
| Janajati           | 35(17.0)      |

44.2% were between age 35-49 years and few 6.3% were age group >65 years. The mean±SD age of the 42±11 years. Regarding sex, 3.4% were male and 96.6% were female. Concerning religion majority 90.3% of respondent was Hindu. Regarding ethnicity, majority 38.3% of the respondent was Chhetri and minority 12.1% was Dalit (Table 1).

Majority 56.3% of the respondent had joint family. Regarding education 92.2% were literate and 7.8% were illiterate. Among literate majority 39.3% had

basic level (1-8) and minority 9.2% had higher secondary (above 12). As regards to the occupation of the respondent, majority of the respondent 66%

**Table 2. Family background of the respondents (n=206)**

| Variable                         | Frequency (%) |
|----------------------------------|---------------|
| <b>Types of family</b>           |               |
| Nuclear                          | 82(39.8)      |
| Joint                            | 116(56.3)     |
| Extended                         | 8(3.9)        |
| <b>Academic qualification</b>    |               |
| Illiterate                       | 16(7.8)       |
| Literate                         | 190(92.2)     |
| <b>If literate</b>               |               |
| Only read and write              | 36(17.5)      |
| Basic level                      | 81(39.3)      |
| Secondary level                  | 54(26.2)      |
| Higher secondary                 | 19(9.2)       |
| <b>Main occupation of family</b> |               |
| Agriculture                      | 136(66.0)     |
| Business                         | 33(16.0)      |
| Service                          | 25(12.1)      |
| Labour                           | 12(5.8)       |
| <b>Monthly salary</b>            |               |
| Less than 50000                  | 183(88.8)     |
| 50000-100000                     | 20(9.7)       |

were engaged in agriculture and a few 5.8% were labour. Highlighting the income of the respondents, highest 88.8% below Rs50000 whereas lowest 9.7% above Rs100000 (Table 2).

Most of the respondent 94.2% that it is transmitted through mosquito bite. A small number 0.5% opined that dengue is transmitted through drinking dirty water. Majority 53.4% of the respondent was not aware about carries of dengue and only few 7.3% of the respondent says that ades is the carrier of dengue. While about asking about biting time of dengue majority 56.8% of the respondent said at morning and evening, and 27.7% says at daytime and few 5.8% at night. Majority 68.9% of the respondent said that dengue is not transmissible. While asking about common breeding sites a majority 56.8% of the respondent said clean water. (Table 3).

Regarding protective measure the majority (91.7%) of the respondent use mosquito net while some (23.8%) of the respondent use coil/mat/liquid as well as(6.6%)of the respondent use as alternative. Similarly majority of the respondent (99.5%) clean the bushes and minority (4.9%) respondents said they are participated in spraying of insecticide in their community (Table 4).

**Table 3. Knowledge regarding dengue (n=206)**

| Variable                       | Frequency (%) |
|--------------------------------|---------------|
| <b>Heard about dengue</b>      |               |
| Yes                            | 206(100)      |
| <b>Mode of spread</b>          |               |
| Mosquito bite                  | 194(94.2)     |
| Drinking dirty water           | 1(0.5)        |
| Don't know                     | 11(5.3)       |
| <b>Carrier of dengue</b>       |               |
| Ades (female mosquito)         | 15(7.3)       |
| All types of mosquito          | 78(37.9)      |
| Insect                         | 3(1.5)        |
| Don't know                     | 110(53.4)     |
| <b>Frequent biting time</b>    |               |
| At early morning and evening   | 117(56.8)     |
| Daytime                        | 57(27.7)      |
| Night                          | 12(5.8)       |
| Don't know                     | 20(9.1)       |
| <b>Is dengue transmissible</b> |               |
| Yes                            | 64(31.1)      |
| No                             | 142(68.9)     |
| <b>Common breeding sites</b>   |               |
| Clean water                    | 117(56.8)     |
| Unclean water                  | 74(35.9)      |
| Don't know                     | 15(7.3)       |

**Table 4. Practice on prevention and control of dengue (n=206)**

| Variable  | Yes        |
|---|------------|
| Use of mosquito net                               | 189(91.7%) |
| Use of coil/mat/liquid                            | 49(23.8%)  |
| Use of mosquito repellent/Odomos                  | 14(6.6%)   |
| Cover water container after use                   | 191(92.7%) |
| Netted door and window                            | 162(78.0%) |
| Change water of open container within a week      | 190(92.2%) |
| Clean the bushes                                  | 205(99.5%) |
| Wear long sleeve                                  | 163(79.1%) |
| Sleep under mosquito net at a day time            | 13(6.3%)   |
| Dispose water container, tires and plastic bottle | 188(91.3%) |
| Participate in spray of insecticide in community  | 10(4.9%)   |

The level of knowledge was divided into three groups according to the cutoff point 0-40 given poor, 41-75 given Fair and >75 is given Good level. Regarding the level of knowledge, 60.0% have Fair level of knowledge 39.8% while 78.6% respondents had good level of practice (Table 5).

