



RESEARCH ARTICLE

KNOWLEDGE AND PRACTICE ON PREVENTION OF DENGUE AMONG THE POPULATION OF EAST SIKKIM

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ABSTRACT

Introduction: Aedes species (Ae. Aegypti or Ae. Albopictus) mosquito bites carry the virus that causes dengue, which is spread by vectors. India has a 48.7% seroprevalence of dengue virus infection overall. Zika, Chikungunya, and other viruses are also transmitted by these insects. The only way to manage dengue and its complications is to prevent it, as there is currently no known cure or vaccine for the disease in India. **Aim:** To assess the knowledge and practice regarding prevention of Dengue among the population of East Sikkim. **Method:** A descriptive study was carried out on 200 adult residents of East Sikkim's dengue-prone districts. By using a random sampling technique (lottery method) the samples were selected. Data were gathered over the course of two months using an observational checklist for practice and a structured knowledge questionnaire. SPSS version 29 was used for both descriptive and inferential statistical approaches during the data analysis process. **Results:** The results showed that, regarding dengue prevention, 145 people (72%) had average knowledge, 49 people (25%) had high knowledge, and 6 people (3%) had poor understanding. In regard of dengue prevention, 142 people (71%) had excellent practices, while 58 people (29%) had poor practices. The degree of knowledge and practice about dengue prevention showed a somewhat positive connection ($r=0.71$). The degree of practice and age ($df=4$, $p=0.001$) and family type ($df=1$, $p=0.006$) showed a significant correlation, but there was no significant correlation between the level of knowledge and the chosen demographic characteristics. **Conclusion:** According to the study, most people had good practices and average knowledge of dengue prevention. There is still significant room for improvement, particularly in the area of preventive measures through public awareness campaigns and other initiatives.

INTRODUCTION

Dengue is one of the most common diseases in tropical and subtropical areas. Dengue affects up to 400 million people annually. Around 100 million people develop an infection, and 40,000 succumb to severe dengue.¹ The National Vector Disease Control Programme (NVDCP) states that there are a variety of vector control measures to protect against dengue and to reduce the number of dengue cases, such as using personal prophylactic measures, like using coils, liquids, repellent creams for mosquito, wearing shirts with full sleeve and full trousers with socks, and using bed-nets while day time sleeping to avoid mosquito bites. Methods for environmental management and source reduction include finding and removing mosquito breeding grounds, managing roofs, and sunshades, properly covering water storage.

According to the National Centre for Vector Disease Control Government of Indian in 2021 total of 193,245 confirmed cases were reported from overall India with 346 confirmed deaths due to dengue. The highest number of confirmed cases is 29,750 from Uttar Pradesh and 96 deaths from Rajasthan due to dengue. In Sikkim, 243 confirmed cases were reported with 1 confirmed death in 2021. Sikkim has the most dengue cases reported in 2013 with a total of 679 confirmed cases, followed by 444 confirmed cases in 2019, 320 confirmed cases in 2018, and 312 cases in 2017. In Sikkim among all vector-borne disease dengue remains the highest.² In Sikkim on August 2021, Singtam reported 243 confirmed cases of dengue from which Mandi Line, Jubilee Line, and, Mandir Line were the areas of Singtam being the most affected during the 2021 dengue outbreak. Singtam, Rangpo, and Jorethang, which lie in the foothills and near to the river, have served as a focal point for the dengue epidemic in Sikkim.

Since Sikkim is a mountainous location, the transmission of dengue is relatively uncommon. However, because of the effects of rapid development, poor water management, including incorrect water storage practises, rise in population, and climate change, dengue has spread and in a verge of endemic on those regions.⁵

Need of the study: Over the past 20 years, the number of dengue cases reported to the WHO has increased more than 8-fold, from 0.5 million cases in 2000 to more than 2.4 million in 2010 and 5.2 million in 2019. Between 2000 and 2015, there were more dengue-related deaths reported (from 960 to 4302). There have been 1.4 million dengue cases recorded worldwide in 2021, with the majority occurring in Brazil (863,650 cases), India (123,106 cases), Vietnam (61,304 cases), the Philippines (61,170 cases), and Colombia (50,582 cases).

In accordance to the Government of India's National Centre for Vector-borne Diseases Control in 2022 a total of 110,473 confirmed cases of dengue with 86 confirmed deaths due to dengue was registered till 31st October 2022. The highest number of confirmed cases is from Telangana with 13,091 confirmed dengue cases and 24 deaths from Kerela due to dengue. In Sikkim, 209 confirmed cases were reported with no deaths till 31st October 2022.² Every year, more and more people in Sikkim were getting sick with dengue. It could soon become a common problem that never goes away. Knowing people's prior knowledge and their practices will help a government for easy application of various programs according to the need of the individual to control dengue cases in Sikkim as well as in India.

