



**KNOWLEDGE, ATTITUDE AND PRACTICE ASSESSMENT ON DENGUE FEVER
AMONG UNDERGRADUATE STUDENTS IN KATHMANDU**

Apson Piya¹, Sabyata Gautam^{2*}, Sujan Adhikari³ and Rajan Manandhar⁴

¹National Model College for Advance Learning, Lainchour (NMCAL), Kathmandu, Nepal.

²Associate Professor and Head of Department, National Model College for Advance Learning, Department of Pharmacy, Lainchour (NMCAL), Kathmandu, Nepal.

³Assistant Professor, National Model College for Advance Learning (NMCAL), Lainchour, Kathmandu, Nepal.

⁴Assistant Professor, Kathmandu Model Hospital School of Nursing (KAMHSON), Swoyambhu, Kathmandu, Nepal.



***Corresponding Author: Sabyata Gautam**

Associate Professor and Head of Department, National Model College for Advance Learning, Department of Pharmacy, Lainchour (NMCAL), Kathmandu, Nepal.

Article Received on 03/06/2024

Article Revised on 23/06/2024

Article Accepted on 13/07/2024

ABSTRACT

Dengue is a viral infection widespread throughout the tropics transmitted to humans through the bites of infected female mosquitoes, primarily the *Aedes aegypti* mosquito. As of 31 Dec, 2022, a total of 54,784 dengue cases have been identified in Nepal and the cases seem to be rising. The main objective of this study is to study knowledge, attitude and practice of dengue fever among the study population. A cross-sectional study was conducted to assess knowledge, attitude and practice regarding Dengue fever among undergraduate students inside Kathmandu. A total of 198 undergraduate students had participated in the study. Data collected through structured questionnaires were entered and analyzed in Microsoft Excel Workbook. Almost all participants knew that fever, muscle and joint pain were the symptoms of DF (94%). Majority (80%) of the participants were aware about the drug of choice in dengue treatment. Similarly, the participants had a good level of knowledge (16.28788), attitude (9.287879) and practice (9.484848) regarding dengue fever. Though many undergraduate students had good knowledge, attitude and practice towards the dengue fever; however, Nepalese health organizations should consider more educational and awareness programs targeting undergraduate students regarding practice on management of Dengue fever.

KEYWORDS: *Dengue fever, Knowledge, Practice, students.*

INTRODUCTION

Dengue is a viral infection transmitted to humans through the bite of infected Aedes mosquitoes. Dengue is widespread throughout the tropics, with local variations in risk influenced by climate parameters as well as social and environmental factors. Dengue is caused by a virus of the Flaviviridae family and there are four distinct, but closely related, serotypes of the virus that cause dengue (DENV-1, DENV-2, DENV-3 and DENV-4).^[1,3] In Nepal, dengue is a rapidly emerging disease. A vector surveillance conducted in three districts: Dang, Lalitpur and Kathmandu has demonstrated presence of the vector *Aedes aegypti* and *Aedes albopictus*. All 4 dengue serotypes exist in Nepal, with DENV-1 and 2 historically contributing the highest burden (EDCD, 2019).^[1]

The incidence of dengue has grown dramatically around the world in recent decades, with cases reported to WHO increased from 505,430 cases in 2000 to 5.2 million in 2019. As of 31 Dec, 2022, a total of 54,784 dengue cases have been identified in Nepal and the cases seem to be rising.^[1,2] But, little research has been done on this

disease. So, people should have knowledge about the disease, show a positive attitude towards it and practice the right steps or process to control and minimize its occurrence. And thus, the current study has been designed to collect the data on knowledge, attitude and practice of Dengue fever among undergraduates in Kathmandu.

Nisha, R.R. et.al (2020) came with the conclusion that the socio economic background, knowledge, attitude and practice among dengue is low in educated people also in Madurai district, India.^[7]

Sah, N. K. (2069 B.S) found that lack of knowledge and improper practice towards dengue was explicit in the study. Emphasis should be more on creating awareness among people. Education intervention was more effective in controlling dengue fever.^[8]

Undergraduate students also bear essential responsibility in overcoming rapidly emerging disease. In the case of Dengue, students need to have adequate knowledge

about Dengue, show a positive attitude in order to successfully exercise their roles in the fight against the disease and help to control the disease by imparting knowledge to family, community and nation.

