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Knowledge and Preventive Practice Regarding Dengue Among Community People of Bharatpur-05, Chitwan, Nepal

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ABSTRACT

Introduction: Dengue infection transmitted by Aedes aegypti is endemic in Nepal. Gaining a preliminary understanding of people's knowledge and preventive practices will enable health professionals to better comprehend the challenges we face and contribute to the enhancement of dengue prevention programs. The objective of this study was to assess the knowledge and preventive practice regarding dengue among the community people of Bharatpur -5, Chitwan.

Methods: A descriptive cross-sectional study was conducted among 188 people of age above 18 through face-to-face interviews using self-developed questionnaires. Data were entered and analyzed into SPSS version 20. The main analytical procedure was descriptive using frequencies, and percentages.

Results: The study shows that 21.8% of respondents had adequate knowledge and 11.2% had good preventive practice regarding dengue.

Conclusions: Overall, the majority of respondents had been found to have inadequate knowledge and poor preventive practice regarding dengue. This highlights an urgent need for an extensive dengue prevention program.

Keywords: *Community people; dengue; knowledge; preventive practices.*

INTRODUCTION

Dengue is a mosquito-borne viral disease caused by female mosquitoes, mainly of the species Aedes aegypti.[1.] It is a single-stranded, non-segmented RNA virus from the family Flaviviridae (genus Flavivirus). Mosquitoes are domestic day-biters and breed mainly in clean stagnant water, often found in water tanks, pools, artificial ponds, and containers collecting rainwater, such as bottles, empty cans, and tires.[2] Dengue fever typically begins with a sudden high fever, sometimes reaching 104 - 105 degrees Fahrenheit, appearing 4 to 7 days after infection.[2] Every year about 20,000 deaths occur on account of dengue globally. Annually, it is estimated that 100 million cases of dengue fever and 500,000 cases of dengue hemorrhagic fever and several thousand deaths occur worldwide.[1] Since the first case was reported from Chitwan in a foreigner in 2004, Dengue has emerged as a significant concern nationwide, with cases reported in all 77 districts throughout the year. In FY 2079/80, Dengue cases surged from 733 to 56,338, with the highest reported in Bagmati Province i.e. 35,486. (new annual report). These findings highlighted the need for more relevant studies on knowledge and behavior related to dengue transmission and infection. As there was a lack of effective surveillance programs for this

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emerging disease, conducting this study to identify prevailing misconceptions about dengue infection in our society. Gaining a preliminary understanding of people's knowledge and preventive practices will enable health professionals to better comprehend the challenges we face and contribute to enhancing dengue prevention programs[7]. Chitwan, being an endemic district for dengue, faces recurring outbreaks that pose significant public health challenges. Although many studies have been conducted globally as well as in Nepal only a few studies have been conducted on knowledge and practice of dengue in Chitwan. This research aims to assess people's knowledge and practices in dengue prevention. So, the research and the findings may help to design various programs, and policies and help for further research for the effective prevention and control of dengue.

METHODS

A descriptive cross-sectional study was carried out to find out the knowledge and practice of dengue fever among the community people of Bharatpur 5, Chitwan, Nepal, after obtaining ethical clearance from the CMC-IRC (Ref no. CMC-IRC/080/081-017). A sample frame was not available at the ward office so convenience sampling was used to select the study participants. The study period for this research was from July/2023-March/ 2024 i.e., 8 months, in which 21 days was for full phase data collection.

The study participants were individuals whose age was above 18 years and who had been residing in Bharatpur-5 Chitwan. This study excluded individuals with speech and hearing impairment as well as health professionals, whose advanced knowledge of dengue could introduce bias or lead to altered findings. Additionally, the focus of the study was on assessing the knowledge and preventive practices of permanent residents, as this would provide a more accurate reflection of their understanding and behavior. Including only permanent residents ensures the findings as relevant for planning ward-level interventions, which is why renters were excluded from the study.

