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Increasing Community Knowledge through Larvitrap's Making Training as an Effort to Prevent Dengue Hemorrhagic Fever (DHF) in Rowosari Village, Semarang

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Abstract

Dengue fever is a disease caused by the dengue virus and transmitted through the bite of the Aedes aegypti mosquito. The emergence of this disease is related to environmental conditions including weather and community behavior. The purpose of this activity is to increase community knowledge and skills in efforts to prevent and control dengue hemorrhagic fever (DHF). The method used was socialization and training on larvitrap making for the Rowosari village community, Semarang. The participants were 50 men and women with an average age of 50 years with various educational backgrounds who live in the Rowosari Village area, Semarang City. The results of this activity showed an increase in knowledge through socialization and training. Paired sample t-test on the pre-test and post-test scores showed a p-value of 0.000 or less than 0.05, which means that there is a difference in community knowledge before and after the socialization and training. The conclusion of this activity is that the training on prevention and control of DHF through Larvitrap making is effective in increasing the knowledge and skills of the community in Rowosari Village, Tembalang Subdistrict, Semarang City.

Keywords: *Dengue, Knowledge, Larvitrap*

1. INTRODUCTION

Dengue fever is a vector-borne disease that is still a problem for public health in Indonesia.(Rizal Anshori; Abi Muhlisin; Dwi Handoyo, 2014) So this disease is still a priority for vector control, because until now this disease has no cure and vaccine. In fact, this disease has a tendency to spread more widely, along with population mobility and growth.(Harahap, 2016) The high number of cases and deaths caused by DHF is an indication that public health problems are still a burden. Bloom's theory states that the factors that influence human health status are the environment, health services, heredity and human behavior itself.(Wahyono, 2009) DHF control programs that have been carried out at the Semarang City Health Office, especially in Tembalang Subdistrict during 2018 include PSN, counseling, larvacidation, periodic larval examination, focused fogging and mass fogging.(Kasman & Ishak, 2018) All of these programs have been implemented in the Tembalang Subdistrict area but the results obtained are still very far from achieving the targets expected by the government. The working area of Tembalang Sub-district has a high number of DHF patients, this is due to one of the conditions of home environmental sanitation and community action behavior related to DHF incidence is still considered problematic and can increase the risk of DHF, such as water reservoirs that are positive for larvae, bushes and puddles around the house, and the presence of used goods that can collect rainwater.(Ishak, 2018)

Knowledge is a major factor in the success of running programs in the community. Knowledge can shape a person's habits and thoughts about a disease. Knowledge is the main basis for implementing a person's behavior to carry out a good habit over a long period of time. This factor can lead to changes in a person's perceptions and habits when dealing with a disease.(Mochamad Rizal Maulana, 2024)

The population density factor also triggers high dengue cases, because mosquito breeding sites are almost entirely human actions ranging from maintaining used cans, used tires to bathtubs.(Kemenkes RI, 2016) Mechanical mosquito population control can use trapping. Trapping is a mosquito trap as an effort to reduce the mosquito population in an effort to reduce

Vol. 4, No. 4, Juli 2024, Hal. 853-858
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the mosquito population that causes DHF by using attractant media.(Novarizqi, 2012) Attractant is something that has an attraction to insects (mosquitoes) either chemically or physically. Chemical attractants can include ammonia, CO2, lactic acid and actenol. These substances or compounds are organic or are the result of metabolic processes of living things that have been shown to affect the olfactory nerves of Aedes aegypti mosquitoes.(Rochmat et al., 2017)

Modification of the trapping form and the use of attractant types with the right concentration ratio are needed to produce a trapping tool for Aedes aegypti mosquito vectors that can work optimally, is easy to do and can be applied in the field.10 The results of previous studies suggest using dry media to facilitate its application and be applied directly in the field.(Widagdo et al., 2008). According to the above background, the author wants to provide socialization and training on larvitrap making as an effort to increase public knowledge on dengue hemorrhagic fever in Rowosari Village, Semarang City.

2. METHODS

Dengue fever is an infectious disease caused by the dengue virus that is transmitted through the bite of the Aedes Aegypti mosquito. Transmission of this disease is very massive at the beginning of the rainy season and is one of the diseases that must be a concern in tropical countries, especially Indonesia. This Larvitrap making training activity will help increase community knowledge and awareness of the spread and transmission of dengue hemorrhagic fever, especially in Rowosari Village, Tembalang Subdistrict, Semarang.

