



Knowledge and Awareness regarding Dengue among the Undergraduate health Science students of Dengue Hit region of Nepal

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Abstract

Dengue fever (DF) is the most rapidly spreading viral disease transmitted by mosquito bite. Two-fifth of the world's population lives in the DF risk areas. There was no case of DF reported until 2004 in Nepal. Since then it has been rapidly spreading in almost all areas of Nepal and many outbreaks are recorded. Majority of DF cases reported are in three districts of the Terai region adjoined to Indian border i.e. Chitwan, Nawalparasi, and Rupandehi. The aim of this study was to assess knowledge on dengue infection among health science students of one of the dengue hit region of Nepal. It was a questionnaire based cross-sectional study conducted among medical and dental students of Chitwan medical college, Bharatpur Nepal in September 2015. The extent of knowledge of an individual student on Dengue was measured on the basis of the given responses. The correct response to each question was given the score '1' and incorrect or not-sure response the score '0'. The level of knowledge was categorized into 3 levels by mean \pm 1 SD. The cutoff point of the poor, moderate and good knowledge were $<$ mean-1SD, mean \pm 1 SD and $>$ mean+1SD respectively. Only one-fifth respondents (N=313) had good level of knowledge on Dengue while nearly one-tenth of respondents were having poor level of knowledge. There was no significance difference on level of knowledge among various categories. Since high proportion of medical students have moderate to low level of knowledge on dengue which signifies the need of awareness raising programme to all sphere of population irrespective to their profession and literacy level.

Keywords: Disease, Medical, Dental, Mosquito.

Introduction

Two-fifth of the world's population lives in the dengue risk areas¹. Globally, nearly 400 million people are infected each year by dengue fever (DF).² Since the last 10-15 years, the geographical distribution of DF has increased to virgin countries especially rural areas, being the most rapidly escalating viral disease globally³. There were no reported cases of DF until 2004 in Nepal, since then it has been rapidly spread almost all areas of the country and many outbreaks are recorded in 2006 and 2010⁴. There is increasing number of confirmed cases including deaths due to dengue in Nepal since 2006^{5,6}. During the first outbreak in 2010, 96% of cases reported in only three districts of the terai region of Nepal - Chitwan, Nawalparasi, and Rupandehi⁵. A total of 183 confirmed dengue cases were reported from Nepal in 2012⁷. Dengue, caused by Dengue fever virus (DENV) and transmitted by mosquito (*Aedes aegypti*)⁸ bite affecting all age groups, is the most rapidly spreading febrile disease presenting with symptoms- fever, severe headache, myalgia, joint pain and rash⁹. Earlier four different serotypes of DENV were believed to be culprit; however isolation of its fifth variant DENV-5 in 2013 has emerged as a new threat for control program of DF¹⁰.

The study on knowledge and awareness of people from different

sector of the community is very crucial for the development of prevention and control programs of disease like DF so that scarce resources available in the country can be effectively mobilized for better outcome. Unfortunately, such studies have been carried out in a few numbers in Nepal. A community based survey carried by Dhimal et al in early 2012 found that only 12% of the participants had good knowledge of DF.¹¹ Another study carried out among the patients visiting the medical OPD of Chitwan Medical College from dengue prevalent areas of the district in 2011 showed only 14.7% of respondents had a good knowledge about DF¹². Despite this district being dengue-endemic in the past, to the best of our knowledge, this is the first study to be conducted to assess the knowledge and awareness regarding dengue among the undergraduate medical and dental students of a local medical college. This study holds the pragmatic value in probing and imparting the adequate level of knowledge regarding dengue among pre-clinical medical and dental students (first and second year) before their mandatory posting in the community for health education programs in early phase. Such health education program conducted by the medical team can be an important intervention tool to promote behavior change of local residents in controlling DF. Thus, the aim of the present survey was to investigate knowledge and awareness regarding dengue among the undergraduate health science students of dengue hit region of Nepal. The findings of this

study might also be a useful point of reference to health educators of Nepal which will assist in reduction and ultimately prevention of dengue in the country.

