

A study to assess the knowledge among caregivers of children under five years of age regarding Japanese encephalitis in selected rural areas of east khasi hills, Meghalaya.

¹Ms. Ambition Sanglyne, B. Sc Nursing students, College of Nursing, NEIGRIHMS, Shillong, Meghalaya.

¹Ms. Eden Marsing, B. Sc Nursing students, College of Nursing, NEIGRIHMS, Shillong, Meghalaya.

¹Ms. Hasina Myllem, B. Sc Nursing students, College of Nursing, NEIGRIHMS, Shillong, Meghalaya.

¹Ms. Jimani Bharadwaj, B. Sc Nursing students, College of Nursing, NEIGRIHMS, Shillong, Meghalaya.

¹Ms. Kheli Yoka, B. Sc Nursing students, College of Nursing, NEIGRIHMS, Shillong, Meghalaya.

¹Ms. Kh. Renuka Devi, B. Sc Nursing students, College of Nursing, NEIGRIHMS, Shillong, Meghalaya.

¹Ms. Mudang Sumphy, B. Sc Nursing students, College of Nursing, NEIGRIHMS, Shillong, Meghalaya.

¹Ms. Rashmita Devi, B. Sc Nursing students, College of Nursing, NEIGRIHMS, Shillong, Meghalaya.

²Mrs. Kalpana Newar, Department of Community Health Nursing, College of Nursing, NEIGRIHMS, Shillong, Meghalaya.

Corresponding Author: Ms. Rashmita Devi, B. Sc Nursing students, College of Nursing, NEIGRIHMS, Shillong, Meghalaya.

Citation this Article: Ms. Ambition Sanglyne, Ms. Eden Marsing, Ms. Hasina Myllem, Ms. Jimani Bharadwaj, Ms. Kheli Yoka, Ms. Kh. Renuka Devi, Ms. Mudang Sumphy, Ms. Rashmita Devi, Mrs. Kalpana Newar, “A study to assess the knowledge among caregivers of children under five years of age regarding Japanese encephalitis in selected rural areas of east khasi hills, Meghalaya”, IJMSIR- May - 2022, Vol – 7, Issue - 3, P. No. 130 – 136.

Type of Publication: Original Research Article

Conflicts of Interest: Nil

Abstract

Introduction: Japanese encephalitis is the leading cause of encephalitis in South East Asian countries. It is endemic in fourteen states of India. Children have been the main victim of the disease on the recent outbreak in Meghalaya.

Methodology: A cross sectional study was conducted in Mawkriah East and Mawkriah West of East Khasi Hills District, Meghalaya on august 2021. A structured knowledge-based questionnaire was used to collect data from 142 caregivers who were selected using convenient sampling technique. Analysis was done using descriptive and inferential statistics (chi-square).

Result: Out of 142 participants, 139 had heard about Japanese Encephalitis. Most of the participants i.e., 63(44.36%) had heard about Japanese Encephalitis from health care workers. Out of 142 participants, 33(23.24%) had poor knowledge, 56(39.43%) had average knowledge and 53(37.33%) had good knowledge. 66.91% of participants had lack of knowledge on sign and symptoms and only 38.96% had knowledge on vaccination. The study found significant association with education and type of family.

Conclusion: Average level of knowledge was identified among the participants. Thus, this study suggests that a well planned mass education and communication strategy

can further enhance the knowledge of community on Japanese Encephalitis.

Keywords: knowledge, Japanese encephalitis, caregiver.

Introduction

Background of the study

Japanese encephalitis is a vector borne zoonotic viral disease. Japanese encephalitis virus is the leading cause of viral encephalitis in Asia. WHO estimated 68,000 clinical cases of Japanese encephalitis every year, with approximately 13,600-20,400 deaths.

Although symptomatic Japanese encephalitis is rare, the case fatality rate among those with encephalitis can be high as 30%. And permanent neurologic or psychiatric sequela can occur in 30-50% of those with encephalitis.^[1]

Japanese encephalitis is endemic in fourteen states of India and about 30 crore populations are at risk. Assam, Bihar, Haryana, Uttar Pradesh, Karnataka and Tamil Nadu report outbreak every year and contribute about 80% of cases and death.^[2]

In 1978, Government of India constituted a task force at National level which reviews the Japanese encephalitis situations and its control strategies from time to time. Under National Vector Borne Disease Control Program (NVBDCP) technical support was provided to states for outbreak investigation and control. But due to increasing cases in different parts of India. Government of India launched large scale, 5 years Japanese encephalitis vaccination campaign in 2006.^[3]