This service activity was carried out on June 8, 2024 in Rowosari Village, Tembalang Subdistrict, Semarang City. There were 50 participants, both male and female. In general, the series of activities carried out are introductions, taking initial data (pre-Test), providing material about dengue hemorrhagic fever (DHF) and showing educational videos on making larvitraps, Post-Test and finally making Larvitraps. The following are the details of the stages of the activities carried out:

a. Formulate a plan for educational activities for Larvitrap Making Training
b. The activity began with a field survey and discussions with the community regarding the day and date of implementation.
c. Making an educational video on how to make a simple Larvitrap for community members
d. Pre-Test stage, namely distributing Pre-Test questionnaires using physical forms to find out the extent of knowledge of community members about Dengue Fever and how to prevent and overcome it
e. Running the educational activity program that has been compiled
f. Conducting socialization about Dengue Fever and how to prevent and control it as well as showing Larvitrap Making Video
g. Conducting simple Larvitrap Making Training for Residents
h. Conduct Post-Test on Dengue Fever and its Prevention and Control Methods

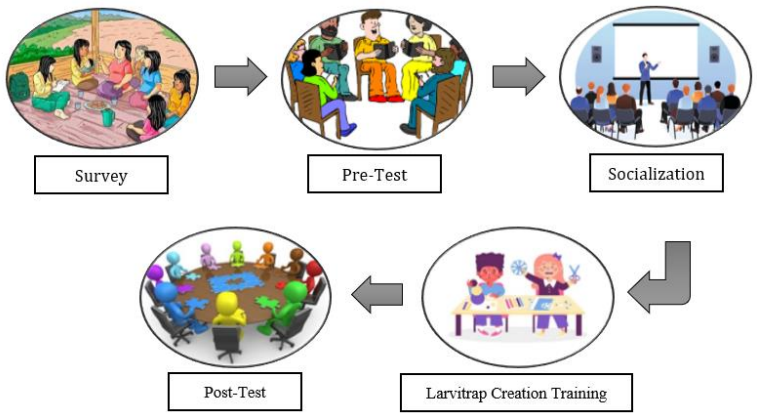

Figure 1. The flow of implementation of community service activities

Vol. 4, No. 4, Juli 2024, Hal. 853-858
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3. RESULTS AND DISCUSSION

This research was conducted in Rowosari Village, Tembalang District, Semarang City by involving 50 community members with an average age of 50 years consisting of men and women and various types of educational backgrounds. Based on the Pre-Test and Post-test activities in community service, the overall results are as follows:

Table 1. Pre-Test and Post-Test results based on the level of knowledge by the community

Knowledge Level (Score)	Result	
	Pre-Test (%)	Post-Test (%)
Very Less (≤ 30)	7 (14%)	0 (0%)
Less (40-50)	31 (62%)	0 (0%)
Enough (60-70)	12 (24%)	1 (2%)
Good (≥ 80)	0 (0%)	49 (98%)
Total	50 (100%)	50 (100%)

The level of public knowledge of dengue hemorrhagic fever related to prevention and management is categorized into very less, less, enough, and good. Based on table 1, the most Pre-Test results were lack of knowledge as many as 31 people (62%), 7 (14%) people with very poor knowledge and 12 (24%) people with sufficient knowledge level. After counseling the community and conducting a Post-Test, the results showed that 49 (98%) people had a good level of knowledge and only 1 resident had a sufficient level of knowledge.

Table 2. Frequency Distribution According to Dengue Hemorrhagic Fever (DHF)

Phase	Min	Max	Mean	*p-Value*
Pre-Test	30	60	47,80	0,000*
Post-Test	70	90	83,60	

**Paired T-Test (Wilcoxon)*

The data obtained was then statistically tested to determine whether the socialization and training activities carried out affected the increase in knowledge of community members. Based on Table 2, it can be seen that the average knowledge of the community during the Pre-Test was 47.80 and increased to 83.60. In addition, the paired test results using the Wilcoxon test obtained a p-value of 0.000 (≤ 0.05) which means that there is indeed a significant effect of dengue hemorrhagic fever (DHF) counseling activities and larvitrap making training on the level of community knowledge.

Figure 2. Dengue Hemorrhagic Fever Education and Socialization

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Figure 3. Larvitrap Creation Training

The socialization activities carried out were followed by the community enthusiastically when explaining the meaning of dengue fever, how to prevent and control it until the appearance of a video of larvitrap making as shown in Figure 2. After that, the speaker provided procedures and flow of larvitrap making directly related to the tools and materials and manufacturing techniques to produce simple larvitrap by several people who were divided into groups according to Figure 3.