Problem statement

“Knowledge and practice on prevention of dengue among the population of East Sikkim”.

Objectives

The objectives of this research are to:

- Assess the level of knowledge on prevention of dengue among the population of East Sikkim.
- Assess the level of practice on prevention of dengue among the population of East Sikkim.
- Find out the correlation between the level of knowledge and practice on prevention of dengue among the population of East Sikkim.
- Find out the association between the level of knowledge and practice on prevention of dengue among the population of East Sikkim with their selected demographic variables.
- Plan strategies towards awareness on the prevention of dengue based on the study findings.

Variables

Research variable: The research variables in this study were knowledge and practice on dengue prevention.

Demographic Variable: In present study, demographic variables are age, gender, religion, educational level, socio-economic class, type of family, occupation, and have you heard of the term dengue.

METHODOLOGY

Research approach: quantitative approach

Research design: non- experimental descriptive design

Setting of the study: Singtam and Rangpo district of East Sikkim

Sample: Adults who are at 18 years and above and are residing in dengue-prone areas of East Sikkim that are Singtam and Rangpo.

Sample size: 200

Sampling technique: probability simple random sampling technique (lottery method)

Sampling criteria

Inclusion criteria

- Population aged 18 years and above
- Population that is ready to give consent and participate in the study.
- Population that understands English, Hindi, or Nepali language

Exclusion criteria

- Individuals who weren't available when the data was collected

Variables

Research variables: Knowledge and practice

Demographic variables: Age, gender, religion, educational qualification, socioeconomic class, type of family, occupation, ever heard of term dengue.

Tools

Tool I: Demographic proforma (includes 8 items that were age, gender, religion, educational level, socioeconomic class, family type, occupation, and have you ever heard the term dengue?)

Tool II: Structured Knowledge Questionnaire (includes 16 questions on dengue according to the blueprint under section (definition, epidemiological triad, clinical features, treatment and prevention; scoring: poor (1-6), average (7-11), and good knowledge (12-16) based on the knowledge scores).

Tool III: Structured practice observational checklist (includes 12 statements on prevention of dengue; scoring: good (7-12) and bad (1-6) practice.)

Validity/reliability

The validity, pretesting, reliability of the tool was done. Pilot study was also conducted to see the feasibility of the final study.

The reliability of tool-I was calculated using the inter-rater method and result found was reliable (100%), while reliability of tool II was calculated split-half approach and it was discovered to be reliable (r=0.8) and tool III's reliability was computed using inter-rater method and the tool was 100% reliable.

Duration of the study: 6 weeks

Data Collection procedure: The final study was conducted at Singtam and Rangpo (total of 8 wards) from 7/11/2022 to 17/12/2022 after getting formal permission from the respective MEOs (Municipal Executive Officers). The participants were informed of the study's objectives, and response confidentiality was guaranteed.

Data analysis & interpretation: The data were categorized and analyzed using descriptive and inferential statistics using SPSS version 29 on the following basis.

Results of the study: The study results were organized under the following headings:

Section 1: Findings related to frequency and percentage distribution of demographic variables.

Section 2: Findings related to the level of knowledge on prevention of dengue among the population of East Sikkim.

Section 3: Findings related to the level of practice on prevention of dengue among the population of East Sikkim.

Section 4: Findings related to the correlation between the level of knowledge and practice on prevention of dengue among the population of East Sikkim.

Section 5: Findings related to the association between the level of knowledge and practice on prevention of dengue with selected demographic variables.

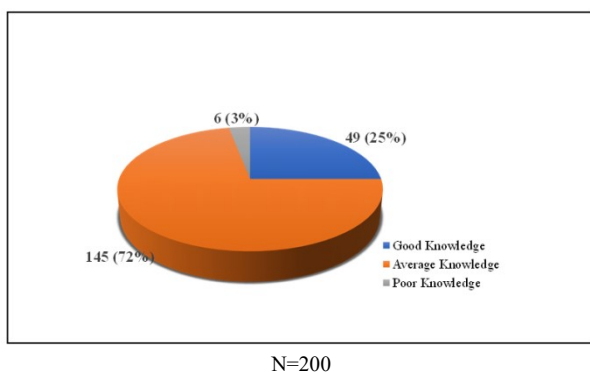


Figure-1: Pie diagram representing the percentage of the level of knowledge on prevention of dengue among the population of East Sikkim

Section- 1: Findings related to frequency and percentage distribution of demographic variables

The majority 67 (33.5%) of the population were in the age group of 18-30 years and more than half of the population 105 (52.5%) were male by gender. The majority 155 (77.5%) of the population were Hindu by religion, 82 (41%) of the population were having a secondary level of education.