Materials and Methods

It was a cross-sectional study conducted among medical and dental students of Chitwan medical college, Bharatpur Nepal in September 2015. Pre-tested questionnaire was used for the data collection which comprised of two parts; the first part comprised of questions regarding demographic in formations and second part included questions on knowledge and awareness of DF. The extent of knowledge of an individual student on Dengue was measured on the basis of the given response to 11 objective questions. The correct response to each question was given the score ‘1’ and incorrect or not-sure response the score ‘0’. The level of knowledge was categorized into 3 levels by mean ± 1 SD. The cutoff point of the poor, moderate and good knowledge were <mean-1SD, mean ± 1 SD and >mean+1SD respectively.

Statistical Analysis: All the data was recorded in Epidata 3.1, exported and analyzed through SPSS 20. Chi-square test was applied wherever applicable and level of significance (*p*-value) was considered significant at ≤0.05.

Ethical Considerations: The ethical approval of the study was obtained from institutional review committee (IRC) of Chitwan medical college. The objectives of the study were explained to respondents and they were assured about voluntary participation, and confidentiality of the obtained information. Verbal consents were acquired from those respondents who agreed to participate in the study.

Results and Discussion

Good knowledge on various aspects of dengue will result a significant effect on prevention and control of dengue. Conversely, poor level of knowledge favors spread of dengue causing vectors and virus resulting frequent dengue epidemics. Out of 313 undergraduate medical and dental students, 171 (54.6%) were male and 142 (45.4%) were female and the average age of respondents (90.7 %) was 20.13±1.2. Majority of students were from urban areas (79.2%) and were studying medicine (73.8%) (Table-1). This study evaluated the knowledge and awareness regarding dengue infections among medical and dental students of Chitwan medical college, Bharatpur Nepal. The results of the study have demonstrated that respondents have a fair level of knowledge and awareness regarding dengue infection though they should have been equipped with higher level of knowledge being health science student as compared to general population.

Majority of students were aware of dengue in the present study while only 66.5% correctly said that virus is its causative agents. Similar level of awareness was observed in the study by Itrat *et*

al. and Jain *et al.* where 89.9% and 94% respectively were aware regarding dengue^{13,14}. Majority of respondents (86.9%) said that dengue is an infectious transmissible disease. Most of respondents (93%) knew that dengue is a life-threatening disease whereas 62% of respondents neither correctly answered on availability of vaccine for dengue nor recognized the vector *Aedes* mosquitoes. More than two-third of respondents could correctly answer the major symptoms of DF. Similar finding was observed in the study conducted in Nepal by Dhimal *et al.*¹¹ Four-fifth of them thought that dengue mosquito breed in dirty water whereas more than half of respondents (56.5%) correctly answered regarding timing of dengue mosquito bites. Most of the respondents (85.6%) were aware of means of preventing mosquitoes. (Table-2).

Table 1
Socio-demographic characteristics of respondents

Characteristic	N=313
Gender	
Male	171 (54.6%)
Female	142 (45.4%)
Age	
<20	87 (27.8%)
≥20	226 (72.2%)
Residence	
Rural	65 (20.8%)
Urban	248 (79.2%)
Course	
MBBS	231 (73.8%)
BDS	82 (26.2%)

Text book and teachers were the main sources of information for 41.5% of respondents where almost equal number of respondents expressed that television (41.2%) was the source of information regarding dengue followed by friends/relatives (27.8 %) (Table-3). The finding of present study regarding the source of knowledge is quite identical to the finding of Itrat *et al.*¹³ In this study, only about 7% of the participants mentioned that they found Dengue related information from health workers which indicates that Nepalese health care workers are not sufficiently mobilized for awareness raising programmes and thus they should be mobilized by equipping IEC(Information, Education, and Communication)materials for spreading accurate information about Dengue and its prevention and control.

