Original Article

Knowledge and Preventive Practice of Dengue Fever among Students studying in MMAMC Biratnagar

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ABSTRACT

Introduction: Dengue is a vector-borne viral disease that has rapidly spread in many countries in recent years. Dengue Shock Syndrome have become major public health concern which clearly evident to give attention to follow the healthy behaviors and attitude for its prevention and control. The objective of the study is to assess the knowledge and preventive practice of dengue fever among students studying in MMAMC, Biratnagar.

Methods: A descriptive cross-sectional research was conducted in Mahendra Morang Adarsh Multiple Campus in September 2018, among 271 students using non probability purposive sampling technique. Self-administered questionnaire was used for data collection and analyzed by descriptive and inferential statistics.

Result: Out of 271 students 55.7% were male and 44.3% were female. The overall mean and standard deviation of the age was 20.65±1.53 years. The study revealed that the respondents had inadequate knowledge (85.6%) and inadequate preventive practice (64.2%) of dengue fever. There was no significant association between level of knowledge and level of preventive practice on dengue fever with $p < 0.05$.

Conclusion: This study concluded that majority of the respondents had inadequate knowledge regarding dengue fever and more than half of the respondents had a inadequate preventive practice. Despite the rapid expansion of dengue virus in Nepal, the knowledge and preventive practice of respondents on dengue fever was very low. Educational intervention and awareness program on dengue fever are recommended for its prevention.

Keywords: Dengue fever, Knowledge, Preventive practice

INTRODUCTION

Dengue fever and its severe forms Dengue hemorrhagic fever and dengue shock syndrome have become major public health concern, this syndrome can cause 40% to 50% fatality if untreated and with the effective treatment, it can be reduced to 5% or less.[1]

Before 1970, Nine countries had suffered with severe dengue epidemics. At present, more than 100 countries in tropical and subtropical regions Africa, Eastern Mediterranean, Americas, South-East Western Pacific region and Asia are affected by dengue. Dengue positive cases were exceeded 1.2 million and 3.2 million in 2008 and 2015 respectively.[2]

According to World Health Organization, annually 50–100 million dengue infections occurred whereas over the past 50 years increased with 30-fold in global incidence and at present it assumed a major threat to global public health. Now approximately two-fifth of population of world is at risk of dengue infection.[3]

A systematic review on global epidemiology of Dengue outbreak in 1990-2015 included 243 articles

describing 262 dengue outbreaks. In India, the largest numbers of outbreak were observed followed by tropical and subtropical region in China and Brazil.[4] The period between 2010–2014, 213 607 cases of dengue fever were found in India.[5]

The goal of the Global Strategy for Dengue Prevention and Control (2012–2020) is to reduce the burden of Dengue whereas specific objectives are to reduce mortality and morbidity from Dengue by 2020 by at least 50% and 25% respectively using 2010 as the baseline.[6]

There were no reported cases of dengue fever found in Nepal till 2004. After 2004, it has been rapidly increases almost all part of country. Many outbreaks were documented in the years 2006, 2010 and 2017 where majority cases were from terai region of Nepal and it has been increased in 2016/2017 in comparison to previous year i.e., 134 cases in 2015/2016 and 1527 cases in 2016/2017.[7] The increasing incidences and more severe forms of Dengue fever clearly evident to give attention to follow the healthy behaviors and attitude for the prevention and control of dengue fever among the community. This study aim to assess the Knowledge and preventive practice of dengue fever among students studying at Mahendra Morang Adarsh Multiple Campus, Biratnagar.

METHODS

A Quantitative- descriptive cross-sectional study was conducted to assess the knowledge and preventive practice on Dengue fever among students enrolled in bachelor degree of commerce, science, education and humanities of Mahendra Morang Adarsh Multiple Campus (MMAMC), Biratnagar. Data was collected from September (02-28) 2018 through semi-structured questionnaire. Validity of the questionnaire was maintained by reviewing related literature and consultation with the experts. Data collection tool was translated into Nepali language and then translated it back into English by expert who is fluent in both English and Nepali. Pretesting was done in 10% of the sample in a similar settings and modification of questionnaire was done on the basis of pretest result. Knowledge refers to the theoretical understanding of dengue fever regarding its causes, mode of transmission, sign and symptoms, preventive measures and treatment. Knowledge