Sample Size

For the study, a 95% CI level, 5% allowable error, and 14.7 % prevalence of knowledge on dengue fever[5] were taken and then the formula for sample size estimation was given by Cochran formula for finite population:

Here, Z = 1.96, p = 0.147, q = (1-p) = 0.853, N= 6666 and d = 0.05

The sample of 188 was selected by using a convenient sampling technique. Verbal and written consent was taken from participants. The participants were interviewed face-to-face by the researcher. The tool used for data collection in the study was a Self-developed structured questionnaire to measure the level of knowledge and practice regarding dengue fever. Where knowledge of dengue refers to a theoretical understanding of the meaning of dengue, its signs and symptoms, breeding site, mode of transmission, and prevention of dengue**.**

The level of knowledge was assessed using a series of twenty-three knowledge-related questions about dengue. Participants' responses to each question were coded as 1 for a correct answer and 0 for an incorrect answer. The highest possible score was twenty-three, and the lowest score was zero. The score varied depending on the questions. To assess the level of knowledge, 80% was used as the cut-off point.

The level of knowledge was categorized as follows:

≥ 80% = Adequate knowledge

< 80% = Inadequate knowledge

The Practice was the action intended to control and prevent dengue fever. Different items have been included in this part. A series of twelve practice-related questions about dengue was employed. The variables were given a 0 score for 'No' and a score 1 for 'Yes'. The total possible obtained score by participants had a range from 0 to 12. 90 % of the maximum possible score i.e., 11 was taken as a cutoff point to identify the level of practice through good and poor practice regarding dengue.

To assess the level of preventive practice, 90% was taken as the cut-off point. The level of practice was identified as,

≥ 90%= Good practice

< 90%=Poor practice

The questionnaires were translated into Nepali and English language and necessary editing was done with the consultation of supervision and translators. Pre-testing of the developed questionnaire was done in 10% of the total sample size in a similar setting and necessary adjustments were made.

After the collection of data, it was checked thoroughly, edited, and coded into different categories. Data were entered and analyzed in Statistical Package for the Social Sciences version 20. Descriptive statistics like frequencies, percentages, measure of central tendency, and measure of dispersion were computed according to the nature of the data.

RESULTS

Among 188 participants, it was found that 65 (34.6%) were between the ages 18-30 years followed by 52 (27.7%) between the ages 31-45, and 71 (37.8) were above 45. The median age was found to be 38 years and the minimum age was 18 and maximum age was 81 years and the IQR was found to be 30.

Out of 188 respondents, 114 (60.6%) were female and 74 (39.4) were male. The majority of the religion followed by the respondent was Hindu 174 (92.6%). The majority of the respondents were Brahmin i.e. 78 (41.5%), 47 (25.0%) Chhetri, 53 (28.2%), others, 63 (33.5%) respectively. About 39 (20.7%) respondents were found to be illiterate and 39 (20.7%) had basic education status. Also, 65 (34.6%) were found to be secondary and 45 (23.9%) were bachelor and above.

Similarly, it was found that most of the people are unemployed 126 (67.0%) followed by self-employed people 41 (21.8%). Only a few numbers of people are employed i.e., 21 (11.2%). The majority of the respondents had a joint family type of 96 (51.1%), while nuclear families were 92 (48.9%), respectively.

Table 1: Socio-demographic characteristics (n=188)

Variables	Frequency	Percentage (%)
Age groups (years)		
Young adult (18-30)	65	34.6
Middle-aged adult (31-45)	52	27.7
Old-aged adult (above 45)	71	37.8
Median = 38, IQR = (Q3-Q1) = (54.75-25.25) Min = 18, Max=81		
Gender		
Male	74	39.4
Female	114	60.6
Religion		
Hindu	174	92.6
Other than Hindu*	14	7.4
Ethnicity		
Brahmin	78	41.5
Chhetri	47	25.0
Others€	63	33.5
Education Status		
Illiterate	39	20.7
Basic (1-8)	39	20.7
Secondary (9-12)	65	34.6
Bachelor and above	45	23.9
Occupation		
Employed	21	11.2
Unemployed	126	67.0
Self-employed	41	21.8
Types of family		
Nuclear	92	48.9
Joint	96	51.1

* denotes Buddhist, Christian, and Islam
€ denotes Janajati, Dalit and Muslim

The majority 147 (78.2%) of respondents had received information about dengue through social media and the minority 41(21.8%) through awareness rallies.