On 3rd July, 2014 the Government of India announced the introduction of four new vaccine, including JE vaccine, in the National Immunization Programme.^[4]

Need of the study

Japanese encephalitis has caused many epidemics and has become a major public health problem. In 1978,

Japanese encephalitis outbreak was reported in Gorakhpur, Uttar Pradesh. Since then the virus was found active in almost every part of India and outbreak was reported regularly. The case fatality rate in India is 35%. The most affected states are Andhra Pradesh, Assam, Bihar, Haryana, Karnataka, Kerala, Maharashtra, Manipur, Tamil Nadu, Orissa, Uttar Pradesh, West Bengal and also Union Territories like Goa and Pondicherry. Since then, those areas have become prone to outbreak of Japanese encephalitis each year. Under National Anti-Malaria Program (NAMP) national level surveillance of Japanese encephalitis in India was started in 2003.^[2]

In Meghalaya the Japanese encephalitis cases have been emerging lately. On July 2019 there were cases in East Khasi Hills.^[5]

Our study focuses on assessment of knowledge among caregivers of children under 5 years of age on Japanese encephalitis as children have been the main victims of the disease on the recent outbreak in Meghalaya. This study will provide a framework for understanding the level of knowledge and will be first hand data for further studies and intervention.

Objectives

Primary Objective(s): To assess the existing knowledge on Japanese encephalitis among caregivers of children under 5 years in selected rural areas of East Khasi Hills, Meghalaya.

Secondary Objective(s): To find the association of knowledge with selected demographic variables.

Methodology

Research Design: Cross sectional study design was adopted to assess knowledge among caregivers of children under 5 years of age on Japanese Encephalitis in

selected rural areas of east Khasi Hills District, Meghalaya.

Setting: The study was conducted in Mawkriah East and Mawkriah West under Pomlum PHC, East Khasi Hills District, Meghalaya. This study setting was chosen on the recommendation of the Medical Officer of Pomlum PHC, East Khasi Hills, District, Meghalaya.

Population: Caregivers having children under 5 years of age in selected rural areas of East Khasi Hills, Meghalaya.

Sampling Design: Convenience sampling technique.

Sample Size: 142 caregivers

Data Collection Procedure

The data collection was carried out from 16th August to 21st August 2021 in Mawkriah East and Mawkriah West, under Pomlum PHC, East Khasi Hills District, Meghalaya. This was done by conducting home visits. Prior to the data collection, informed consent form was provided following which consent was taken. This data was collected by providing a set of questions to each participant for 10-15 minutes.

Scoring Method

Section I: It consists of demographic characteristic and was not scored.

Section II: It consists of structured knowledge-based questionnaire to assess the knowledge, there are 13 items each item no. were allotted a score of 1.

Interpretation of score

Section II

For good performance: category score is 10-13

For average performance: category score 7-9

For poor performance: category score 0-6

Analysis, interpretation and discussion

The data collected from the participants were analyzed by using descriptive statistics and inferential statistics

(chi square test). The data are presented in the form of tables and bar diagram.

Section 1: socio-demographic profile of the participants

Table 1: Area wise frequency and percentage distribution of the participants n= (142)

No. of Participants	Mawkriah East	Mawkriah West
	91	51

The above table depicts that out of 142 total participants, 91 (64.08%) participants were from Mawkriah East, and 51 (35.92%) were from Mawkriah West. All the participants (100%) were female.

Table 2: Frequency and percentage distribution of the participants according to demographic data. n= (142)

Variables	Frequency (f)	Percentage (%)
AGE (in years)		
19-30	60	42.25%
31 and above	82	57.75%
Education		
≤ class 10	66	46.48%
≥class 11	76	53.52%
Occupation		
Employed	59	41.55%
Unemployed	83	58.45%
Type of family		
Nuclear	105	73.94%
Joint	37	29.06%

Table 2 shows that majority of the participants belong to the age group 31 and above, 82(57.75%). All the participants are ST (100%) and belong to Christianity (100%). Majority of participants have education ≤ Class 10, 76(53.52%). Majority of the participants are unemployed 83(58.45%). Majority of the participants are from nuclear family 105(73.94%).

Table 3: Frequency and percentage distribution of knowledge score regarding Japanese encephalitis. n= (142)

Knowledge score	Frequency	Percentage
Good (10-13)	53	37.33%
Average (7-9)	56	39.43%
Poor (0-6)	33	23.24%

Table 3 depicts that 33(23.24%) had poor knowledge, 56(39.43%) had average knowledge and 53(37.33%) of participants had good knowledge.