The socialization activity began by asking some basic questions to the community members present regarding dengue hemorrhagic fever. There were only 3 people who answered, indicating that almost 94% of participants had a low level of knowledge related to the topic to be explained. Furthermore, counseling related to dengue hemorrhagic fever was carried out through presentations covering the definition, the spread of dengue hemorrhagic fever in the world and Indonesia, how to prevent and control dengue hemorrhagic fever, as well as the appearance of a simple video of Larvitrap making as one of the efforts to prevent dengue hemorrhagic fever disease transmission. This prevention activity is very important to break the chain of disease transmission by trapping mosquito eggs and larvae so that they do not metamorphose into mosquitoes that may carry the dengue virus. After the presentation of the material, the activity continued with a demonstration of larvitrap making according to simple tools and materials that can be found around the community. The activity ended with a discussion and question and answer session related to the material and practice of making larvitraps.

The success of dengue fever prevention requires good cooperation between the general public, health workers, education, government, youth and the role of students. One of these efforts is through joint activities in health education related to dengue fever which aims to provide information, increase knowledge and arouse the enthusiasm and motivation of the community, one of which is the Rowosari village community, Tembalang Subdistrict.(Nur Itsna, 2020) Knowledge is an important factor in understanding the knowledge and experience gained in society. A person's knowledge is influenced by the education and experience that a person gets both from educational institutions and from the community. the higher a person's education, the easier it will be to receive information.(Saragih & Sirait, 2020)This is in line with community service conducted in Dlingo Village, Mojosongo District, Boyolali Regency which states that there is an increase in post-test results after socialization activities related to dengue hemorrhagic fever.(Lindawati et al., 2021)

Community service conducted in Karangmalang Kedungbanteng Village also mentioned similar results that increased knowledge of dengue hemorrhagic fever through counseling can reach 75%.(Nur Itsna, 2020) The level of knowledge gained by the community is also greatly influenced by the existence of health counseling conducted by health services on a regular basis.(Dewi et al., 2022) Community service activities carried out by Yauwan in 2022 found that there was an increase in knowledge by the community after counseling activities (83.3%) compared to before counseling (53.3%). This indicates that all material is delivered well and can be received and understood by residents as well. So that seen from these results, it can be seen that the increase in residents' knowledge in answering properly and correctly is the basis for

evaluation in the success of efforts to increase residents' knowledge about the prevention and control of dengue hemorrhagic fever.(Yauwan Tobing Lukiyonoa; Thomas sumarsonob; Imma Rachmawatia, 2022)

4. KESIMPULAN

The conclusion of this community service activity is that before the counseling, most of the community service participants did not understand well about dengue hemorrhagic fever and how to prevent and overcome it. However, after attending the counseling, there was an increase in knowledge related to dengue hemorrhagic fever and an increase in the ability of participants to perform larvitrap making skills as a way to prevent dengue hemorrhagic fever. The significant difference was proven by statistical tests which showed that there was a significant difference between before and after attending the socialization and training activities. Through this activity, the participants were able to expand their understanding of dengue hemorrhagic fever. This encourages them to try to make prevention efforts by increasing awareness of the environment, especially in the prevention and control of dengue hemorrhagic fever, and implementing a healthier lifestyle. This is expected to encourage them to be more proactive in maintaining the health of the environment and the health of their families, especially their children.

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REFERENCE

Dewi, R., Syafira, R., Yulfiyan, A., Garosha, S., Putri, I. N. E., & Elvina, N. (2022). Upaya Peningkatan Pengetahuan Masyarakat dalam Pencegahan dan Penanggulangan DBD di RT 14, 15 Desa Mekar Jaya. *Jurnal Pustaka Mitra (Pusat Akses Kajian Mengabdi Terhadap Masyarakat)*, *2*(1), 6–9. https://doi.org/10.55382/jurnalpustakamitra.v2i1.122

Harahap, P. (2016). Efektifitas Ekstrak Umbi Gadung (Dioscorea hispida Dents) Dalam Pengendalian Larva Nyamuk. *Jurnal Ipteks Terapan*, *8*(1). https://doi.org/10.22216/jit.2014.v8i1.438

Ishak, K. N. I. (2018). *Pelatihan Pemantauan Jentik pada Kelompok Masyarakat Artaraya Berangas Timur*. *11*(1), 1–5. http://link.springer.com/10.1007/978-3-319-59379-1%0Ahttp://dx.doi.org/10.1016/B978-0-12-420070-8.00002-7%0Ahttp://dx.doi.org/10.1016/j.ab.2015.03.024%0Ahttps://doi.org/10.1080/07352689.2018.1441103%0Ahttp://www.chile.bmw-motorrad.cl/sync/showroom/lam/es/

Kasman, K., & Ishak, N. I. (2018). Analisis Penyebaran Penyakit Demam Berdarah Dengue di Kota Banjarmasin Tahun 2012-2016. *MPPKI (Media Publikasi Promosi Kesehatan Indonesia): The Indonesian Journal of Health Promotion*, *1*(2), 32–39. https://doi.org/10.31934/mppki.v1i2.176

Kemenkes RI. (2016). *Juknin Implementasi PSN 3M-PLUS dengan Gerakan 1 Rumah 1 Jumantik* (A. F. S. W. S. R. S. G. B. L. Adhi (ed.); 1st ed.). Kementerian Kesehatan Republik Indonesia.

