Yanti Susanti, Timbul Supodo, Sunarsih.
DOI: 10.36566/ijhsrd/Vol3.Iss2/97
https://ijhsrd.com/index.php/ijhsrd

e- ISSN: 2715-4718

Research Article **Open Access**

THE EFFECT OF ONE HOUSE ONE LARVAE OBSERVER MOVEMENT ON THE EXISTENCE OF MOSQUITO LARVAE IN WATUBANGGA SUBDISTRICT

Yanti Susanti[1*], Timbul Supodo[2], Sunarsih[3]

[1,2,3] Master of Public Health Study Program, Mandala Waluya University, Kendari, Southeast Sulawesi, Indonesia

Corresponding Author : Yanti Susanti
E-mail: yantisusanti161180@gmail.com

Abstract

Background: Dengue Hemorrhagic Fever is a mosquito-borne infectious disease found in tropical and subtropical areas around the world. In recent years, transmission has increased especially in urban and semi-urban areas and has become a major international public health concern. The aim of this study was to analyze the effect of the movement of one house and one larva monitor on the presence of larvae in Watubangga sub-district, Watubangga sub-district.
Methods: This type of research is quantitative research with a pre-experimental approach. The population in this study were all heads of families living in the Watubangga Village area as many as 608 families. The sample in the study was partly from the heads of families who lived in Watubangga Village as many as 236 respondents. The sample was selected using a systematic random sampling method. Data were collected through questionnaires and observation sheets and then analyzed descriptively and inferentially.
Result: This study shows that there is an effect of the movement of one house and one larva monitoring interpreter on the presence of larvae in Watubangga Village where a p-value of 0.000 is obtained.
Conclusion: After the intervention with the one house movement, one larva monitoring interpreter, there was an increase in community skills in efforts to prevent dengue hemorrhagic fever. Therefore, it is hoped that the one house one larva monitoring program can be implemented throughout the territory of the Republic of Indonesia.

Key words: *House, Larva, Observer, Movement, Mosquito.*

e- ISSN: 2715-4718

INTRODUCTION

Dengue Hemorrhagic Fever (DHF) is a mosquito-infected disease found in tropical and subtropical areas around the world. In recent years, transmission has increased especially in urban and semi-urban areas and has become a major international public health concern. It is recorded that more than 2.5 billion or more than 40% of the world's population is currently at risk of DHF. Until now, it is estimated that there are 50-100 million cases of dengue infection spread throughout the world every year. Southeast Asia is the area with the most cases, where Indonesia is the first in Southeast Asia and second in the world after Brazil(1).

In Indonesia itself, death and illness due to this disease is still a serious public health problem in Indonesia, and has not yet been fully resolved. According to the data, from Indonesia's health profile, the morbidity and mortality rate of DHF looks fluctuating and tends to increase, recorded DHF Incidence Rate (IR) in 2015 of 50.75 per 100,000 population and Case Fatality Rate (CFR) of 0.83%. In 2016 the IR reached 78.85 per 100,000 population and the CFR was 0.78%. In 2017 the number of cases decreased, where the IR was 26.10 per 100,000 population and the CFR was 0.72%. In 2018 it decreased again, where the IR reached 24.73 per 100,000 population and the CFR was 0.7%. However, in 2019 the number of cases has doubled, where the recorded IR reached 51.4 per 100(2).

The above situation also occurs in Southeast Sulawesi Province, where almost every year there are extraordinary events (KLB) due to this disease. According to data from the health profile of Southeast Sulawesi Province, in 2015, the number of IR DHF was 64.70 per 100,000 population and CFR was 0.95%. In 2016 it was 132.5 per 100,000 population and CFR was 0.99%, while in 2017 it was 35.7 per 100,000 population and CFR was 1.59%. In 2018 the IR was 30.4 per 100,000 population and the CFR was 0.8%. In 2019 the number of sick people experienced a significant increase where there was an IR of 64 per 100,000 population and a CFR of 0.5%(3).

Dengue hemorrhagic fever has spread in almost all districts and cities, in the province of Southeast Sulawesi. It was noted that in 2019 of the fifteen regencies and two municipalities in Southeast Sulawesi, there were only two regencies (Konawe Islands Regency and West Muna Regency) where no presence was found.cases of dengue hemorrhagic fever. From this data, it is also known that Kolaka Regency is the largest contributor to cases and is designated as an area of extraordinary events of dengue dengue fever in 2019(3).