Fig 1: Frequency and percentage distribution of participants according to the source of information on Japanese encephalitis. n= (142)

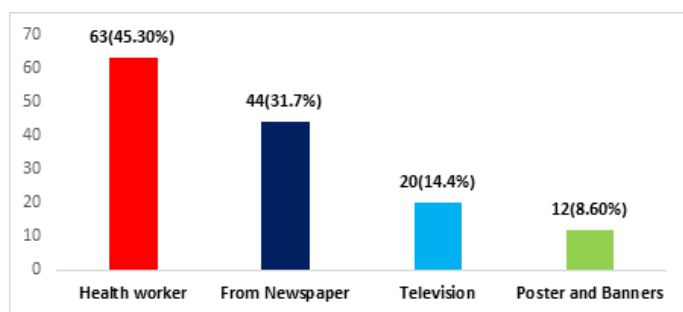


Fig 1 depicts that out of 139 participants who had heard about Japanese encephalitis, 63(45.30%) had heard about it from health workers, 44(31.7%) had heard from newspaper, 20(14.4%) had heard from television and 12(8.60%) had known from posters and banners.

Fig 2: Frequency and percentage distribution as per the domain level of knowledge of Japanese encephalitis. n= (142)

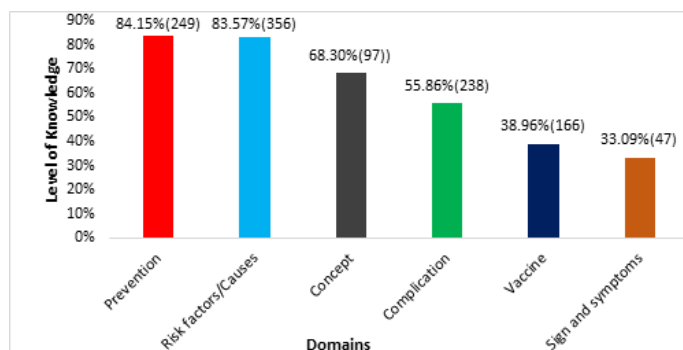


Fig 2 depicts that the level of knowledge of the participants on prevention is 84.15% (249). The knowledge of participants on risk factors/causes is 83.57% (356). The knowledge of participants on concept of Japanese encephalitis is 68.30% (97). The knowledge of participants on complication is 55.86% (238). The knowledge of participants on vaccine is 38.96% (166). The knowledge of participants on sign and symptoms is 33.09% (47).

Table 4: Association between knowledge of participants on Japanese encephalitis with selected demographic variables. (n=142)

Demographic Variables	Good	Average	Poor	Degree of freedom (df)	Tabulated Value	Calculated Value
Age (in years)						
19 – 30	19	24	17	2	5.99	2.059
31 and above	34	32	16			
Education						
≤ Class 10	11	36	19	2	5.99	22.870 *
≥ Class 11	42	20	14			
Occupation						
Employed	24	25	10	2	5.99	2.244
Unemployed	29	31	23			

Type of family	45	35	25	2	5.99	7.168*
Nuclear						
Joint	08	21	08			

*Significant at 0.05 level of significance

Table 4 depicts the association between the age of participants (in years) and the knowledge regarding Japanese encephalitis where the calculated value was found to be 2.059 which is lesser than the tabulated value 5.99 at a degree of freedom 2 with $p < 0.05$ level of significance. Hence there is no association between age of participants and knowledge on Japanese encephalitis.

In the association between educational status and knowledge on Japanese encephalitis, the calculated value was found to be 22.870 which is greater than the tabulated value 5.99 at a degree of freedom 2 with $p < 0.05$ level of significance. Hence there is association between educational status of participants and knowledge regarding Japanese encephalitis.

The table also depicts the association between the occupation of participants and the knowledge regarding Japanese encephalitis where the calculated value was found to be 2.244 which is lesser than the tabulated value 5.99 at a degree of freedom 2 with $p < 0.05$ level of significance. Hence there is no association between occupation of participants and knowledge regarding Japanese encephalitis.

In the association between the type of family and the knowledge regarding Japanese encephalitis where the calculated value was found to be 7.168 which is greater than the tabulated value 5.99 at a degree of freedom 2 with $p < 0.05$ level of significance. Hence there is association between the type of family of participants and knowledge regarding Japanese encephalitis.