Table-2
Awareness on various aspects of Dengue (N=313)

Knowledge related questions	Yes	No
Aware about Dengue?	293(93.6)	20 (6.4)
Knowledge on causative agent of Dengue	208 (66.5)	105 (33.5)
Is Dengue Infectious?	272 (86.9)	41 (13.1)
Could Identify Dengue Mosquito?	121 (38.7)	192 (61.3)
Is it life threatening disease?	291 (93.0)	22 (7.0)
Knowledge on availability of vaccine?	120 (38.3)	236 (61.7)
Knowledge on symptoms?	207 (66.1)	106 (33.9)
Knowledge on Dengue affected region?	293 (93.6)	20 (6.4)
Knowledge on method of prevention	268 (85.6)	45 (14.4)
Knowledge on timing of Dengue mosquito bite	177 (56.5)	136 (43.5)
Knowledge on site of Dengue mosquito breeding	49 (15.6)	264 (84.4)

Table-3
Source of information regarding Dengue

Source of information	Frequency (Percentage)
Text book/Teacher	130(41.5%)
Television	129(41.2%)
Friends/relatives	87(27.8%)
Newspaper	79(25.2%)
Health care provider	20(6.4%)
Advertisement	19(6.1%)
Radio	9(2.9%)

More than two-third of respondents (69.3%) had moderate level of knowledge regarding dengue whereas, only one-fifth of respondents had good level of knowledge. This data of good level of knowledge is little higher as compared to the finding previous study conducted Dhimal *et al.* in 2014 in Nepal where only 12% of respondents had good level of knowledge¹¹. The differences could be due to study population being health science students in the present study. Surprisingly, 10.3% and 9.7% of students have poor level of knowledge among age group <20 and >= 20 years respectively. (Table- 4) In overall, One-tenth of respondents had poor level of knowledge on dengue in the current study. The proportion of respondents with poor level of knowledge was observed quite higher (44%) than the present study as it is compared with one of the study compared in Nepal by Sharma *et al.*¹² (Figure1).

