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The Influence of Training on the Knowledge Level of Larva Monitoring Students in Three Elementary Schools in Kutaraja District, Banda Aceh

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ABSTRACT
Community involvement that included students to participate in DHF control is a valuable effort in reducing the burden of disease. The study was conducted to assess the effect trained on knowledge, attitudes, and practices regarding dengue and its association among students called larva monitoring students in Banda Aceh Municipality from July-October, 2018. A quasi-experimental one-group pretest-posttest design was carried out involving 90 students in three elementary schools in Kutaraja sub-district, Banda Aceh, (SDN 6, SDN 17, and SDN 70) that was chosen by purposive sampling technique. The training was held on September 12-14, 2018. The training activities used PowerPoint presentations, videos, and microscopes to see the morphology of Aedes mosquito larvae as the training media. Training materials include preventing DHF with 3M Plus and PSN. Training methods that were carried out were lectures, discussions, and practices to see the morphology of mosquito larvae. Data were analyzed using independent sample t-test, paired t-test. There was a significant correlation between the knowledge of the training of elementary school students before and after training (p = 0.000). That intervention was successful in increasing the knowledge level of larva monitoring students (Sismantik).

Keywords: *Student Monitoring Larva (Sismantik), knowledge, DHF, training.*

1. INTRODUCTION

Dengue Hemorrhagic Fever (DHF) is a disease caused by the dengue virus, which is transmitted through mosquito bites from the genus *Aedes*, especially *Aedes aegypti* and *Aedes albopictus*. This disease is related to environmental conditions and community behaviour [1]. In 2017, the number of DHF cases in Indonesia was 68407 cases with 493 deaths. The group of children aged 5-14 years is the largest group who experience DHF [1].

Community empowerment has the main role in implementing health efforts and controlling DHF cases. Community empowerment through a larva monitoring officer (Jumantik) is an important effort in dengue vector control [2]. Jumantik is a member of the local community who is trained as a form of movement or active participation in overcoming DHF [3].

The higher knowledge that people have, the higher ability of those to assess something. This assessment will be the basis for a person to act [4]. There is a significant correlation between the knowledge of primary school students' training participants before training and after the training that was held in three primary schools in Kutaraja sub-district in July - October 2017 (p = 0.004) [5]. Another study finds that families who have school-age children are 2.02 times better to do DHF prevention than families without school-age children [6]. Diaz (2017) conducted a study on the association between the level of education and knowledge, attitudes and practices regarding dengue fever in the Caribbean region of Colombia and concluded that there is a relationship between the level of knowledge and behaviour [7].

Efforts to prevent the transmission of dengue fever require a comprehensive effort to establish a conducive

and clean environment from dengue mosquito nests by involving all government agencies and all groups including school children. Groups of school children are part of community groups that can play a strategic role, considering that around 20% of the total population of Indonesia are elementary, junior high, and senior high school students. The understanding of PSN for school children plays a role in instilling PSN behavior at an early age, which will be used as a basis for thinking and behavior in the future. Moving school children is easier than adults in implementing PSN. Therefore students need to be trained to become Jumantik or larva observers (Jumantik) in their schools and their neighborhoods.

Based on those backgrounds, this study will analyze the effect of larva monitoring student training on the level of knowledge of students in elementary schools in Kutaraja District, Banda Aceh.

2. METHOD

This study used a quasi-experimental research design with a quasi-experimental one-group pretest-posttest. Measurements were carried out before and after the provision of training on larva monitoring students. The research locations were in three elementary schools in Kutaraja district, Banda Aceh, namely SDN 6, SDN 17, and SDN 70. The number of research samples for each elementary school was 30 people, so the total number of training participants is 90 elementary school students. The participants were chosen by using the purposive sampling technique.

Training activities were carried out on 12-14 September 2018. The training media that were used were PowerPoint presentations, videos, and a microscope to see the morphology of Aedes mosquito larvae. The training materials include prevention of dengue with 3M Plus and PSN. The training method consists of lectures, discussions, and practice seeing the morphology of mosquito larvae. Independent sample t-test and paired t-test were used to analyze the data.

3. RESULTS

The characteristics of the training participants that came from three elementary schools (SDN 06, SDN 17, and SDN 70) could be seen in Table 1. Each school sent 30 students to participate in the larva monitoring student (Sismantik) training. Most of the training participants were female (56.7%) and 5th grade students (52.2%).