Discussion

A cross sectional study was conducted to assess the knowledge among caregivers of children under 5 years of age on Japanese encephalitis in selected rural areas of East Khasi Hills Meghalaya. The study revealed that 37.32% (53) participants had good knowledge, 39.44% (56) participants had average knowledge, and 23.24% (33) had poor knowledge.

A similar study conducted by Kyaw Pyae Phyoe et al. in 2019 in Yangon region to explore the knowledge and perception of parents/guardians of 1-15 years old children about Japanese encephalitis disease and its vaccination. The study showed that 37.6% exhibited good knowledge of Japanese encephalitis.^[21]

In the present study, out of 142 participants 61.04% had lack of knowledge on sign and symptoms. This finding is supported by a study conducted by Daisy Konwar et al. on knowledge and attitude about Japanese encephalitis and community participation for its prevention in Shivasagar, Assam. The study found that 73% of participants were unaware about proper symptoms of Japanese encephalitis.^[15]

Conclusion

From the study it was found that the caregivers have average knowledge on Japanese encephalitis. The present study also depicts an association between knowledge and education of the caregivers and the type of family.

A well-planned mass-education and communication strategy, specifically oriented for sign and symptoms as well as vaccination can further enhance the knowledge of the community.

References

1. WHO, key facts on Japanese encephalitis <https://www.who.int/news-room/fact-sheets/detail/japanese-encephalitis> .[Accessed 1st February 2020]

2. Kishore J. National Health Program of India: National Policies and Legislation related to Health. 13th edition, 2019. Century publications 46, Masih Garh (Jamia Nagar) New Delhi-110025. Page no. 410 [Accessed 10th June 2020]
3. Japanese encephalitis chapter 3, Travellers health, CDC. 2014 [Accessed 10th June 2020]
4. Japanese encephalitis: One more death in Meghalaya, toll rises to 4. The Sentinel of this land, for its people. <https://www.sentinelassam.com/north-east-india-news/meghalaya-news/japanese-encephalitis-one-more-death-in-meghalaya-toll-rises-to-4/>. [Accessed 20th February 2020]
5. Mary Am Leiben. A cross sectional study on the Prevalance of Japanese encephalitis amongst under 5 years children in Northern China. 2013 Dec. <https://www.sciencedirect.com/science/article/pii/S00653882983298>. [Accessed 29th November 2019]
6. Turtle L, Brindle HE, Schluter WW, Faragher B, Raya Majhi A, Bohara R, Gurung S, Shakya G, Yoksan S, Dixit S, Raj Bhandari R. Low population Japanese encephalitis virus (JEV) seroprevalence in Udaipur district, Nepal, three years after a JE vaccination programme: A case for further catch up campaigns?. PLoS neglected tropical diseases. 2019 Apr 15;13(4):e0007269. <https://journals.PLoS.org/plosntds/article?id=10.1371/journal.pntd.0007269>. [Accessed 29th November 2019]
7. Zhang S, Yin Z, Suraratdecha C, Liu X, Li Y, Hills S, Zhang K, Chen Y, Liang X. Knowledge, attitudes and practices of caregivers regarding Japanese encephalitis in Shaanxi Province, China. Public Health. 2011 Feb <https://www.sciencedirect.com/science/article/pii/S0033350610003367>. [Accessed 29th November 2019]
8. Kumar Pant D, Tenzin T, Chand R, Kumar Sharma B, Raj Bist P. Spatio-temporal epidemiology of Japanese encephalitis in Nepal, 2007-2015. PLoS One. 2017 Jul 26;12(7):e0180591. https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=dhan+kumar+et.al+study+on+japanese+encephalitis+&btnG=#d=gs_qabs&u=%23p%3D4KgTvqHU8EwJ. [Accessed 29th November 2019]
9. Singh D, Landge JA. A Cross-sectional Descriptive Study to Understand Knowledge and Attitude of Japanese encephalitis Among Health Professionals in a Tertiary Care Hospital of Pune. Int J Cur Res Rev| Vol. 2021 Jun;13(11):206. http://ijcr.com/uploads/3785_pdf.pdf. [Accessed 14th August 2021]
10. Murhekar MV, Ranjan P, Selvaraju S, Pandey A, Gore MM, Mehen dale SM. Low coverage and acceptable effectiveness of single dose of Japanese encephalitis vaccine, Gorakhpur division, Uttar Pradesh, India, 2013. Journal of Infection. 2014 Nov 1;69(5):517-20. [https://www.journalofinfection.com/article/S0163-4453\(14\)00195-9/abstract](https://www.journalofinfection.com/article/S0163-4453(14)00195-9/abstract). [Accessed 29th November 2019]
11. Gurav YK, Bondre VP, Tandale BV, Damle RG, Mallick S, Ghosh US, Nag SS. A large outbreak of Japanese encephalitis predominantly among adults in northern region of West Bengal, India. Journal of medical virology. 2016 Nov; 88 (11) :2004 -11. <https://onlinelibrary.wiley.com/doi/abs/10.1002/jmv.24556>. [Accessed 15th May 2021]
12. Dwibedi B, Mohapatra N, Rathore SK, Panda M, Pati SS, Sabat J, Thakur B, Panda S, Kar SK. An outbreak of Japanese encephalitis after two decades in Odisha, India. The Indian journal of medical research. 2015 Dec;142(Suppl 1):S30. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4795344/>. [Accessed 13th March 2021]