## DISCUSSION

Majority of the respondent 91 (44.2%) were be-

**Table 5. Over all level of knowledge and practice regarding dengue (n=206)**

| Level of knowledge       | Frequency(%) |
|--------------------------|--------------|
| Poor                     | 82 (39.8%)   |
| Fair                     | 124 (60.2%)  |
| <b>Level of practice</b> |              |
| Poor                     | 44(21.4%)    |
| Good                     | 156(78.6%)   |

tween age 35-49 and minority 13 (6.3%) were age group >65. The mean age of the respondent is 42 year with 11 year standard deviation. Similarly finding were present in study conducted by Shah NK.<sup>14</sup> The mean age of the respondent was 40±11. Majority of the respondent 190 (92.2%) were literate and 16 (7.8%) were illiterate. Among literate 36 (17.5%) could only read and write, 81 (39.3%) had basic level, 54 (26.2%) had secondary level and 19 (9.2%) had higher level education. In contrast to our study Dhimal M et al. reported that 12% of respondent are illiterate, Among literate 12% of respondent had primary level, 43% had secondary and 33% had higher education.<sup>4</sup>

Concerning the religion of the respondent 186 (90.3%) were Hindu and minority 2 (1%) Christian. As regard to the main occupation of the respondent family majority 136 (66%) were agriculture and minority 12 (5.8%) was labour. While the study conducted by Subedi S et al. majority of the respondent 48% were former and minority (9%) were business.<sup>15</sup>

Majority 173 (56.4%) of respondent had received information about dengue from Radio/TV and minority 4 (1.3%), 6 (2%) from hospital and friends. A study done by Shah NK revealed similar finding that Radio/TV as identified as the major source of information.<sup>14</sup> Another study done by Subedi S et al. also revealed same finding.

In this study all the respondent has heard about dengue. Majority (94.2%) of the respondent are aware about the mode of spread. A study done by Hossain MI et al. revealed similar finding.<sup>11</sup> In our study few (7.1%) of the respondent knew about the carrier of dengue and majority (56.8%) of the respondent answered morning and day as a peak biting time of dengue. A study done by Hossain MI et al. majority (60.3%) of the respondent knew about the carrier of dengue and 43.1% of respondent answered sunrise/sunset as a most frequent mosquito biting time.<sup>11</sup> In this study 124(60.2%) of respondent have a fair knowledge and 82(39.8%) have poor level of knowledge. Similarly a study conducted by Shah Nk revealed that 56% of the respondent had fair knowledge.<sup>14</sup> The majority of the respondent 189 (91.7%) use mosquito net and only 17 (8.3%) do not use. Similarly the majority of the respondent

157 (76.2%) do not use coil/mat and only 49 (23.8%) use, the majority of the respondent 205 (99.5%) clean the bushes and only 1 (0.5%) do not clean the bushes. The majority of the respondent 196 (95.1%) do not participate in spray of insecticides in community and only 10 (4.9%) have participated. A study done by Shah NK revealed that The majority of the respondents 191 (93.6%) remove stagnant water around their house and only 13 (6.4%) don't remove. The majority of the respondents 188 (92.2%) clean the bushes around their house and only 16 (7.8%) don't clean. The majority of the respondents 48 (73.8%) haven't participated in spray of insecticides in their community and only 17 (26.2%) have participated.<sup>14</sup>

## CONCLUSIONS

Dengue is a mosquito-borne disease caused by dengue virus which has become a major public health concern. From the study we can conclude that majority of the respondents had fair knowledge regarding dengue. Despite of the fair knowledge

level, the majority of the respondent had good practices such as use of mosquito net, covering household containers, covering water tank, invert the water holding containers. So, an emphasis should be provided on health education program especially on dengue disease to increase community knowledge and awareness towards dengue. The health authorities should highly customize their channels of information by emphasizing the collaboration required between communities and various stakeholders. However, the development of sufficiently and easily understandable IEC/BCC materials on DF is most important in order to bring awareness to the community people having different educational levels.

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**Conflict of Interest:** None .

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