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Knowledge and preventive practices of dengue fever among people attending tertiary care hospital

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Abstract

Background: Dengue fever is a mosquito-borne viral disease that has rapidly spread and has frequent epidemic occurrences in many countries, including Nepal. Assessing people's knowledge and preventive practices of dengue helps to prevent mosquito-related diseases. This study aimed to find out the dengue knowledge and preventive practices of the people attending a Tertiary care hospital.

Method: A descriptive cross-sectional study was conducted at Bharatpur Hospital, Chitwan, from February to July 2023. Convenience sampling technique was used among the people who met the inclusion criteria. Ethical approval was obtained. The data were analyzed for knowledge and preventive practices, and association with socio-demographics. The SPSS version 20 was used for descriptive as well as inferential statistics. A $p<0.05$ was considered statistically significant.

Result: Among 384 participants, 216(56.3%) and 270(70.30%) of participants had a good level of knowledge and preventive practice, respectively. In the logistic regression model with an AOR of 95% CI, participants' age group of 30-49 years (2.698; 1.365–5.334), and ≥50 years (6.139; 2.240–16.825), household working (8.054; 2.993-21.676), agriculture (11.300; 3.542–36.050), and primary education level (6.330; 2.083–19.238) were significantly associated with knowledge of dengue fever.

Conclusion: Overall, knowledge and preventative practices about dengue fever were found to be good. There is a lack of knowledge in specific age groups, levels of education, and type of occupation. Awareness initiatives may help improve the knowledge and practices of the public regarding dengue fever.

Keywords: Dengue, Knowledge, Outbreaks

How to cite

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Introduction

Dengue fever is a viral infection caused by the dengue virus, transmitted to humans through the bite of infected female, Aedes aegypti mosquitoes.[1] The incidence of dengue fever has grown thirty times over the past fifty years, with 390 million infections occurring year worldwide, 96 million of which are symptomatic cases. In 129 nations, an estimated 3.9 billion individuals are susceptible to infection.[2] Nepal experienced the most dengue outbreak on record in 2022. Provinces, affecting all 77 districts of the country. As of 31st December 2022, altogether 54784 dengue cases have been identified with Bagmati province reporting the highest. The country's capital Kathmandu, reported the highest burden of dengue cases(26%).[3] This study aimed to assess the dengue knowledge and preventive practices of the people attending a Tertiary care hospital (Bharatpur Hospital), in Chitwan, Nepal.

Method

A descriptive cross-sectional study design was conducted to assess the knowledge and practice of dengue among people visiting Bharatpur Hospital, Chitwan, Nepal from February to July 2023. Ethical approval was taken from the Institutional Review Committee of the same institute (Reference number 079/80-10/BHG) and written informed consent was taken before data collection. The people from 15-75 years of age who visited the hospital for any reason and agreed to participate were included in the study. People who appeared to have a mental disability were excluded. A convenience sampling technique was used. The face-to-face interview was taken using a structured questionnaire. The sample size was calculated at 385 by using the formula: $n = Z^2pq/e^2$, with a prevalence of 50%, and margin of error 5% $=(1.96)^2*0.50*0.50/(0.05)^2=0.88/0.0025=385$.

A structured interview schedule comprising socio-demographic variables, dengue-related variables, and dengue preventive practices variables was taken from each participant. The interview took approximately 20-25 minutes. Participants were ensured their data would not be disclosed to anyone unrelated to the research activities. The knowledge and practices were categorized into two levels, value than the mean score, which indicates a poor level of knowledge and practice, while more than the mean indicates a good level of knowledge and preventive practice of dengue fever.

The data was analyzed in SPSS version 26 for descriptive as well as inferential statistics. A $p<0.05$ was considered statistically significant.

Result

Among 384 participants, nearly half 185(48.2%) were below the age group of 30 years, females 220(57.30%), literate 371(96.60%), and involved in household work 98(26.40%), Table 1.

Out of 384 participants, 379(98.7%) answered correctly that dengue was caused by mosquito bites, and 143(37.2%) didn't know that the Aedes mosquito is the specific type of mosquito responsible for transmitting dengue fever. Regarding signs and symptoms, 370(96.4%) participants answered fever was the most common symptom. Around 326(84.9%) participants replied that bed rest could be done as a home treatment for dengue, Table 2.

Out of 385 participants, 384(99.7%) mentioned they cleaned their houses daily, 350(91.1%) cleared the standing/stagnant water, 337(87.8%) used mosquito net and 221(57.6%) did not use mosquito repellent lotion, Table 3.

There were 216(56.3%) participants who demonstrated a good level of knowledge and 270(70.3%) had a good level of preventive practice of dengue fever, Table 4.