13. Bandyopadhyay B, Bhattacharyya I, Adhikary S, Mondal S, Konar J, Dawar N, Biswas A, Bhattacharya N. Incidence of Japanese encephalitis among acute encephalitis syndrome cases in West Bengal, India. *BioMed research international*. 2013 Nov 11;2013. <https://www.hindawi.com/journals/bmri/2013/896749/>. [Accessed 10th June 2020]
14. Kumari R, Joshi PL. A review of Japanese encephalitis in Uttar Pradesh, India. *WHO South-East Asia Journal of Public Health*. 2012;1(4):374-95. Kumari R, Joshi PL. A review of Japanese encephalitis in Uttar Pradesh, India. *WHO South-* <https://apps.who.int/iris/handle/10665/329853> *Asia Journal of Public Health*. 2012;1(4):374-95.[Accessed 10th June 2020]
15. Konwar D, Bhuyan, Rahman Tousifur, Bordoloi Rimen. Knowledge and attitude about Japanese encephalitis and community participation for its prevention in Sivas agar, Assam- A cross sectional survey. *J. Adv. Zool* 42(1), 97-106, 2021. https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=konwar+d+japanese+encephalitis+&btnG=#d=gs_qabs&u=%23p%3DXQKvSgFRhwJ [Accessed 4th September 2020]
16. Ahmad Akram, Khan U Muhammad, Malik, Shazia. Community knowledge and attitude towards Japanese encephalitis in Darang, India: A cross-sectional study. March 2017. *Annals of Tropical Medicine and Public Health* 10(2). DOI:10.4103/1755-6783.208726. Project: *Journal of Pharmacy Practice and Community*. (www.jppcm.org).https://www.researchgate.net/publication/311646976_Community_knowledge_and_attitude_towards_Japanese_encephalitis_in_Darrang_India_A_cross-sectional_study. [Accessed 4th September 2020]
17. Mohan DG, Gogoi M, Sharma A. Seroprevalence of Japanese encephalitis amongst cases of acute encephalitis syndrome in a tertiary care centre of north east India: a four year retrospective study. <https://pesquisa.bvsalud.org/portal/resource/pt/sea-211724>. [Accessed 19th November 2019]
18. Medhi M, Saikia L, Patgiri SJ, Lahkar V, Hussain ME, Kakati S. Incidence of Japanese encephalitis amongst acute encephalitis syndrome cases in upper Assam districts from 2012 to 2014: a report from a tertiary care hospital. *The Indian journal of medical research*. 2017 Aug;146(2):267. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5761038/>. [Accessed 29th November 2019]
19. Borah J, Dutta P, Khan SA, Mahanta J. Association of weather and anthropogenic factors for transmission of Japanese encephalitis in an endemic area of India. *Eco Health*. 2013 Jun; 10 (2):129-36. <https://link.springer.com/article/10.1007/s10393-013-0849-z> .[Accessed 14th February 2020]
20. Khan SA, Dutta P, Khan AM, Top no R, Chowdhury P, Borah J, Mahanta J. Japanese encephalitis epidemiology in Arunachal Pradesh, a hilly state in northeast India. *Asian Pacific Journal of Tropical Disease*. 2011 Jun 1; 1 (2) :119 - 22. <https://www.sciencedirect.com/science/article/pii/S2222180811600509>. [Accessed 14th February 2020]
21. Kyaw PP, She wade HD, Kyaw NT, Phyo KH, Lin HH, Kyaw AM, Mya MM, Thauung S, Maung YN. High vaccination coverage and inadequate knowledge: Findings from a community-based cross-sectional study on Japanese Encephalitis in Yangon, Myanmar. *F1000Research*.2020;9.<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7525338/>. [Accessed 19th August 2021]