OBJECTIVES: The objective of the research is to study knowledge, attitude and practice of dengue fever among the study population. The specific objectives of the study are

- To know the socio-demographic characteristics of the population
- To find out the knowledge level of the study population
- To find out the attitude of the undergraduates towards dengue
- To determine the practices performed to control and minimize the symptoms of dengue fever.

MATERIALS AND METHODS

Study design and population: Cross-sectional study conducted among 198 undergraduate students in Kathmandu city.

Study Duration: 90 days.

Study instrument and data collection: The data was collected through structured questionnaire which was divided into four parts; the first part cover questions on socio-demographic characteristics which was accessed by six questions, the second part about knowledge which was accessed by nine questions, the third part related to practices which was accessed by five questions and the fourth part concerned with their attitude to DF which was accessed by five questions.

RESULTS AND DISCUSSION

Sociodemographic Factors

Table 1: Sociodemographic factors of respondents.

Sociodemographic Characters			
Variable	Categories	Frequency	Percentage (%)
Gender	Male	117	59%
	Female	81	41%
Age	16-20	36	18%
	21-25	153	77%
	26-30	9	5%
Faculty	Pharmacy	129	64%
	Engineering	27	13%
	BDS	6	3%
	Management	3	1%
	BBS	6	3%
	Nursing	6	3%
	Microbiology	3	1%
	Psychology	3	1%
	BCA	3	1%
	BBA	3	1%
	BIBM	3	1%
	BASW	3	1%
Others	6	3%	
Marital Status	Single	192	97%
	Married	6	3%

Study type: It is a descriptive and quantitative type of research study.

Sampling technique: Simple random sampling technique was used.

Data analysis and Methodology: For KAP study, the answers were categorized as “Good”, “Fair” and “Poor”. Score “2” was provided for every correct answer, “1” for every less confident, near to the correct answer and “0” for every wrong or straight “I don’t know” answer.^[12] Structured questionnaire was first analyzed from expert and used as a tool. Data was collected only after taking the consent from the respondents.

The obtained data was analyzed by Microsoft Excel Worksheet and SPSS.

Sample selection

- *Inclusion criteria:* Undergraduate students of Kathmandu were included in this study.
- *Exclusion criteria:* Students who were unwilling to participate in the study.

Ethical Consideration: The approval letter for conduction of research on specific topics was taken from the college. A request letter to the respective college was forwarded from college to get consent. First the main purpose and objective was explained to respondents. Then, assurance of privacy and confidentiality of the information was done. So, this research has followed moral and human dignity.

Religion	Hindu	177	89%
	Muslim	3	2%
	Christian	6	3%
	Buddhist	3	2%
	Others	9	5%
Living area	Urban	168	85%
	Rural	30	15%

The table represents the sociodemographic factors of the respondents. Out of 198 valid respondents, 117(59%) were male and 81(41%) were female which resembled the study conducted by Dhimal M et al which shows that 41% were female and 59% were male.^[4] The majority of the respondents were of age group 21-25 (153, 77%) while, 16-20 age group were 36, 18% and 26-30 age group were 9, 5%.

Most respondents 129(64%) were of Pharmacy faculty followed by Engineering faculty 27(13%), BDS 6(3%), Nursing 6(3%), BBS 6(3%) and so on. Almost all the respondents 192(97%) were single while 6(3%) were married which was different from the study done by Dhimal M et al in which most of the study participants

were married (70%) and 29% were single. This might be due to the difference in study population.^[4] Similarly, 177(89%) respondents were Hindu, 3(2%) were Muslim, 6(3%) were Christian, 3(2%) were Buddhist and 9(5%) were of other religions. Most of the respondents lived in Urban areas [168(85%)] and few of them lived in rural areas [30(15%)].

The finding showed that most of the people lived in urban area (85%) in comparison to rural area (15%) which was similar to study conducted by Al-Zurfi BM et.al shows that 68.6% of the participants live in an urban area whereas 31.4% of them live in rural area.^[5] a31dhh 5yh sw1x.

Knowledge of Participants

Table 2: Knowledge of Participants.