Analysis for factors associated with knowledge of dengue fever showed that people in the age group 30-49 years were 2.698 (AOR, 95%CI: 1.365-5.334) times more likely to know about dengue compared to ≤30 years, and age group ≥50 were 6.139 (AOR, 95%CI:2.240-16.825) times more likely compared to ≤30 years old. There was significantly higher knowledge of dengue among participants from household

working [AOR (95%CI)=8.054(2.993-21.676)] and agriculture [AOR (95%CI)=11.300(3.542-36.050)] groups as compared to students. Similarly, the respondents who had primary/secondary education had significantly more knowledge [AOR (95%CI)=6.330(2.083-19.238)] compared to graduates or above education, Table 5.

Table 1. Socio-demographics of people surveyed for knowledge and preventive practices of dengue fever vising tertiary care hospital (n=384)

Variables	n(%)
Age in years	
≤30	185(48.20)
31-49	132(34.40)
≥50	67(17.40)
Sex	
Male	164(42.70)
Female	220(57.30)
Ethnicity	
Brahmin/Chhetri	168(43.80)
Janjati	171(44.50)
Dalit	24(6.30)
Madhesi	21(5.50)
Education level	
Illiterate	13(3.40)
Read and write only	5(1.30)
Primary	220(59.30)
Secondary	111(29.90)
Graduation and above	35(9.40)
Occupation	
Agriculture	73(19.70)
Business	56(15.10)
Student	96(25.90)
Service	48(12.90)
Household work	98(26.40)
Sources of information	
TV/ Radio	274(71.40)
School/ College	92(24.00)
Health personnel/Hospital	115(29.90)
Social media	269(70.10)
Neighbor/Friends	33(8.60)
Newspaper/pamphlets	17(4.40)

Table 2. Knowledge regarding dengue fever (n=384)

Knowledge of dengue	Yes n(%)	No n(%)	Don't know n(%)
General			
Dengue is caused by mosquito bite	379(98.70)	3(0.80)	2(0.50)
Dengue mosquitoes are likely to bite in afternoon	252(65.60)	65(16.90)	67(17.40)
Usually, dengue outbreaks in the rainy season	324(84.40)	26(6.80)	34(8.90)
Knowledge of signs and symptoms of dengue			
Fever	370(96.40)	3(0.80)	11(2.90)
Headache	342(89.10)	20(5.20)	22(5.70)
Joint pain	289(75.30)	31(8.10)	64(16.70)
Muscle pain	281(73.20)	37(9.60)	66(17.20)
Pain behind eyes	227(59.10)	53(13.80)	104(27.10)
Rashes	188(49.00)	70(18.20)	126(32.80)
Abdominal Pain	155(40.40)	92(24.00)	137(35.70)
Knowledge of dengue transmission			
Ticks transmits dengue	57(14.80)	252(65.60)	75(19.50)
Aedes mosquito transmits dengue	198(51.60)	43(11.20)	143(37.20)
Person-to-person transmits dengue	149(38.80)	184(47.90)	51(13.30)
Dengue is transmitted by blood transfusion	230(59.90)	75(19.50)	79(20.60)
Treatment of dengue fever			
Bed rest	326(84.90)	45(11.70)	13(3.40)
Taking simple paracetamol	287(74.70)	86(22.40)	11(2.90)
More fluid intake	232(60.40)	103(26.8)0	49(12.80)
Time to visit a health center			
Body rashes	235(61.20)	102(26.6)0	47(12.20)
Bleeding from the body parts	248(64.60)	93(24.20)	43(11.20)
Increased temperature	304(79.20)	50(13.00)	30(7.80)
Persistent vomiting	270(70.30)	81(21.10)	33(8.60)
Persistent diarrhea	220(57.30)	115(29.90)	49(12.80)

Table 3. Preventive practices on dengue fever (n=384)

Variables	Yes n(%)	No n(%)
Clean house daily	376(97.90)	8(2.10)
Clean/Change indoor garbage/trash Daily	343(89.30)	41(10.70)
Clear the standing/stagnant water	350(91.10)	34(8.90)
Cover household water storage container with lid	339(88.30)	45(11.70)
Windows and doors have been netted	335(87.20)	49(12.80)
Sleep with mosquito net	337(87.80)	47(12.20)
Frequently weed or prune the bushes around	309(80.50)	75(19.50)
Use any devices to repel mosquitos	262(68.20)	122(31.80)
Dress in full sleeves	303(78.90)	81(21.10)
Use mosquito-repellent lotion	163(42.40)	221(57.60)
Use a fan to remove mosquito	311(81.00)	73(19.00)
Use any kind of smoke to remove mosquito	218(56.80)	166(43.20)
Dispose water container if observe mosquito larvae	343(89.30)	41(10.70)

Table 4. Level of knowledge and preventive practices of dengue fever (n=384)