questionnaire was developed with literature review contained with total score of 36.Result of test was interpreted as follows; 29 – 36 score as adequate level of knowledge and 0 – 28 as inadequate level of knowledge on dengue fever. Preventive practice refers to the practical use of measure for the prevention of Dengue Fever in terms of knowledge. Questionnaire on the preventive practice of dengue fever was adopted and modified which was in Likert scale.[9]There were 10 indicators with a scale of 0–4 points: 0 = never, 1 = seldom, 2 = sometimes, 3 = usually, and 4 = always, giving a score range of 0–40. In determining the level of preventive practice on dengue fever, the following score was used where good practice score contained 32 to 40 and poor practice score range from 0 to 31 of total score of level of practice. Non-probability purposive sampling technique was used to select 271 students. The inclusion criteria of study was students studying at MMAMC in Bachelor level, willing to participate and available at the time of data collection. Ethical approval was taken from Institutional Review Committee of Tribhuvan University Institute of Medicine. Informed written consent was taken prior to data collection. The confidentiality and anonymity were maintained throughout the research process and information is used for research purpose only. Data was collected by the researchers themselves by using semi-structured self-administered questionnaire. The collected data was analyzed by using descriptive (frequency, percentage, mean, standard deviation) and inferential statistics (chi-square test). The p value< 0.05 was considered as significance by using SPSS Version 16.0.

*Multiple response,

Others= Dalit, Religious minorities, Relatively Advantaged Janajati.[10]

Knowledge on Dengue Fever

Table 2a: Respondents' Knowledge on Transmission of Dengue Fever   **n=271**

Variables	Number(n)	Percentage (%)
Vector Involved in DF Transmission		
Mosquito	268	98.9
Name of the Vector		
Aedes	76	28.0
Causes		
Viral infection	109	40.2
Transmission is Occurred by		
Infected mosquito bite	235	86.7
Biting Time of Mosquito		
Day time	51	18.8
Breeding Sites of Aedes Mosquito		
Standing clean water	13	4.8

Table 2b: Knowledge on Sign and Symptoms of Dengue Fever among Respondents   **n=271**

Variables	Number(n)	Percent
Sign and symptoms of Dengue Fever*		
Fever	270	99.6
Headache	245	90.4
Muscle and joints pain	146	53.9
Pain behind the eyes	146	53.9
Rash	127	46.9
Abdominal pain	102	37.6
Bleeding	89	32.8

* Multiple Response

Table 2c: Knowledge on Preventive Measures of Dengue Fever among Respondents   **n=271**

Statement	Number(n)	Percentage (%)
Prevention against Mosquito Bite*		
Use of bed nets.	270	99.6
Use of fan	241	88.9
Wearing long sleeved cloths.	230	84.9
Use of mosquito spray.	222	81.9
Use of mosquito coil/mat/vapors	197	72.7
Use of mosquito repellent.	185	68.3
Use of smoke to drive away mosquito.	138	50.9
Eradication of Breeding Site*		
Cutting trees/vegetations.	261	96.3
Eliminating standing water around the house.	261	96.3
Prevent water stagnation.	255	94.1
Cleaning the garbage.	253	93.4
Covering water containers.	247	91.1

Table 2d: Knowledge on Treatment of Dengue Fever among Respondents　　　　**n=271**

Variables	Number(n)	Percentage (%)
Consult for Treatment on DF		
Yes	270	99.6
Treatment Available for Dengue Fever		
Yes	264	97.4
If yes, n=264		
Symptomatic	170	62.7
Antimalarial	42	15.5
Antiviral	32	11.8
Antibiotics	20	7.4

correct answer

Table 3: Respondents' Self-Reported Preventive Practice on Dengue Fever　　　　**n=271**