Knowledge based Questions	Poor	Fair	Good	Total
1. Is fever a symptom of DF?	6(3%)	6(3%)	186(94%)	198
2. Are joint and muscle pain the symptoms of DF?	3(1%)	9(5%)	186(94%)	198
3. Is pain behind the eyes a symptom of DF?	42(21%)	0(0%)	156(79%)	198
4. All mosquitoes can transmit DF	9(5%)	3(1%)	186(94%)	198
5. Is DF transmitted through food and water?	18(9%)	0(0%)	180(91%)	198
6. When are the Dengue mosquitoes most likely to feed/bite?	51(26%)	54(27%)	93(47%)	198
7. Dengue epidemics start during hot weather	9(4%)	21(11%)	168(85%)	198
8. Which is the drug of choice for dengue treatment?	24(12%)	12(7%)	147(80%)	198
9. Mosquitoes breed in standing water	9(5%)	12(6%)	177(89%)	198
Mean(Percentage)	19(9.56%)	13(6.67%)	166(83.77%)	198

The study showed that 83.77% of the undergraduate students have a good level of knowledge about dengue fever while 6.67% of the students have a fair or moderate level of knowledge and 9.56% of the students have a poor level of knowledge. Almost all of the respondents 186(94%) knew that fever is a symptom of DF which is similar to a study conducted by Dhimal M et al.^[4] Majority of the respondents (85%) had the knowledge about the optimal time for the onset of the dengue epidemic, which is better than the study done by Al-Zurfi BM et.al in which 74% of the respondents had knowledge about it.^[5] About 186(94%) respondents had good knowledge that all mosquitoes cannot transmit DF

which resembled the study done by Dhimal M et al.^[4] According to 147(80%) students, paracetamol is the drug of choice for dengue fever and about 180(91%) were aware that Dengue fever is not transmitted by food and water which were similar to the study of Al-Zurfi BM et al.^[5]

Gunasekara, T et.al (2012) concluded that the participants demonstrated gaps in knowledge and poor attitude which may affect the level and frequency of preventive practices. The findings highlighted the need for further information, education and communication programs in the community.^[11]

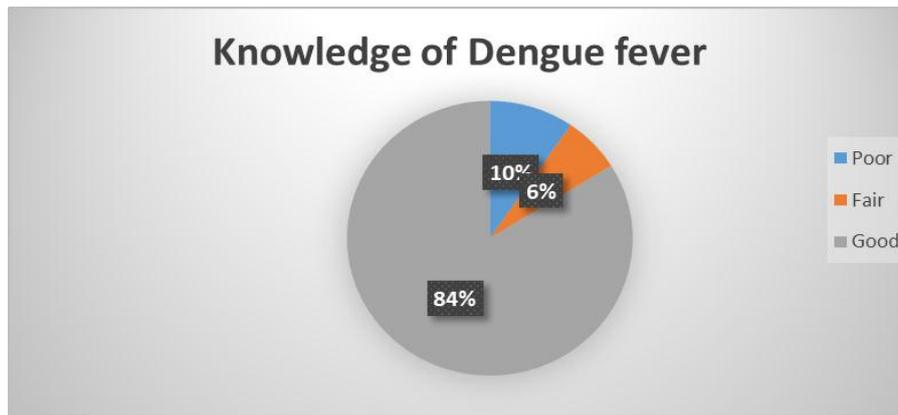


Figure 1: Knowledge of Dengue fever.

Attitude towards Dengue Fever

Table 3: Attitude of participants.

Attitude based Questions	Poor	Good	Total
Is DF a serious illness?	24(12%)	174(88%)	198
Can DF be prevented?	9(5%)	186(95%)	198
Who should be responsible for mosquito control?	45(23%)	153(77%)	198
Is controlling the breeding places of mosquitoes a good strategy to prevent DF?	3(2%)	195(98%)	198
It is not necessary to seek immediate treatment for dengue fever as there is no cure for it	54(27%)	144(73%)	198
Mean(Percentage)	27(13.8%)	171(86.2%)	198

The study showed that 171(86.2%) undergraduate students have a good level of attitude while 27(13.8%) students have a poor level of attitude. Most of the participants 195(98%) knew that controlling the breeding places of mosquitoes is a good strategy to prevent DF which corresponds to a study conducted by Dhimel *et al.*^[4] About 186(95%) were aware that DF can be

prevented which resembled the study of Al-Zurfi BM *et al.*^[5] Majority of the respondents (77%) knew the role of the Government and themselves for the control of dengue fever which was better than a study done by Nalongsack S *et al* in Laos in which 64.3% of the respondents knew about it.^[6]