Dengue fever data obtained from the Kolaka District Health Office shows that, in 2017 the IR was 305 per 100,000 population with a CFR of 0.5%. In 2018 the morbidity rate decreased, where there was an IR of 82.7 per 100,000 population and a CFR of 0.9%, while in 2019 the number of cases increased, where there was an IR of 95.5 per 100,000 population and a CFR of 0.4%. In the period 2017 to 2019, Kolaka Regency was designated as an area of extraordinary events of dengue fever. From the data above, information is also obtained that, the Work Area of the Watubangga community health center is the largest contributor to dengue hemorrhagic fever cases in Kolaka Regency(4).

According to data from the Kolaka District Health Office, it is known that the Watubangga community health center is the area of the public health center with the highest incidence of dengue hemorrhagic fever, where in 2017 the morbidity rate or IR was 419 per 100,000 population followed by the Kolaka community health center with an IR of 328 per 100,000 inhabitants. In 2018, the Watubangga community health center was still the area of the public health center with the highest incidence of dengue fever, where the IR was 381.9 per 100,000 population, followed by

e- ISSN: 2715-4718

the Pomalaa community health center with an IR of 285 per 100,000 population. In 2019, the morbidity rate increased, where the Watubangga community health center with the largest IR was 429.65 per 100,000 population (5).

The number of cases of dengue hemorrhagic fever in Watubangga district is also inseparable from the low achievement of vector density indicators, namely the larva free number in Watubangga district. The data for the larger free rate in Watubangga Sub-district in 2017 was 64%, where Watubangga Village was the area with the lowest larva free number, which was 56.7%. In 2018 the larva free number is 55.7%, where Tandebura Village is the area with the lowest larva free number, 31.82%, while Sumber Rejeki Village is the area with the highest larva free number, which is 66.25%. In 2019, the larvae-free rate was 64.6%, of which Watubangga village was the area with the lowest larva-free rate, which was 55.6%, while Lamunde village was the area with the highest larva-free rate, which was 72.7%.(5).

Based on information from the sanitarian and surveillance officer of the Watubangga Community Health Center, it is known that the One House One Jumantik program is not running, this is because during this program it was not included in the public health center's budget, so it was not implemented. Then, information was obtained that, one of the problems is the low proportion of larva-free numbers and the presence of dengue hemorrhagic fever sufferers at the Watubangga community health center every year due to community behavior in eradicate dengue fever.Mosquito Nests (elimination of mosquito nests) with the 3M Plus movement are not carried out simultaneously and thoroughly. The results of the researchers' initial interviews with 15 people who live in Watubangga Village obtained information that from the 15 communities interviewed only six (6) people knew the importance of mosquito nest eradication activities through 3M plus in detail and only four (4) respondents who showed a positive attitude towards the importance of the implementation of the eradication of mosquito nests and only three (3) communities that carry out the eradication of mosquito nests on a regular basis.

From the direct observation, it is known that the Watubangga Village area is a coastal area and there are many potential places for mosquito breeding or breeding places around the Watubangga Village area. Then, based on monitoring the behavior of the community in the Watubangga village area, it was found that from the 15 (fifteen) respondents observed, there were still eight (8) respondents (53%) who did not close the water reservoir so that it could become a breeding ground for eggs. Aedes Aegypti mosquito.There are 11 respondents (73%) who collect rainwater for consumption every day, so they rarely clean the water reservoir for fear of running out of water. Then, there are ten (10) respondents or 67% who have the habit of hanging used clothes behind the bedroom door. There are only two (2) respondents (13%) who still use mosquito nets when sleeping during the day. There are eight (8) respondents (53%) whose garbage is scattered and do not bury used goods so that it has the potential to become a breeding ground for mosquitoes.

Efforts to control dengue hemorrhagic fever in Indonesia rely on (7) main activities as stipulated in the Decree of the Minister of Health number 581/MENKES/SK/VII/1992 concerning the Eradication of Dengue Hemorrhagic Fever.(6). One of the main priorities is to emphasize prevention efforts through empowerment and community participation. In fact, many attempts have been made(7). Since decades ago we have often held socialization, but the morbidity and mortality rates are still quite high and in some areas every year there are still extraordinary events.(8). In commemorating ASEAN Dengue Day (ADD), the

e- ISSN: 2715-4718

government declared a new approach to tackle the problem(9).

