Original article

Relationship Between the Level of Community Knowledge About Dengue Hemorrhagic Fever and Larvae of *Aedes aegypti* Examination in Deli Serdang Regency, North Sumatra, Indonesia

Ismatul Fauziah Rambe[1], Meizly Andina[1], Nurfadly[1]

Abstract

Dengue hemorrhagic fever is one of the major public health problems in the world. This disease that is transmitted through *Aedes aegypti* mosquitoes is classified as dangerous because it can cause dengue shock syndrome. Its spread can attack anyone, anywhere and can be several people at the same time resulting in this disease has a fairly high incidence rate, especially in tropical climates such as Indonesia. The most effective prevention is breaking the chain of transmission of DHF. This termination is done by preventing larvae found in their breeding places from developing into adult mosquitoes.

Objective: to determine the relationship of the level of public knowledge about Dengue Hemorrhagic Syndrome (DHF) with the presence of *Aedes aegypti* mosquito larvae in Deli Serdang Regency, North Sumatra, Indonesia. ***Materials and Methods:*** This is a cross-sectional analytic study used quota sampling method with a total of 78 samples. ***Results and Discussion:*** this study shows that the highest level of knowledge from respondents is enough as many as 38 people (48.7%). The houses that were found to have positive larvae containers were 26 houses (33.3%) and the most were located outside the house were 15 (19.2%). Chi-square results showed P-value = 0.984. ***Conclusion:*** There is no correlation between the levels of community knowledge about DHF with the presence of *Aedes aegypti* mosquito larvae.

Keywords: Knowledge, dengue hemorrhagic fever, *Aedes aegypti*

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Introduction:

Dengue fever is a viral disease transmitted by mosquitoes that spread most rapidly in the world.[1] Dengue hemorrhagic fever (DHF) is a disease that travels quickly and can cause death in a short time. Outbreaks of dengue fever are the main public health problems in Indonesia, which are in the tropical rain and equatorial zones where *Aedes aegypti* is widespread in urban and rural areas.[2]

The increasing number of dengue cases is closely related to the increase in the mosquito population, especially when it rains a lot. High levels of rainfall also trigger the development of mosquito populations. The character of Aedes mosquitoes who like to lay their eggs in clean water is one of the trigger factors. These mosquitoes usually only lay eggs in bathtubs where there is clean water stagnant, but when it rains a lot, nesting places can move to the channels where the water has changed due to rain or a basin that holds clean water. [4]

DHF eradication efforts are focused on mobilizing the potential of the community to be able to participate in eradicating mosquito nests through draining, closing and burying plus sowing larvacide, spreading fish in water reservoirs, mobilizing larvae monitoring and introduction symptoms of DHF and its handling in the household.[4] Given this reality, counseling about vectors and their control methods are still very much needed by the community on an ongoing basis. The program will be able to have leverage in breaking the chain of transmission carried out by the community in community participation in empowerment programs.

The results of this study are expected to provide information about the relationship between the level of community knowledge about DHF with the presence of *Aedes aegypti* mosquito larvae in

1. Faculty of Medicine, University of Muhammadiyah Sumatera Utara, Indonesia

Correspondence to: Meizly Andina, Faculty of Medicine, University of Muhammadiyah Sumatera Utara, Indonesia, E-mail: *meizlyandina@umsu.ac.id*

Muliorejo village, Sunggal district, Deli Serdang Regency, North Sumatra, Indonesia.

Materials and Methods:

This is a cross-sectional study using quota sampling as the sampling technique. There are 78 samples selected based on the inclusion criteria, namely housewives or adults who are indigenous people of Muliorejo village in Deli Serdang Regency, can communicate well and are willing to become respondents.

Primary data was obtained from interviews and questionnaires from each respondent as well as observations of *Aedes aegypti* larvae at water reservoirs located at home.

Results:

As many as 52 houses (66.7%) were examined there was no larva. And 26 of its houses (33.3%) of the other houses are *Aedes aegypti* larvae. Most of the locations are outside the house (57.7%) and the type of water shelters in the form of buckets are 20 (41.7%).