Table 1. Characteristics of participants

Characteristics	n	%
School		
SDN 06	30	33,3
SDN 17	30	33,3
SDN 70	30	33,3
Sex		
Male	39	43,3
Female	51	56,7
Class		
4th grade	43	47,8
5th grade	47	52,2

Source: author's own work

A pre-post test with a total of 25 questions was carried out to evaluate the effect of the training on participant's knowledge. Table 2 showed that the question that had the least number of correct answer was the question about the time the Aedes mosquito died (16.7%). Meanwhile, 53.3% of the students were able to answer that question correctly at the post-test. Meanwhile, the most questions answered correctly by students were questions about the causes of DHF, namely 95.6% at the pre-test and 98.9% at the post-test.

Table 2. The distribution of student's answer in pre-post test

Question	Pre-test answer (%)		Post-test answer (%)	
	Wrong	Correct	Wrong	Correct
Uses of Abate	6.7	93.3	4.4	95.6
Characteristics of *Aedes* eggs	21.1	78.9	12.2	87.8
Characteristics of *Aedes* larvae	23.3	76.7	3.3	96.7
The frequency of activities to drain the bathroom	7.8	92.2	1.1	98.9
Aedes aegypti mosquito cycle	7.8	92.2	3.3	96.7
Water environmental conditions favored by the *Aedes* mosquito	66.7	33.3	33.3	66.7
An animal that is used to prey on larvae	14.4	85.6	8.9	91.1
Larva monitoring time	21.1	78.9	1.1	98.9
Ways of spreading dengue fever	25.6	74.4	16.7	83.3
Causes of dengue fever	4.4	95.6	1.1	98.9
Characterist	25.6	74.4	13.3	86.7

Question	Pre-test answer (%)		Post-test answer (%)	
	Wrong	Correct	Wrong	Correct
-ics of the dengue mosquito				
When the *Aedes aegypti* mosquito bites / suck human blood	83.3	16.7	46.7	53.3
The reason the *Aedes* mosquito sucks blood	12.2	87.8	2.2	97.8
The position of the *Aedes* mosquito when biting	26.7	73.3	14.4	85.6
Use of fogging / fumigation	22.2	77.8	12.2	87.8
Aedes aegypti mosquito breeding place	18.9	81.1	3.3	96.7
The type of mosquito that bites humans	26.7	73.3	4.4	95.6
PE activity radius (km)	27.8	72.2	4.4	95.6
Community groups who can become candidates for Jumantik	25.6	74.4	14.4	85.6
The role of Jumantik Students	14.4	85.6	5.6	94.4
Places to be checked when monitoring larvae	18.9	81.1	4.4	95.6
Signs of a person suffering from dengue fever	21.1	78.9	5.6	94.4
Places that have the potential / can become a breeding ground for dengue mosquitoes	17.8	82.2	6.7	93.3
The reason that DHF is dangerous	25.6	74.4	5.6	94.4
Mosquito nest eradication activities with 3M Plus	20.0	80.0	5.6	94.4

Source: author's own work

In table 3, it could be seen that there was an increase in the average score of the pre-test and post-test. The average score of the pre-test was 76.58, while the post-test average score was 90.62. The minimum score during the pre-test was 32, whereas the post-test was 44. Meanwhile, the maximum score at the pre-test was 96, and the post-test was 100.

Table 3. Pre-test and post-test score

	Mean	SD	Minimum	Maximum
Pre-test	76,58	15,141	32	96
Post-test	90,62	9,331	44	100

Source: author's own work

The analysis of the mean difference test with the Wilcoxon Signed Ranks Test (Table 4) found that the p-value was 0.000 (p-value < 0.05). It meant that there was a significant relationship between the student's knowledge before and after the training.

Table 4. Wilcoxon Signed Ranks Test

	Mean rank	Sum of ranks	Z	P-value
Pre-test	42.89	3302.50	-7,425	0.000
Post-test	20.10	100.50		

Source: author's own work

4. DISCUSSION

The increase in knowledge after training indicated that the training materials that were provided could be understood well by the elementary students. It was in line with the study that assess the effect of the formation of Jumantik on the knowledge level of students at SDN 1 Mluweh, East Ungaran, Semarang [8]. The results showed that before the training as much as 50.76% of students had already known about DHF [8]. After the training, the level of students's knowledge increased by 78.33% [8].

By having a good knowledge, it is expected that the students can carry out their duties as larva monitoring students (Sismantik) at school and at home well. Respondents who had good knowledge of vector would have a better ability to identify mosquitoes breeding places that were the target of vector control [9]. Study

that was conducted in North Sumatra concluded that socio-demographic and socio-cultural factors, as well as knowledge, attitudes, practices, and environmental factors, were associated with the incidence of DHF [10]. Education and knowledge about DHF play an important role in reducing the incidence of DHF.

5. CONCLUSION

The involvement of school children in the eradication of DHF provides a strategic role as larva monitors. To increase students's knowledge, it can be done through training about DHF. The results showed that the students's knowledge increased compared to before the training (p = 0.000).

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