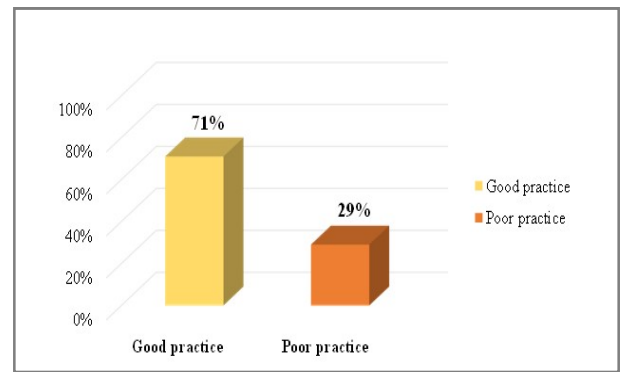


Figure 2. Bar diagram shows the percentage distribution of the practice level on prevention of dengue N=200

Table 1. Correlation between the level of knowledge and practice on prevention of dengue N= 200

Variables	Test of significance	Mean	SD	'r' value
Knowledge	Karl Pearson's correlation coefficient	10.23	1.93	0.71
Practice		6.9	1.42	

All 200 (100%) of the population belongs to a socioeconomic group class I. The majority of the population 138 (69%) lives in a nuclear family, 59 (29.5%) and 58 (29%) of the population were vendors and homemakers by occupation, respectively. All 200 (100%) of the population had heard of the term dengue and from them, 117 (58.5%) had heard it from their friends and family members.

Section-2: Findings related to the level of knowledge on prevention of dengue among the population of East Sikkim.

The data presented in Figure-1, shows that the majority 145 (72%) of the population had average knowledge, 49 (25%) had good knowledge and 6 (3%) had poor knowledge regarding prevention of dengue.

Section-3: Findings related to the level of practice on prevention of dengue among the population of East Sikkim.

The data presented in Figure-2, shows that the majority 142 (71%) of the population had good practice and 58 (29%) had poor practice regarding prevention of dengue.

Section 4: Findings related to the correlation between the level of knowledge and practice on prevention of dengue among the population of East Sikkim

To find the correlation between the level of knowledge and practice regarding prevention of dengue, Pearson's correlation coefficient test was computed and is presented in Table-1.

Table -1: Correlation between the level of knowledge and practice on prevention of dengue: The data presented in Table-1, shows that there is a moderate positive correlation between the level of knowledge and practice on prevention of dengue among the population of East Sikkim (r = 0.71).

Section 5: Findings related to the association between the level of knowledge and practice on prevention of dengue with selected demographic variables.

There was no association between the level of knowledge and selected demographic variables such as gender, religion,

educational qualification, socioeconomic class, type of family, and occupation. There was an association between the level of practice with age and type of family and there was no association between the level of practice with other demographic variables such as gender, religion, educational qualification, socioeconomic class, and occupation. Based on the study findings, it was found that the population of East Sikkim had average knowledge and good practice regarding dengue prevention. As a plan strategy, the researcher developed a leaflet regarding dengue prevention, which was validated with experts and distributed to residents of Singtam and Rangpo, East Sikkim. This will help to reduce the prevalence rate of dengue in Sikkim by improving both knowledge and practice.

DISCUSSION

The findings of the study are discussed with reference to the objectives and the findings of the previous studies.

Regarding the level of knowledge regarding prevention of dengue: In the present study, the majority of the population 145 (72%) had average knowledge, 49 (25%) had good knowledge and 6 (3%) had poor knowledge regarding prevention of dengue which is similar with the findings of Lingaraju CM. *et al.*,⁵ at Mysuru, Dr. Dayalal P,⁶ at Mehsana District, Gujarat whereas the present study finding is contradictory with a study done by Debayan P. *et al.*,⁷ in the slums of Chetla, Kolkata, in which the majority 68.4% of respondents had poor knowledge on dengue.

Regarding the level of practice regarding prevention of dengue: In the present study, the majority of the population 142 (71%) had good preventive practices and only 58 (29%) had poor preventive practices regarding prevention of dengue. The findings of the present study are consistent with the findings of Ashok G M. *et al.*,⁸ in Raichur, where the majority (77.5 %) of respondents had good preventive practices towards dengue; whereas the present study finding is contradictory with a study conducted by Debayan P. *et al.*,⁷ in the slums of Chetla, Kolkata, where the majority 62.8% of respondents had poor preventive practices towards dengue.