Table 1: Examination larva of *Aedes aegypti*

Examination larva of *Aedes aegypti*		n	(%)
Larva of *Aedes aegypti*	+	26	33,3
	-	52	66,7
Position of container with positive larva in house	Outside	15	57,7
	Inside	6	23,1
	Outside and inside	5	19,2
Type of container with positive larva	Drum	17	35,4
	Buckets	20	41,7
	Cans	6	12,5
	Bathtub	4	8,3
	Others	1	2,1

Respondents classified into good categories amounted to 25 people (32.1%), sufficient categories were 38 people (48.7%), and less categories were 15 people (19.2%).

Table 2: Knowledge Level of Respondent

Category	n	(%)
Good	25	32,1
Sufficient	38	48,7
Less	15	19,2

There are 78 respondents, women were 64 (82.1%) and men 14 (17.9%) with the highest number of respondents aged 36-40 years was 16 people (20, 5%). The most recent level of education was a high school with 29 people (37.2%) and not having jobs was 38 people (48.7%).

Table 3: Frequency Distribution of Characteristics of Respondents

Characteristics		n	(%)
Sex	Men	14	17,9
	Women	64	82,1
Age (years)	26-30	12	15,4
	31-35	13	16,7
	36-40	16	20,5
	41-45	13	16,7
	46-50	15	19,2
	51-55	4	5,1
	56-60	5	6,4
Last Education	Not educated	5	6,4
	Primary School	8	10,3
	Junior High School	16	20,5
	Senior High School	29	37,2
	Bachelor	20	25,6
Occupation	None	38	48,7
	Teacher/ Lecturer	11	14,1
	Enterpreuner	15	19,2
	Employee	7	9,0
	Farmer	3	3,8
	Trader	4	5,1

Chi-square statistical test results showed that p=0.984 which indicate that the hypothesis was not accepted, which means that there was no relationship between the level of community knowledge about DHF with the presence of Aedes aegypti mosquito larvae in Muliorejo village, Sunggal district, Deli Serdang Regency.

Table 4: Relationship Between the Level of Community Knowledge about DHF with *Aedes aegypti* Larvae Examination

		Level of Knowledge about DHF			Total
		Good	Sufficient	Less	
Larvae of Aedes aegypti	Positive	8	13	5	26
	Negative	17	25	10	52
Total		25	38	15	78
***P value* = 0,984**					

Discussion and Conclusion:

The highest level of knowledge of respondents is sufficient, amounting to 38 people (48.7%). Where most respondents know enough about some basic things about dengue fever. According to the results of the interview, the community claimed to receive information on DHF from television, print media, or counseling. The level of knowledge is a factor that plays a role in determining or adopting a person's behavior

In the results of this study, the value-free numbers larvae obtained 66%. This was obtained from the results of the division between the number of houses without larvae, and the number of houses examined then multiplied by one hundred percent. This 66% result means that the value-free numbers larvae obtained are likely to still be far from the national value free numbers larvae which should be achieved at 95%.

Most containers that are positively wiggled in Muliorejo village are containers located outside the house. This container is mostly used as a shelter for rainwater which is sometimes rarely used and drained. As for inside the house, most residents do not use baths but use containers such as buckets or drums for daily use. This causes the containers needed to tend to be more in accordance with the requirements.

Muliorejo villagers who mostly do not use the bath because the water in the village tends to be cloudy. Therefore, Muliorejo villagers use containers or landfills for daily use in the form of buckets. This is why the community often cleanses and also replaces the water that will be used. However, in containers found larvae, most of them are in bucket-type containers and outside the house. This is because the community makes the container to hold rainwater, while this water is not routinely used.

Chi-square statistical test results showed that p = 0.984 (p> 0.05) which showed that the hypothesis was rejected or there was no relationship between the level of public knowledge about DHF with the presence of Aedes aegypti mosquito larvae in Muliorejo village, Sunggal district, Deli Serdang district in 2012. This is in accordance with research conducted by Suyasa (2008), Santoso (2008) and Nugrahaningsih, et al (2010)[7,8.] However, the results of this study are not in accordance with the research conducted by Yudhastuti (2005) and Respati (2007)[9.10.]

Ethical Approval:

This research proposal was accepted by the Ethics Committee of Faculty of Medicine, University of Muhammadiyah, Sumatera Utara, Indonesia

Conflict of interest: None declared

Author's Contributions:

Conception and Design: IFR, MA, N
Analysis and interpretation of the data: IFR, N
Drafting of the article: IFR, MA
Critical Revision of the article for important intellectual content: IFR, MA, N
Final approval of the article: IFR, MA, N
Statistical expertise: N
Collection and assembly of data: IFR

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