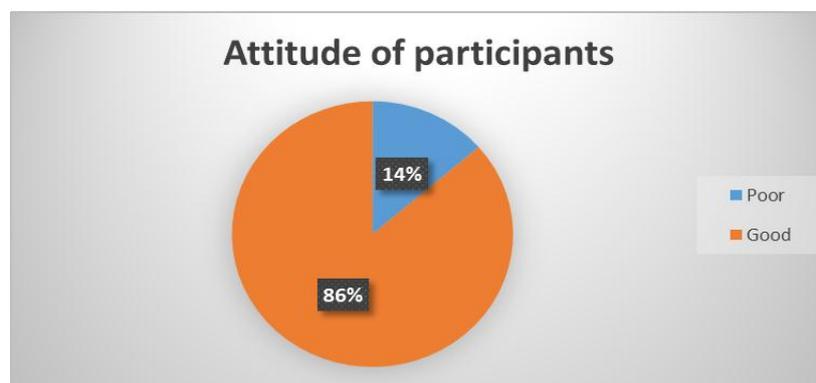


Figure 2: Pie chart of Attitude of participants.

Practice against Dengue Fever

Table 4: Practice against DF of respondents.

Practice based Questions	Poor	Good	Total
Prevent mosquito-man contact	36(18%)	162(82%)	198
Do you use mosquito nets or mosquito coils at home?	12(6%)	186(94%)	198
Eliminate standing water around the house to reduce mosquitoes	0(0%)	198(100%)	198
Do you use mosquito repellent?	48(24%)	150(76%)	198
Covering body with full sleeved clothes	6(3%)	192(97%)	198
Mean(Percentage)	20(10.2%)	178(89.8%)	198

The study showed that 178(89.8%) participants had good practice against DF which was better than the study conducted in Sri Lanka.^[11] All the participants 198(100%) practiced elimination of standing water around the house to reduce mosquitoes which was superior to studies conducted in highland and lowland communities in central Nepal.^[4] 186(94%) of the

participants practiced the use of mosquito coil or net at home which was better than the study conducted in Malaysia in which only 47.1% respondents practiced it.^[5] Almost all the participants 192(97%) practiced covering the body with full sleeved clothes which was superior to a study conducted by Dhimal M *et al* in which only 51% of the respondents practiced it.^[4]

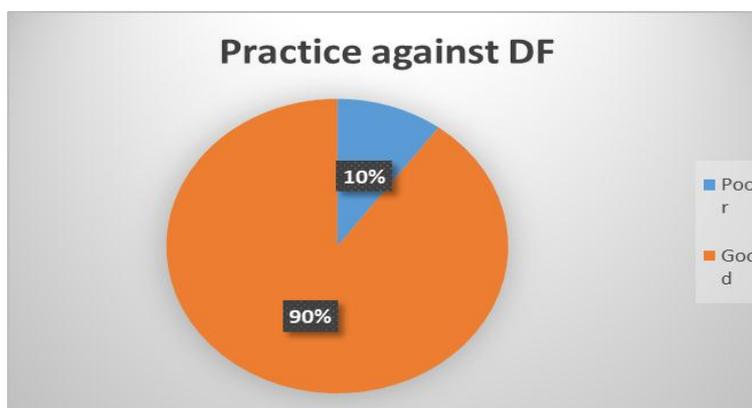


Fig. 3: Pie chart of Practice against DF.

Table 5: Mean KAP score of participants.

KAP	Mean score \pm S.D	Max score obtained	Max possible score
Knowledge	16.28788 \pm 1.91	18	18
Attitude	9.287879 \pm 0.89	10	10
Practice	9.484848 \pm 0.72	10	10

The study showed that the mean knowledge score was 16.28788 \pm 1.91 out of 18, mean attitude score was 9.287879 \pm 0.89 out of 10 and mean attitude score was found to be 9.484848 \pm 0.72 out of 10 which was better than study conducted by Gautam S *et al.* in Diabetes patients in which mean knowledge, attitude and practice were found to be 11.59 \pm 4.89, 2.83 \pm 0.82 and 11.92 \pm 3.78 respectively.^[12]

CONCLUSION

The study showed that the majority of the respondents were male i.e., out of 198 respondents, 117 were male and 81 were female. Similarly, most of the respondents were of age group 21-25 years. Also, most of the respondents (80%) knew the drug of choice of dengue fever. Almost all the respondents (85%) had the knowledge about the optimal time for the start of the dengue epidemic. Majority of the respondents (77%) knew the role of Government and oneself for the control of dengue fever. Higher number of respondents practiced the use of mosquito net or coil, elimination of standing water, mosquito repellent and wearing full sleeved clothes to prevent mosquito bite. Many undergraduate students had good knowledge, attitude and practice towards dengue fever.