Findings related to the correlation between the level of knowledge and practice on prevention of dengue: The findings of the present study reveal that, there was a moderately positive correlation between the level of knowledge and practice regarding prevention of dengue among the population of East Sikkim ($r = 0.71$). The findings of the present study are consistent with the findings of Meghnath D. *et al.*,⁹ in Nepal which showed that there was a moderate positive correlation between the level of knowledge and practice, ($r = 0.43$), whereas the present study finding was contradictory with a study conducted by KhaledGS, *et al.*,¹⁰ which showed that there was a weak positive correlation between the level of knowledge and preventive practices, ($r = 0.19$).

Regarding the association between the level of knowledge and practice on prevention of dengue with selected demographic variables: The findings of the present study reveal that there is a significant association between the level of practice with age and type of family ($p < 0.05$) which is consistent with the findings of Yusuf M A, *et al.*,¹¹ in Eastern

Ethiopia, which showed that age was significantly associated with the level of practice toward dengue prevention whereas a study conducted by PhuyalP, *et al.*,¹² in Nepal, did not find any association between the level of practice and socio-demographic variables.

CONCLUSION

The survey concluded that the people of East Sikkim had average awareness and good practices on preventing dengue. Residents of the Singtam and Rangpo districts of East Sikkim were also given dengue prevention leaflets. Additional interventional strategies, like training and mass awareness campaigns, can be planned to increase the state of Sikkim's understanding of dengue prevention. This will enhance the state's preventive practices, which will ultimately lead to a decline in dengue cases and a reduction in the state's death and morbidity rates.

RECOMMENDATION

- Similar studies can be conducted in other regions of Sikkim that are prone to dengue.
- Experimental studies can be conducted to evaluate the level of knowledge and practice regarding dengue prevention.
- Similar studies can be conducted among health professionals.
- Studies can be conducted in larger population to generalize the study findings.

REFERENCES

- Centers for disease control and prevention. About Dengue: What You Need to Know. CDC. Google search [Internet]. [cited 14 jan 2022]. Available from: <https://www.cdc.gov/dengue/about/index.html>.
- National center for vector-borne diseases control. Ministry of health and family welfare, Government of India. [internet]. [cited 15 jan 2022]. Available from: <https://nvbdcp.gov.in/index1.php?lang=1&level=1&sublinkid=5776&lid=3690&theme=Blue>
- Pankaj Dhungel. What explains over 200 dengue cases in Sikkim. East Mojo, 4 September 2021. [internet] [cited 13 jan 2022]. Available from: <https://www.eastmojo.com/sikkim/2021/09/04/what-explains-over-200-dengue-cases-in-sikkim/>
- World health organization (WHO). Dengue: guidelines for diagnosis, treatment, prevention and control. Google search [Internet]. [cited 14 jan 2022]. Available from: <https://www.who.int/news-room/fact-sheets/detail/dengue-and-severe-dengue>.
- Lingaraju CM, Munirathna *et al.* The objectives of the study is to assess the knowledge regarding dengue among rural elders in selected area of Varuna PHC, Mysuru. Asian journal of nursing education and research. 2020; 10(3): 251- 254. DOI: 10.5958/2349-2996.2020.00053.1
- Dayalal P. A descriptive study to assess the knowledge regarding dengue among adults in urban slum area of Mehasana District. Asian journal of nursing education and research. 2019; 9(2): 163- 165. DOI: 10.5958/2349-2996.2019.00033.8
- Debayan P, Bobby P, *et al.* Community perception and risk reduction practices towards malaria and dengue: a mixed

- method study in slums of Chetla, Kolkota. Indian journal of public health, 2019; 63(3): 178- 185.doi: 10.4103/ijph.IJPH_321_19.
- Ashok G M, *et al.* Knowledge, attitude and practice toward dengue fever among residents in Raichur. Indian journal of health sciences and biomedical research KLEU. 2020; 13(2): 112-118. DOI: 10.4103/kleuhsj.kleuhsj_28_20
- Megnath D, Krishna KA, *et al.* Knowledge, attitude and practice regarding dengue fever among the healthy population of highland and lowland communities in Central Nepal. PLOS ONE. 2014; 9(7): 1-15. <https://doi.org/10.1371/journal.pone.0102028>
- KhaledGS, Abdulrahman A, *et al.* Knowledge, attitude and preventive practices regarding dengue fever in rural areas of Yemen. The royal society of tropical medicine and hygiene. 2015; 7: 420-25.doi: 10.1093/inthealth/ihv021
- Yusuf M A & Ibrahim A N. Knowledge, attitude and practice towards dengue fever prevention and associated factors among public health sector health-care professionals in Dire Dawa, Eastern Ethiopia. Risk management and healthcare policy. 2019; 12: 91-104.doi: 10.2147/RMHP.S195214
- Phuyal P *et al.* The knowledge, attitude and practice of community people of Central Nepal: a cross sectional study. BMC Infect Dis. 2022 May 12; 22(1):454.doi: 10.1186/s12879-022-07404-4.