The latest approach is the "one (1) Rumah one (1) Jumantik" movement (a larva monitor). This movement aims to reduce the number of sufferers and death rates due to dengue hemorrhagic fever by increasing the participation and empowerment of family-based communities to prevent dengue fever(10). This movement is a mosquito nest eradication program that invites the entire community to play an active role in preventing mosquito breeding, especially Aedes mosquito larvae. It is believed that this program will run well if there is support and participation from the Indonesian people(11).

The reality on the ground, especially in Kolaka Regency, since it was declared, this program has not run well. Where, in almost every region in Kolaka Regency, there is not a single region that does it. This is due to various obstacles, including the fact that this program has never been socialized to local governments and the community in general. Then, this program requires more participation from the community to make this program a success. Considering, from the indicators of dengue fever control which are less than optimal, the researchers wish to conduct research on "The Effect of One House One Lartic Monitoring Movement on the Existence of Larva in Watubangga Village".

METHOD

This type of research is a quantitative research with a pre-experimental research design with a pre-test - post-test one group design that is used to find the effect of certain treatments, namely the movement of one house one jumantik on the presence of larvae in Watubangga Village. This research has been carried out for 3 (three) months, starting from March to May 2021.The population is all heads of families in Watubangga Village as many as 608 head of family. The sample in this study was part of the head of family in Watubangga Village, namely:as many as 236 people.The sampling technique in this study used a systematic random sampling technique, where the sample was taken based on the head of family sequentially who entered Watubangga Village.

Data were collected using questionnaires and observation sheets. The instrument before being used, has been tested and proven valid and reliable to be used as a research instrument. The data that has been collected, then analyzed descriptively andinferential test is iMCiNecmar test.

RESULT

Figure 1 shows the head of the family that at the time of the pre-test there were 190 respondents whose larvae were found at home and 46 respondents did not find larvae, after the intervention, namely during the first post-test there was a drastic decrease in the house of respondents who found larvae, namely only 81 respondents, at the time of post-test. In the second test, the number of respondents' houses that found larvae was 75 respondents' houses, and during the last post-test, namely during the fourth post-test, the number of respondents' houses that found larvae was 45 respondents.

Table 1 shows that, from 190 respondents who had larvae in their homes before the intervention was carried out, after the intervention there were 42 respondents who still had larvae in their homes and 148 respondents changed to no larvae in their homes. Meanwhile, from 46 respondents who did not find larvae in their homes before the intervention, there were 43 respondents who did not find larvae in their homes after the intervention and three (3) respondents found larvae in their homes. The results of statistical tests using the Mc.Nemar test obtained a p-value of 0.000 < 0.05, this means that there is an effect of the movement of one house one jumantik on the presence of larvae in Watubangga Village.

e- ISSN: 2715-4718

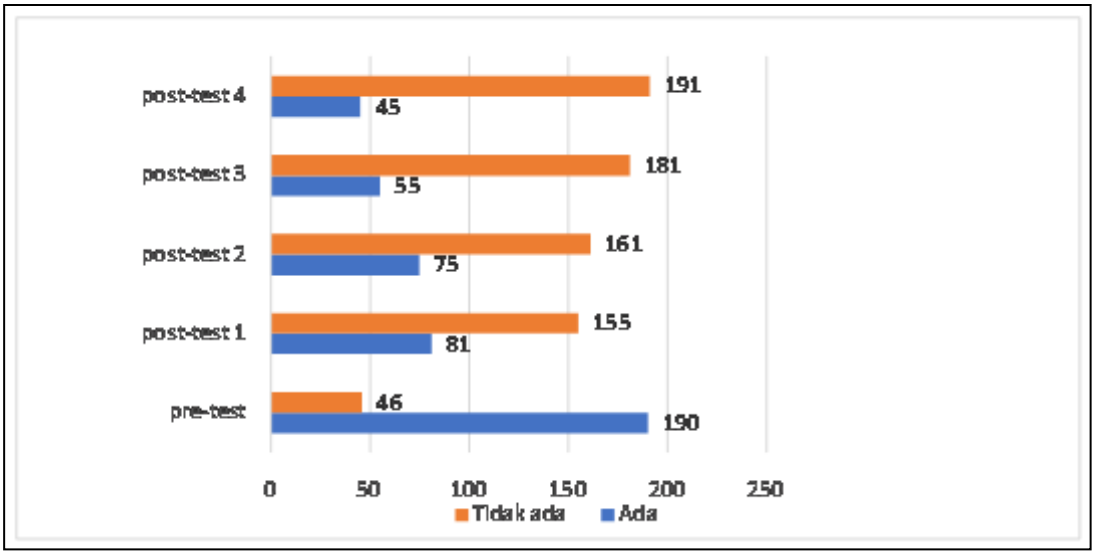

Figure 1. Distribution of Respondents Based on the presence of larvae in Watubangga Village