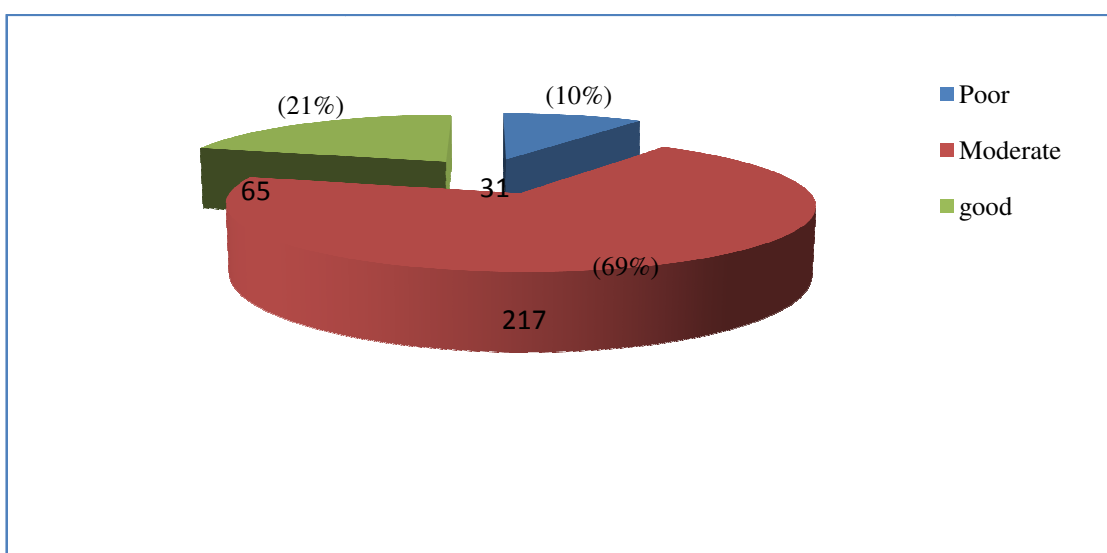


Figure-1
Overall Level of knowledge among respondents

Nearly 20% of MBBS 1st year students had good level of knowledge whereas 22.7% of MBBS 2nd year students had good level of knowledge on dengue. 8.0% and 10.1% of MBBS 1st and 2nd year students respectively had poor level of knowledge. The academic year-wise knowledge difference was not statistically significant among both MBBS and BDS students. (Table-5). The moderate level of knowledge among health science students reflects that there is average level of awareness among them which may give idea that dengue related knowledge and awareness level might be lower at the community level. Therefore, there is an imperative need for substantial awareness programmes on dengue fever to uplift the basic knowledge in the all segments of population irrespective to their profession and literacy level.

Despite the efforts of many organizations for the development of vaccines against dengue, there is no such vaccine available in the market yet¹⁵ and similarly there is no of specific treatment available for Dengue. Thus, the only possible way for the prevention and control of the DF among the population is by reducing its vector mosquito *Aedes aegypti* and also by limiting its dispersal to new region⁸. To increase the survival of patients with DF, early diagnosis and careful clinical management by

trained health personnel is crucial⁹. Evidences have supported that frequent infection of DF can amplify the risk of rather serious disease resulting in dengue hemorrhagic fever (DHF).¹⁶ Along with the financial and skilled man power limitations and weak, poorly structured healthcare services, Nepal has been facing many challenges in healthcare provision for dengue control³. The World Health Assembly recommended to its member states for the improvement of surveillance and management efforts for the prevention and control of DF⁴.

Conclusion

The results of this study revealed that students had a fair level of knowledge and awareness regarding dengue infection which was below the expectation. The findings highlighted the need of enhancing their level of knowledge before deploying them for health education campaigns in the community. Chitwan, being the dengue endemic city with its dense population, it is necessary to promote DF control as a priority program. Educational interventions and awareness campaigns in the community which are specially simple to adopt, cheaper and elaborate preventive measures to control vector may prevent or respond to possible outbreaks of dengue in the future.

Table-4
Age wise knowledge level of respondent

Age group (Years)	Level of Knowledge			Total	p
	Poor	Moderate	good		
<20	9 (10.3%)	54 (62.1%)	24(27.6%)	87(100%)	0.162
>= 20	22(9.70%)	163 (72.10%)	41 (18.1%)	226 (100.0)	
Total	31 (9.9)	217 (69.3)	65 (20.8)	313 (100.0)	

Table-5
Academic Year wise Level of Knowledge among Students

Course		Level of Knowledge			Total	P
		Poor (%)	Moderate (%)	Good (%)		
MBBS	1 st year	9 (8.0)	81 (72.3)	22 (19.6)	112 (100)	0.69
	2 nd year	12 (10.1)	80 (67.2)	27 (22.7)	119 (100)	
	Total	21 (9.1)	161 (69.7)	49 (21.2)	231 (100)	
BDS	1 st year	5 (13.2)	28 (73.7)	5 (13.2)	38 (100.0)	0.42
	2 nd year	5 (11.5)	28 (63.6)	11 (25.0)	44 (100.0)	
	Total	10 (12.2)	56 (68.3)	16 (19.5)	82 (100.0)	
Grand Total		31 (9.9)	217 (69.3)	65 (20.8)		

Recommendations: Further information, education and communication programs are needed in the schools, colleges and community for strengthening awareness of mosquito control measures. Health education and behaviors change can play a major role to participate in preventing and controlling DF. School and college based education is vital and compliment community outreach education. This education will help transfer of knowledge from classrooms to homes and in establishing sound DF preventive and control practices for society as a whole.

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