Table 2: Participants Sources of information about dengue(n=188)

Source of information **	Frequency	Percentage (%)
Family member/Friends/ Neighbors	131	69.7
Print media	73	38.8
Electronic media	146	77.7
Social media	147	78.2
Health professional	86	45.7
Awareness rally	41	21.8
** denotes multiple responses		

Out of the 188 participants, nearly half of the respondents (49.5%) replied correctly that dengue is not a communicable disease. A vast majority of respondents (99.5%) correctly said that mosquitoes are the vector that causes dengue. 41% replied correctly regarding the breeding place of mosquitoes, and 40.4% of respondents stated the fact that daytime is the peak time for dengue mosquito biting. 43% correctly answered that dengue mostly occurs in the rainy season. The majority of respondents (94.1%) correctly said that fever is a symptom of dengue, 84.6%,82.6%,69.1%,53.7%, and 66% of respondents replied correctly headache, muscle pain, joint pain and rash, pain behind the eyes, nausea and vomiting are the symptoms of dengue respectively. Similarly, 39.4% know that diarrhea is not a common symptom of dengue.

Almost half of the respondents (52.7%) had correct knowledge about the mode of transmission of dengue is by the bite of a female mosquito, 80.9% had correct knowledge that ordinary person-to-person contact cannot transmit dengue and 70.6% correctly said that dengue can be transmitted by the infected blood transfusion. Similarly, 70.7% of respondents correctly said that dengue is not transmitted through food and water. 81.9% of respondents correctly replied that all age groups are vulnerable to severe dengue infection.

84.6% of the respondents had correct knowledge regarding how tightly covered containers can reduce mosquitoes. 95.2%,87.8%,72.9%,47.9%and 89.9% had correct knowledge regarding wearing long sleeves, insecticide spray, use of mosquito repellent cream, vaccination, and changing the water of flower vases are the preventive measures of dengue respectively.

Table 3: Knowledge regarding Dengue (n=188)

Statements regarding knowledge	Correct response	
	Frequency	%
Dengue is not a communicable disease	93	49.5
Mosquitoes is the vector that cause the dengue	187	99.5
The mosquito breeding takes place in clean stagnant water	77	41
The peak time of dengue mosquito biting is daytime	76	40.4
Dengue mostly occurs in rainy season	82	43.6
Fever is a symptom of dengue	177	94.1
Headache is a symptom of dengue	159	84.6
Muscle pain is a symptom of dengue	155	82.4
Joint pain and rash are the symptoms of dengue	130	69.1
Pain behind the eye is a symptom of dengue	101	53.7
Nausea and vomiting are the symptoms of dengue	124	66.0
Diarrhea is not a common symptom of dengue	74	39.4
The mode of transmission of dengue is by the bite of female mosquito	99	52.7
Ordinary person-to-person contact cannot transmit dengue	152	80.9
Dengue can be transmitted by the infected blood transfusion	144	76.6
Dengue is not transmitted through food and water	133	70.7
All the age groups are vulnerable to severe dengue infection	154	81.9
Tightly covered containers can reduce mosquito	159	84.6
Wearing long sleeves is preventive measure of dengue	179	95.2
Insecticide's spray reduces the mosquito and prevent dengue	165	87.8
Mosquito repellent cream prevent mosquito bites	137	72.9
Vaccination can prevent dengue	90	47.9
Changing water of flower vase is a preventive measure of dengue	169	89.9

Among 188 participants, it was found that the majority 147 (78.2%) of respondents had an inadequate level of knowledge and the minority 41 (21.8%) had an adequate level of knowledge regarding dengue.