Lindawati, N. Y., Murtisiwi, L., Rahmania, T. A., Damayanti, P. N., & Widyasari, F. M. (2021). Upaya Peningkatan Pengetahuan Masyarakat Dalam Rangka Pencegahan Dan Penanggulangan Dbd Di Desa Dlingo, Mojosongo, Boyolali. *SELAPARANG Jurnal Pengabdian Masyarakat Berkemajuan*, *4*(2), 473. https://doi.org/10.31764/jpmb.v4i2.4305

Mochamad Rizal Maulana, dkk. (2024). Hubungan Pengetahuan, Sikap, Perilaku Terhadap

Kepatuhan Minum Obat Pasien TB di Kota Semarang. *Gema Lingkungan Kesehatan*, *22*(1), 1–5. https://doi.org/https://doi.org/10.36568/gelinkes.v22i1.99

Novarizqi, M. L. T. W. Z. L. (2012). Survei Jentik Sebagai Deteksi Dini Penyebaran Demam Berdarah Dengue (DBD) Berbasis Masyarakat dan Berkelanjutan. *Jurnal Ilmiah Mahasiswa*, *2*(1), 56–63. https://www.neliti.com/id/publications/96982/urvei-jentik-sebagai-deteksi-dini-penyebaran-demam-berdarah-dengue-dbd-berbasis

Nur Itsna, I. (2020). Peningkatan Pengetahuan Masyarakat Dalam Menanggulangi Penyakit Demam Berdarah Dengue (DBD) di Desa Karangmalang Kedungbanteng. *JPKMI (Jurnal Pengabdian Kepada Masyarakat Indonesia)*, *1*(1), 35–41. https://doi.org/10.36596/jpkmi.v1i1.35

Rizal Anshori; Abi Muhlisin; Dwi Handoyo. (2014). *Pengaruh Pendidikan Kesehatan Terhadap Peningkatan Pengetahuan Dan Perilaku Pencegahan Demam Berdarah Dengue Masyarakat Desa Bulurejo* [Universitas Muhammadiyah Surakarta]. https://eprints.ums.ac.id/32257/

Rochmat, A., Adiati, M. F., & Bahiyah, Z. (2017). Pengembangan Biolarvasida Jentik Nyamuk Aedes aegypti Berbahan Aktif Ekstrak Beluntas (Pluchea indica Less.). *REAKTOR*, *16*(3), 103. https://doi.org/10.14710/reaktor.16.3.103-108

Saragih, F. L., & Sirait, H. (2020). Hubungan Pengetahuan Dan Sikap Dengan Kepatuhan Minum Obat Anti Tuberkulosis Pada Pasien Tb Paru Di Puskesmas Teladan Medan Tahun 2019. *Jurnal Riset Hesti Medan Akper Kesdam I/BB Medan*, *5*(1), 9–15. https://doi.org/10.34008/jurhesti.v5i1.131

Wahyono, L. K. H. T. Y. M. (2009). *Gambaran epidemiologi demam berdarah dengue (DBD) dan faktor-faktor yang mempengaruhi angka insidennya di wilayah kecamatan Cimanggis, Kota Depok tahun 2005-2008*. Universitas Indonesia.

Widagdo, L., Husodo, B. T., Bhinuri, & Dkk. (2008). Kepadatan Jentik Aedes aegypti sebagai Indikator Keberhasilan Pemberantasan Sarang Nyamuk (3M Plus): di Kelurahan Srondol Wetan, Semarang. *Makara Kesehatan*, *12*(1), 13–19.

Yauwan Tobing Lukiyonoa; Thomas sumarsonob; Imma Rachmawatia. (2022). Upaya Peningkatan Pengetahuan Pemberantasan Demam Berdarah Dengue Dengan Pengendalian Nyamuk Aedest Aigipty. *Seminar Nasional Pengabdian Kepada Masyarakat 2021*, *1*(1), 634–638. https://doi.org/10.33086/snpm.v1i1.856