Table 1
The Influence of One House One Jumantik Movement on the Existence of Larvae in Watubangga Village

Presence of Flick Before	The existence of a larva after		amount	*X² (MC Nemar)*
	There is	Nothing		
There is	42	148	190	*p-value=0,000 =0.005*
Nothing	3	43	46	
amount	45	191	236	

DISCUSSION

Mosquitoes are living things that are included in the ectotherms group, each stage in their development cycle depends on air temperature, which will affect the development and mortality rate of mosquitoes. Based on the results of the study before the intervention, 190 respondents were found to have mosquito larvae in several containers around their homes. This is due to the condition of the container in an open, dirty and rarely cleaned condition. In addition, it is also influenced by the rain that causes the formation of breeding sites or breeding sites for mosquitoes in several containers owned by respondents.

This is in accordance with the theory put forward by Supartha (2008) that Aedes mosquitoes are often found breeding in containers such as bathtubs, jars, bird drinking places and used goods filled with rainwater outside the house. In addition, the cause of the many types of mosquitoes found in the two locations is due to the distance between people's houses that are close to each other (housing) is also one of the determining factors for the spread of this type of mosquito. This is in accordance with

e- ISSN: 2715-4718

the theory proposed by (Clements, 1992), which states that this mosquito has a flight distance of 100 m to more.

From the observations of researchers, it is known that buckets and bathtubs are the most common types of containers found by larvae. The two types of containers were often found in the respondent's house and were very potential for Ae. aegypti. The two containers are actually easy to control so that the presence of Ae. aegypti can be reduced. Therefore, it is necessary to re-emphasize the understanding of the community in an effort to eradicate mosquito nests properly and correctly so that controlled containers are free from the presence of larvae. The existence of disposable containers (DC) or containers that cannot be controlled at the intervention site has contributed a lot to the existence of larvae.(12).

After the intervention was carried out, it was then observed for four consecutive weeks that it was found that there was a gradual decrease in the number of houses found by larvae. Where before the intervention there were 190 respondents whose houses were found to have larvae, after the intervention it gradually decreased, namely in the fourth week of observation, only 45 respondents were found whose houses were found to be larvae, or from 190 respondents who had larvae in their homes before the intervention was carried out, in when after the intervention there were 148 respondents who changed to no larvae in their homes. This is also reinforced by the results of the analysis using the Mc.Nemar test, obtained a p-value of 0.000 < 0.05, this means that there is an effect of the movement of one house one jumantik on the presence of larvae in Watubangga Village.

This is due to the fact that in the one house one jumantik movement program, there is a transfer of knowledge from family members who have been recruited as jumantik with their families about how to eradicate mosquito nests (mosquito nest eradication) thereby increasing the knowledge of other family members about mosquito nest eradication. Then this method is also in conveying information accompanied by direct demonstrations or examples by jumantik cadres on how to do the correct eradication of mosquito NESTS so as to make other family members easier to remember about the information submitted and make the atmosphere pleasant because respondents will tend to actively explore various ideas they have so as to increase motivation,(13). This is because in this method, the community is given a stimulus from their family members or feels ashamed of their environment if they do not carry out eradication of mosquito nests (Eradication of Mosquito Nests) or their home environment looks dirty. This is in line with the theory which states that family support is very influential on family behavior(14). This is also in line with the theory put forward by BF Skinner in BismaMurti (2018) which states that a human behavior is the result of a stimulus that comes from the external environment.(13).

Of the 190 respondents who found larvae in their homes before the intervention, there were still 42 respondents who still found larvae. This is due to the respondent's lack of knowledge about the mosquito life cycle, potential breeding sites and the dangers of mosquito vectors that can transmit various diseases such as dengue hemorrhagic fever and malaria. The lack of public understanding can also be seen from the many kinds of plastic containers which are household waste in the neighborhood around the respondent's house, so that when it rains it becomes a breeding site that can support the proliferation of various types of mosquitoes.

Meanwhile, from 46 respondents who did not find larvae in their homes before the intervention, there were three (3) respondents who found larvae in their homes. This is because during the last week of observation

e- ISSN: 2715-4718

the respondent had just come from Lebaran homecoming and had not had time to eradicate mosquito nests.