Statements	Reponses				
	Always n (%)	**Usually** n (%)	**Sometime** n (%)	**Seldomn (%)**	**Never** n (%)
Uses insecticides spray	24 (8.9)	27 (10)	148 (54.6)	26 (9.6)	46 (17.0)
Uses screen doors and windows	191 (70.3)	23 (8.5)	4 (1.5)	4 (1.5)	49 (18.1)
Uses fans	165 (60.9)	45 (16.6)	31 (11.4)	7 (2.6)	23 (8.5)
Uses bed nets	242 (89.3)	18 (6.6)	4 (1.5)	4 (1.5)	3 (1.1)
Eliminate standing water	113 (41.7)	74 (27.3)	52 (19.2)	11 (4.1)	21 (7.8)
Cut down bushes	124 (45.8)	93 (34.3)	42 (15.5)	3 (1.1)	9 (3.3)
Uses mosquito coils	108 (39.9)	65 (24.0)	77 (28.4)	10 (3.7)	11(4.1)
Uses of mosquito repellent	33 (12.2)	19 (7.0)	57 (21.0)	33(12.2)	129(47.6)
Cover water	216 (79.7)	35 (12.9)	12(4.4)	4(1.5)	4 (1.5)
Clean water filled container	131 (48.3)	71 (26.2)	46 (17.0)	7 (2.6)	16 (5.9)

Table 4: Respondent's Overall Knowledge and Practice level on Dengue Fever　　　　**n=271**

Variables	Number (n)	Percentage (%)
Level of Knowledge		
Adequate knowledge	39	14.4
Inadequate knowledge	232	85.6
Level of Practice		
Good practice	97	35.8
Poor practice	174	64.2

Table 5: Association between level of knowledge and Selected Variables of Respondents on Dengue Fever n=271

Variables	Level of knowledge		Total	χ2	p value
	Adequate **n (%)**	**Inadequate** **n (%)**			
Age in Years					
<21	18 (14.2)	109 (85.8)	127	0.009	.924
≥21	21 (14.6)	123 (85.4)	144		
Sex					
Male	21 (13.9)	130 (86.1)	151	0.065	.799
Female	18 (15.0)	102 (85.0)	120		
Place of Residence					
Urban	31 (14.6)	181 (85.4)	212	0.42	.837
Rural	8 (13.6)	51 (86.4)	59		
Faculty of Education					
Commerce	14 (10.4)	121(89.6)	135	5.986	.112
Science	18 (16.8)	89 (83.2)	107		
Education	5 (31.2)	11 (68.8)	16		
Humanities	2 (15.4)	11 (84.6)	13		

χ2: Pearson's Chi square Test, *p* value significant at <0.05 level

Table 6: Association between Level of Practice and Selected Variables of Respondents on Dengue Fever   n=271

Variables	Level of Practice		Total	χ2	p value
	Good **n (%)**	**Poor** **n (%)**			
Age in Years					
<21	42 (33.1)	85 (66.9)	127	0.771	.380
≥21	55 (38.2)	89 (61.8)	144		
Sex					
Male	47 (31.1)	104 (68.9)	151	3.233	.072
Female	50 (41.7)	70 (58.3)	120		
Place of Residence					
Urban	73(34.4)	139(65.6)	212	0.783	.376
Rural	24(40.7)	35(59.3)	59		
Faculty of Education					
Commerce	56 (41.5)	79 (58.5)	135	4.817	.186
Science	34 (31.8)	73 (68.2)	107		
Education	3 (18.8)	13 (81.2)	16		
Humanities	4 (30.8)	9 (69.2)	13		
Heard about DF				0.163	.686
Yes	95 (36.0)	169 (64.0)	264		
No	2 (28.6)	5 (71.4)	7		.229
Family History of DF				1.446	
Yes	1 (14.3)	6 (85.7)	7		
No	96 (36.4)	168 (63.6)	264		

Pearson's Chi square Test, *p* value significant at <0.05 level

Table 7: Association between level of Knowledge and Preventive Practice of Respondent on Dengue Fever   n=271

Variables	Practice score		χ^2	*p*-value
	Good practice	**Poor practice**		
	n (%)	**n (%)**		
Knowledge score				
Adequate knowledge	19(48.7)	20(51.3)	3.311	.069
Inadequate knowledge	78(33.6)	154(66.4)		

χ^2: **Pearson's Chi square Test, *p* value significant at <0.05 level**

DISCUSSION

The result of the study showed that 97.4% of the respondents had heard about Dengue Fever. This finding is similar to the study conducted in Saudi Arabia whereas 97.5% of students heart about Dengue Fever.[11] and also similar to the study conducted in India among students revealed that 94% of the respondents heard about Dengue fever.[12]