The finding would have been more impactful if the study period was extended. The study area was selected randomly, hence the result of the study does not cover the exact picture of the entire undergraduate students.

This study can be made multicenter to strengthen the finding of the study.

The study highlights training and educational programs should be conducted at the community level to develop awareness against Dengue fever. more educational and awareness programs targeting undergraduate students as insufficient knowledge, bad attitude and wrong practice by some undergraduate students could have negative and unwanted consequences on epidemic control and public health. According to Iqbal, M. S. (2020), there is still a need for CPs to constantly attend training and continuous professional development programs to keep themselves updated by the latest information. Well trained community pharmacists will be able to relay the right information as well as giving proper counseling to the patients^[9]; so, Nepalese health organizations should consider more educational and awareness programs for undergraduate students and new community pharmacists regarding proper practice on management of Dengue fever.

REFERENCES

1. Situation update of Dengue (2022), Epidemiology and Disease Control Division, Department of Health Services, Ministry of Health and Population, 2022. [cited 1 May 2023].
2. Centers for Disease Control and Prevention. Dengue Fever. Division of Vector-Borne Infectious Diseases, 2005. [cited 1 May 2023]; CDC, Atlanta.

3. World Health Organization. Dengue and severe dengue [Online], 2015. [cited 6 May 2023]. Available from: https://www.who.int/health-topics/dengue-and-severe-dengue#tab=tab_1.
4. Dhimal M, Aryal KK, Dhimal ML, Gautam I, Singh SP, Bhusal CL, Kuch U. Knowledge, attitude and practice regarding dengue fever among the healthy population of highland and lowland communities in central Nepal. *Plos one*, 2014 Jul 9; 9(7): e102028.
5. Al-Zurfi BM, Fuad MD, Abdelqader MA, Baobaid MF, Elnajeh M, Ghazi HF, Ibrahim MH, Abdullah MR. Knowledge, attitude and practice of dengue fever and health education programme among students of Alam Shah Science School, Cheras, Malaysia. *Malaysian Journal of Public Health Medicine*, 2015; 15(2): 69-74.
6. Nalongsack S, Yoshida Y, Morita S, Sosouphanh K, Sakamoto J. Knowledge, attitude and practice regarding dengue among people in Pakse, Laos. *Nagoya J Med Sci.*, 2009 Feb 1; 71(1-2): 29-37.
7. Nisha RR, Saravanabavan V, Balaji D. Knowledge, attitude and practice in dengue endemic areas in Madurai District. *Int J Contemp Med Res.*, 2020; 7(3): 1-6.
8. Sah NK. Knowledge and practice on prevention and control of dengue fever among people at Mangalpur VDC, Chitwan district of Nepal. *JCMC [Internet]*. Jun. 19 [cited 2023 May 6], 2021; 11(2): 92-7. Available from: <https://www.nepjol.info/index.php/JCMC/article/view/37910>
9. Iqbal MS. Evaluation of Community Pharmacists. Knowledge and its Association with their Attitude toward Dengue Control and Management. *AJP [Internet]*. Jun. 9 [cited 2023 May 6], 2020; 14(2). Available from: <https://www.asiapharmaceutics.info/index.php/ajp/article/view/3620>
10. Vikas K, Sherkhane MS, Kardalkar S. The Dearth of Dengue Awareness in Rural Population–Time to Act. *Indian Journal of Public Health Research & Development*, 2020 Jul 30; 11(7): 415-23.
11. Gunasekara TD, Velathanthiri VG, Weerasekara MM, Fernando SS, Peelawattage M, Guruge D, Fernando S. Knowledge, attitudes and practices regarding dengue fever in a suburban community in Sri Lanka. *Galle Medical Journal*. March, 2012; 17(1).
12. Gautam S, Basnet R. DRUG UTILIZATION PATTERN AND KAP ASSESSMENT AMONG DIABETIC PATIENTS AT SELECTED HOSPITALS IN KATHMANDU, NEPAL. *World Journal of Pharmacy and Pharmaceutical Sciences*, 2020; 9(11).