Level of knowledge on dengue fever	Knowledge level n(%)	Practice level n(%)
Poor	168(43.80)	114(29.70)
Good	216(56.30)	270(70.30)

Table 5. Logistic regression model to identify factors associated with knowledge of dengue fever (n=384)

Variables	Knowledge of dengue fever			
Age group in years	**COR (95% CI)**	**p-value**	**AOR**	**p-value**
≤30	1		1	
30-49	5.96(3.62-9.82)	<0.001	2.698(1.36-5.33)	0.004
≥50	13.08(5.82-29.36)	<0.001	6.13(2.24-16.82)	< 0.001
Ethnicity				
Madhesi	1		1	
Brhamin	2.09(0.79-5.52)	0.134	1.35(0.43-4.27)	0.599
Janjati	2.34(0.88-6.16)	0.085	1.42(0.45-4.44)	0.543
Dalit	6.31(1.62-24.50)	0.008	2.56(0.50-12.92)	0.255
Occupation				
Student	1		1	
Service	4.56(2.07-10.07)	<0.001	2.29(0.82-6.40)	0.112
Business	5.02(2.35-10.75)	<0.001	2.64(0.94-7.40)	0.064
Household working	19.25(9.378-39.52)	<0.001	8.05(2.99-21.67)	< 0.001
Agriculture	42(17.31-101.88)	<0.001	11.30(3.54-36.05)	< 0.001
Education level				
Graduation and above	1		1	
Primary/Secondary	6.84(2.76-16.93)	<0.001	6.33(2.08-19.23)	0.001
Read and write	7.25(0.98-53.22)	0.051	2.93(0.23-37.17)	0.406

Discussion

This study revealed that the majority of the participants (71.4% of a total of 384) had heard about dengue fever from TV/ Radio followed by social media and health personnel. This is comparable to other studies from Nepal, Malaysia, Brazil, and Ethiopia reporting television and radio as the primary source of information on dengue fever.[4,5,6,7] Almost all (97.8%) participants were aware that mosquito is the primary cause of dengue fever. This result is found to be similar to previous studies in Malaysia.[8] Most of the participants were aware of the common symptoms of dengue, namely fever, headache, joint pain, and muscle pain. Similar results were reported from the studies from Nepal, Yemen, and Jamaica.[9,10,11] More than half 51.6% of participants were aware that Aedes mosquitos can transmit dengue fever. These results are less than studies conducted in Taiz, Yemen where 82.2% believed that Aedes mosquitoes transmit dengue.[10] Moreover, 60.9% of participants were aware that Aedes mosquito bred in stagnant clean water. This finding contradicts another study conducted in Pakistan where fewer participants reported on it.[12] It makes sense because Nepal is a developing country that is more susceptible to climate-related diseases like dengue. As a result, people are becoming more aware of this condition.

In this study, more than half (56.3%) of the participants had a good level of knowledge of dengue fever. Similar findings 58.3% and 58% were found in other studies conducted in Nepal.[13,14] The Participants had a lower level of knowledge (70.3%) in comparison to practice

which is consistent with findings from other various studies carried out in Bangladesh, Nepal, and Srilanka where the participants had better preventive practice than knowledge.[15,14,16] It demonstrates that even with a low level of knowledge of dengue fever, individuals are nevertheless more concerned and adhere to preventive measures.

There was a significant association between the age group >30 years and the level of knowledge on dengue fever as compared to <30 years [AOR (95%CI)=5.967(3.623-9.828)]. Interestingly, people with higher education levels still knew less about dengue fever than those with lower education levels. The study was carried out in Yemen,[18] did not corroborate our results, possibly because of the frequent use of social media by participants with lesser education levels.

This study has some limitations, being a single center setting, and specific people visiting a tertiary care hospital which may not reflect the causal relationship between the variables. A convenience sampling technique was used to select the sample. The timing of the snapshot is not guaranteed to be representative. In addition, the researcher did not observe actual practices as data was collected through self-reported preventive practices for dengue fever.

Conclusion

Based on findings from the present study, we conclude that even with a low level of knowledge about dengue fever, the level of preventive practice was relatively high. People who work in agriculture and household had a high level of knowledge. Radio and television were the main sources of information. To raise people's awareness of dengue fever, besides awareness campaigns campaign on radio/television other medium is needed especially for individuals with higher education and professional backgrounds.

Author contribution

Concept and design- All; Literature review- AT; Data collection and analysis- All; Draft- All; Revision- AT; Accountability- All authors have read and agreed to the final version of the manuscript.

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Conflict of interest

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Supplementary material

The supplementary material that support the findings of this study are available from the corresponding author upon reasonable request.