We found, 50.9% of the respondents gained information about Dengue Fever through school/college and 45.4% from Television which findings is similar to the study conducted in Nepal among health science students revealed that 41.5% of respondents mentioned school/college and 41.2% mentioned Television were the sources of information about Dengue Fever.[13]

In this study 98.9 percent of the respondents knew that vector for DF is a mosquito which is similar with the study findings conducted in Pakistan showed that 93 percent of the respondents could identify the vector of Dengue Fever.[14]

Only 28% of the respondent in this study knew transmission for Dengue fever was Aedes whereas this finding is contrast to the study conducted among university students at Pakistan which revealed that 58% of the respondent knew that name of the vector was Aedes and also contradictory to the study conducted among university students in Kashmir.[15,16]

This study showed that 40.2% of respondents responded that virus is causative agents of Dengue. This finding is inconsistent with the study conducted in Nepal which revealed that 66.5% of the respondent knew that virus is a causative agent of Dengue fever.[13]

In present study 18.8% respondents reported that Aedes mosquito bites during day time and this finding is similar to the study conducted in Nepal revealed that 15.9% of the respondents knew the biting time of Aedes mosquito.[9] In this study 86.7% respondents said that DF was transmitted through infected mosquito bite and same number of respondents also reported the way of transmission of Dengue Fever in study conducted in Nepal.[13]

In this study only 4.8% of the respondent knew that standing clean water is the breeding sites of Aedes mosquitoes whereas this finding is contrast to the study conducted among university students at Gujrat which revealed that 78% of the respondent knew breeding site of mosquito is standing clean water.[17] The findings is difference might be due tolack of awareness.

In current study, the knowledge on preventive measures of Dengue Fever showed that 99.6 percent of respondents knew that it can be prevented through use of bed nets. These finding is similar to the study done in health science students of Nepal which revealed that 100% used mosquito net for prevention of Dengue Fever.[13]

The overall finding of this study revealed that 14.4 percent of respondents had adequate level of knowledge whereas the study conducted in university of Gujrat revealed similar findings that is 17.4% of respondents had good knowledge on Dengue Fever [17]but contradictory result was found in a study conducted in Malaysia which was 63.2%.[18]

Regarding the sign and symptom of Dengue Fever, this study revealed that 99.6% and 90.4% of respondents were able to identify common symptoms like fever

and headache respectively. However, this study is supported by a study conducted among highland and lowland communities of central Nepal showed that 99% and 97% of the respondents reported that fever and headache were the common sign and symptom of Dengue Fever respectively.[19]

This study showed that 35.8% of respondents demonstrated self-reported preventive practice on Dengue Fever. This finding is similar to the previous study conducted among people in Nepal which revealed that 37% of respondents had good practice regarding Dengue Fever.[20]

In this study 89.3 % of the respondents commonly used bed net and 8.9 % respondents less commonly used insecticides spray for prevention of Dengue Fever. The findings are comparable to the study done in eastern region of Nepal which showed that 100% of the respondents practiced for using bed net and 10.7% of the respondents used insecticides spray as preventive measure of Dengue Fever.[21]

The findings of this study showed that there was no significant association between level of practicewith selected demographic variable which was contrast to the study conducted among international students in University Putra Malaysia.[22] Also contradictory result found in the study conducted in Saudi Arabia among students which showed significant association with level of practice to the demographic variables.[23]

One of the limitation of this study is the data was collected from only one setting thus the result may not be generalized outside the setting. Preventive Practice of Dengue Fever was measured in terms of knowledge only.

Finding from this study provides basis for development of guidelines and educational material and to conduct awareness program regarding Dengue Fever among students to enhance knowledge. Similarly, the findings of the study may serve as baseline data for further research in this area.

CONCLUSION

The result of this study concluded that majority of the respondents had inadequate level of knowledge regarding Dengue fever and more than half of the respondents had poor preventive practice. There

was no association between level of knowledge and practice on Dengue fever. No association was found between the level of knowledge and practice with selected demographic variables.

Conflict of interest: None

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