Many containers were found to be larvae due to the lack of public awareness in carrying out the eradication of mosquito nests (mosquito nest eradication). This is supported by the climatic conditions when the measurements were in the rainy season. High rainfall will increase mosquito breeding sites, especially in the outdoor environment so that it can increase their density. Temperature and humidity also greatly affect the life of mosquitoes. Temperatures that tend to be high will accelerate the larval stage, and speed up the incubation period of the virus(15). Likewise, high humidity also prolongs the life of mosquitoes thereby increasing the frequency of sucking blood. The issue of global climate change causes the greenhouse effect so that air temperature and humidity increase(16).

CONCLUSION

The conclusion that can be drawn from the results of this study is that there is an effect of the movement of one house one jumantik on the existence of community larvae in Watubangga Village, where the p-value is 0.000 < =0.05. Therefore, it is hoped that this one house one jumantik movement can be implemented throughout the territory of the Republic of Indonesia so that it can support better environmental health to increase the level of health status in the community through optimizing the role in maintaining the cleanliness of the living environment and reducing morbidity and mortality. deaths from diseases transmitted by mosquito bites. It is recommended for the Village Government or related sectors that the "jumantik cadre" movement that was formed at the time of the research can be preserved and formed a kind of management by the community in managing resources related to larva control efforts carried out by residents. It is also hoped that these activities can be carried out in a sustainable manner and it is necessary to strengthen motivation through dialogue to increase efforts to control mosquito larvae.

REFERENCES

1. WHO. Dengue Control. Geneva. WHO. 2016
2. Ministry of Health RI. Indonesia Health Profile 2019: Ministry of Health RI; 2020.
3. Health Office of Southeast Sulawesi. Health Profile of Southeast Sulawesi Province. Kendari; 2020.
4. Kolaka District Health Office. Kolaka District Health Profile. 2020.
5. Watubangga Health Center. Watubangga Health Center Profile. 2020.
6 .Tira Ds, Apipideli D, Landi Sjjppmklk. Assistance and Examination of Aydes Aigepty Mosquito Larvae in Dengue Fever Endemic Area, Kelapa Lima District, Oesapa Village-Kupang City. 2020;1(1):26-33.
7. Hulu Vt, Pane Hw, Tasnim T, Zuhriyatun F, Munthe Sa, Hadi S, Et Al. Public Health Promotion: Our Writing Foundation; 2020.
8. Mahawati E, Pakpahan M, Wulandari F, Purba Dh, Sari M, Unsunnidhal L, Et Al. Environmentally Based Diseases: Our Foundation for Writing; 2021.
9. Try C. Training on larva monitoring in the East Artaraya Berangas Complex Community Group: Muhammad Arsyad Al Banjarmasin Islamic University Kalimantan, Banjarmasin. 2019.
10. Marina R, Ariati. The Role of Jumantik Cadre Assistance on Community Actions Related to the Presence of

e- ISSN: 2715-4718

Aedes Sp larvae in the Kec. Pekanbaru City Umbrella. 2021;1(1):1013-23.

11. Widiyanto P, Widyantoro T, Ulva S, Ningrum Mp, Safitri Najje. Implementation of the One House One Jumantik (G1r1j) Movement to Create a Dengue Fever-Free Environment. 2021;2(1):15-22.
12. Dwantara Pw, Dinata A. The Maya Index Analysis On Dengue Patient Household In Banjar City, 2012. Balaba: Journal of Research and Development on Disease Control with Animal Sourced Banjarnegara. 2015;11(1):1-8.
13. Mangidi Magt, Sunarsih S, Jayadipraja Eaja-Stphsj. The Effect of Triggering on the Larval Free Rate (Abj) in the Village of Rahandouna, Kendari City. 2019;11(2).
14. Harun A, Saraswati Ps, Mangidi Magtjajomp, Practice C. Relationship Between Family Support And Work Status To The Utilization Of Ncd Integrated Post In The Work Area Of Barangka Health Center, Buton District. 2020:1-5.
15. Azhari Ar, Darundiati Yh, Dewanti Nayjh. A Study of Correlation Between Climate Factors and the Incidence of Dengue Hemorrhagic Fever in 2011-2016. 2017;1(4):163-75.
16. Hulu Vt, Tasnim T, Sitorus S, Parinduri L, Sitorus E, Chaerul M, Et Al. Environmental Health: Our Writing Foundation; 2020.