References

1. World Health Organization. Dengue and severe dengue. 2024. Link
2. The Rockefeller Foundation. The Increasing Burden of Dengue Fever in a Changing Climate.2022. Link
3. Epidemiology and Disease Control Division. Situation Update of Dengue. 2022. Link
4. Dhimal M, Aryal KK, Dhimal ML, Gautam I, Singh SP, Bhusal CL, et al. 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. DOI Pubmed Google Scholar Full Text
5. Al-Dubai SAR, Ganasegeran K, Mohanad Rahman A, Alshagga MA, Saif-Ali R. Factors affecting dengue fever knowledge, attitudes and practices among selected urban, semi-urban and rural communities in Malaysia. Southeast Asian J Trop Med Public Health. 2013 Jan;44(1):37–49. Pubmed Google Scholar Full Text
6. Alves AC, Fabbro ALD, Passos ADC, Carneiro AFTM, Jorge TM, Martinez EZ. Knowledge and practices related to dengue and its vector: a community-based study from Southeast Brazil. Rev Soc Bras Med Trop. 2016 Apr;49(2):222–6. DOI Pubmed Google Scholar Full Text
7. Kebede T, Tesema B, Mesfin A, Getachew D. A Community-Level Knowledge, Attitude, and Practice about Dengue Fever and the Identification of Mosquito Breeding Containers in Dire Dawa City of Ethiopia: A Cross-Sectional

Study. Can J Infect Dis Med Microbiol. 2023 May 25;2023:e4349078. DOI Google Scholar Full Text
8. Khairi MSM, Anuar SAS, Yi YZ, Syafiq NM, Khairulnizam M, Mahat NA. Knowledge, Attitude and Practice on Dengue Fever Prevention Among Communities in Mutiara Ville, Cyberjaya. Mal J Med Health Sci 2021;17(SUPP11):95-104. Google Scholar Full Text
9. Barakoti B, Bhandari AKC. Knowledge regarding dengue and its prevention in Morang district of Nepal. Int Phys Med Rehabil J. 2023 Oct 31;8(3):188–93. Full Text
10. Alyousefi TAA, Abdul-Ghani R, Mahdy MAK, Al-Eryani SMA, Al-Mekhlafi AM, Raja YA, et al. A household-based survey of knowledge, attitudes and practices towards dengue fever among local urban communities in Taiz Governorate, Yemen. BMC Infect Dis. 2016 Oct 7;16:543. DOI PubMed Google Scholar Full Text
11. Shuaib F, Todd D, Campbell-Stennett D, Ehiri J, Jolly PE. Knowledge, attitudes and practices regarding dengue infection in Westmoreland, Jamaica. West Indian Med J. 2010;59(2):139–46. PubMed Google Scholar Full Text
12. Bota R, Ahmed M, Jamali MS, Aziz A. Knowledge, attitude and perception regarding dengue fever among university students of interior Sindh. J Infect Public Health. 2014;7(3):218–23. DOI PubMed Google Scholar Full Text
13. Khanal R, Thapa R, Khanal M. Knowledge and Preventive Practices Regarding Dengue Fever in Nepal. Am J Health Res. 2021 Nov;9(6):218–28. DOI Google Scholar Full Text
14. Paudel D, Kakchapati S, Lageju N, Karki S, Dhungana J, Regmi S, et al. Factors influencing the knowledge, attitude, and practices of police personnel toward dengue fever in Kathmandu, Nepal. J Occup Health. 2023 Jan 4;65(1):e12421. DOI PubMed Google Scholar Full Text
15. Rahman MdM, Tanni KN, Roy T, Islam MdR, Al Raji Rumi MdA, Sadman Sakib M, et al. Knowledge, Attitude and Practices Towards Dengue Fever Among Slum Dwellers: A Case Study in Dhaka City, Bangladesh. Int J Public Health. 2023 May 22;68:1605364. PubMed Google Scholar Full Text
16. Jayawickreme KP, Jayaweera DK, Weerasinghe S, Warapitiya D, Subasinghe S. A study on knowledge, attitudes and practices regarding dengue fever, its prevention and management among dengue patients presenting to a tertiary care hospital in Sri Lanka. BMC Infect Dis. 2021 Sep 20;21(1):981. DOI PubMed Google Scholar Full Text
17. Itrat A, Khan A, Javaid S, Kamal M, Khan H, Javed S, et al. Knowledge, awareness and practices regarding dengue fever among the adult population of dengue hit cosmopolitan. PloS One. 2008 Jul 9;3(7):e2620. DOI PubMed Google Scholar Full Text
18. Saghir MA, Ahmed WAM, Dhaiban MMA, Osman ME, Abduljabbar NI. Knowledge, attitude, and practices of the community toward dengue fever in Shabwah Governorate, Yemen: a descriptive study. J Egypt Public Health Assoc. 2022 Dec 5;97(1):27. DOI PubMed Google Scholar Full Text