Table 4: Level of knowledge regarding Dengue (n=188)

Level of knowledge	Frequency	Percentage (%)
Adequate (≥80%)	41	21.8
Inadequate (<80%)	147	78.2

Among 188 participants, it was found that 27.7% of respondents used insecticide spray, 84.6% used window nets, and 75% used mosquito nets. Similarly, 83% of respondents eliminated stagnant water containers,92% of respondents cut down bushes in the yard and 84% of respondents prevented water stagnation around the house. Almost half of the respondents (52.1%) used mosquito coils, the majority (92.6%) cleaned garbage around the house, and 15% of the respondents used mosquito repellent cream for prevention .89.4% of respondents used long clothes to prevent mosquito bites,97.3% covered water container in the house and 67% of the respondents opened house window after dim night and morning.

Table 5: Preventive practice against Dengue (n=188)

Practices	Correct practice	
	Frequency	%
Use insecticides spray	52	27.7
Use window nets	159	84.6
Use mosquito nets	141	75.0
Eliminate stagnant water containers	156	83.0
Cut down bushes in the yard	173	92
Prevent water stagnation around the house	158	84.0
Use mosquito coils	98	52.1
Clean garbage around the house	174	92.6
Use mosquito repellent cream	29	15.4
Use long clothes to prevent from mosquito bite	168	89.4
Cover water container in the house	183	97.3
Open house window after dim night and morning	126	67

Among 188 participants, it was found that the majority 167 (88.8%) of respondents have a poor level of practice and the minority 21(11.2%) have a good level of knowledge.

Table 6: Level of Preventive Practice regarding Dengue (n=188)

Level of Practice	Frequency	Percentage (%)
Good (≥ 90%)	21	11.2
Poor (< 90%)	167	88.8

DISCUSSION

The primary purpose of this research was to find out the level of knowledge and preventive practice regarding dengue among the community people of Bharatpur-05, Chitwan, Nepal.

This study found that 21.8% of the participants had an adequate level of knowledge regarding dengue which is quite similar to the study conducted in Tanzania (22.3%), Puducherry (25%).[6,7] This might be due to those studies having similar study participants who may have demonstrated a similar level of knowledge and use of consistent research methods. Contrary to this, the findings of the study conducted in Mangalpur Chitwan, Kapilvastu, Philippines, and Rupandehi showed a higher adequate level of knowledge as 56.2%, 30.9%, 30.18%, and 58.3% respectively [1, 8, 9, 10]. The possible reasons for variation in result may be attributed to various factors such as sample size, study site, and due to the high rate of illiterate people in this study. This might be due to effective intervening health education programs related to dengue.

Likewise, the findings of the study conducted in Jhapa and Central Nepal showed lower level of knowledge at 14.7%and 12% respectively.[5,11]

In this study, it was found that 11.2% have good preventive practices regarding dengue which is less than the findings of central Nepal (21.2%), Mangalpur (73.3%), Kanchan municipality, Rupandehi (62%), and central Nepal (37%). This may be due to variation in the cutoff point (90%) as compared to other studies as 80%, 50%, and 60% respectively.[1, 10 - 12] Similarly, the study conducted in Jhapa showed that only 4.6% of participants had good preventive practices which is very low as compared to this study.[5]

The study has some limitations. Firstly, a convenient sampling technique was done to select the study population. Also, the study was a cross-sectional study and done in only one ward of Bharatpur Metropolitan City so it cannot be generalized to the whole municipality.

CONCLUSIONS

This study showed that the majority of the respondents have inadequate knowledge and poor preventive practices regarding dengue. Poor public awareness and practices towards dengue prevention may create a hindering factor for the prevention and control of the disease. Therefore, further awareness-creation activities and multi-sectoral collaboration to prevent dengue are needed in the study area.

CONFLICT OF INTEREST

None

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