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Socialization and Waste Management in Reducing the Risk of the Spread of Dengue Hemorrhagic Fever (DHF) in Nolokerto Village, Kendal Regency

Putri Zulfikah [1*], Dewi Sherly Banowati [2], Aenul Firliani Mutmainah [3], Fitria Kholbi Azizah [4], Wulan Maghfiroh Azzahra [5]
[1-5] Universitas Islam Negeri Walisongo Semarang, Indonesia
Email : 2108026002@student.walisongo.ac.id

Alamat: Jl. Walisongo No.35, Tambakaji, Kec. Ngaliyan, Kota Semarang, Jawa Tengah 50185, Indonesia
*Korespondensi penulis: 2108026002@student.walisongo.ac.id**

Abstract. *Dengue Hemorrhagic Fever (DHF) is one of the serious health problems in Indonesia, especially in areas with environmental conditions that support the breeding of Aedes aegypti mosquitoes. This research aims to provide counseling on health and waste management in an effort to reduce the risk of dengue transmission in Nolokerto Village. This service method is by conducting direct counseling at the Nolokerto Village Hall on August 3, 2024 and involving the local community. The results obtained show that intensive socialization and active community participation in environmental cleaning and waste management have a significant influence on the reduction of the number of dengue cases. The socialization carried out succeeded in increasing public awareness about the importance of maintaining environmental cleanliness as a measure to prevent dengue. In addition, good waste management, including waste segregation and the removal of mosquito breeding grounds, has proven effective in reducing the population of Aedes aegypti mosquitoes.*

Keywords: *Dengue, Aedes aegypti, garbage.*

Abstrak. Demam Berdarah Dengue (DBD) merupakan salah satu masalah kesehatan yang serius di Indonesia, terutama di daerah yang memiliki kondisi lingkungan yang mendukung perkembangbiakan nyamuk Aedes aegypti. Penelitian ini bertujuan untuk memberikan penyuluhan tentang kesehatan dan pengelolaan sampah dalam upaya mengurangi risiko penularan DBD di Desa Nolokerto. Metode pengabdian ini dengan melakukan penyuluhan langsung di Balai Desa Nolokerto pada tanggal 3 Agustus 2024 dan melibatkan masyarakat setempat. Hasil yang diperoleh menunjukkan bahwa sosialisasi yang intensif dan partisipasi aktif masyarakat dalam kebersihan lingkungan dan pengelolaan sampah memberikan pengaruh yang signifikan terhadap penurunan jumlah kasus DBD. Sosialisasi yang dilakukan berhasil meningkatkan kesadaran masyarakat tentang pentingnya menjaga kebersihan lingkungan sebagai salah satu langkah pencegahan DBD. Selain itu, pengelolaan sampah yang baik, termasuk pemilahan sampah dan penghilangan tempat perindukan nyamuk, terbukti efektif dalam mengurangi populasi nyamuk Aedes aegypti.

Kata kunci: Demam Berdarah, Aedes aegypti, sampah.

1. INTRODUCTION

Cleanliness is an important aspect of daily life, including personal hygiene to environmental cleanliness. Good hygiene reflects a person's health; A dirty environment not only has the potential to make a person sick, but it can also give rise to various diseases that affect the quality of life. Personal hygiene includes practices such as bathing regularly, washing clothes, and maintaining dental hygiene. Meanwhile, environmental cleanliness involves maintaining the area around the residence, such as the yard, in the house, and in public places (Dekye et al., 2021).

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Creating clean environmental conditions can start from simple actions, such as keeping the house and yard clean, as well as ensuring that there is no garbage around the road. If every individual implements clean living habits, it will form an environment free of garbage, which in turn reduces the risk of diseases and disasters, such as floods that are often caused by clogging of water flows due to garbage.

Humans and the environment have a mutual relationship. Sometimes humans affect the environment, and sometimes the environment affects humans. As the stewards of the earth, humans have the responsibility to maintain and manage the environment so that it remains clean and healthy. The influence of the environment on humans is passive, while the influence of humans on the environment is more active and significant (Khairunnisa et al., 2019).

Dengue Hemorrhagic Fever (DHF) is a viral infection transmitted by mosquitoes, especially Aedes aegypti, and less often by Aedes albopictus. The disease is more prevalent in tropical and subtropical regions and is a global threat to about four billion people in more than 141 countries. Every year, there are an estimated 390 million cases of dengue with 25,000 deaths worldwide, of which three-quarters of cases come from Southeast Asia and the Western Pacific region (Faruk, Jannat, and Rahman, 2022).

Dengue cases are closely related to environmental factors that provide a place for Aedes Aegypti mosquitoes to breed. The number of mosquito breeding sites, such as water reservoirs, is often caused by poor solid waste management. Waste that is not managed properly can become a breeding location for mosquitoes. The garbage triggers various disease-causing microorganisms, as well as insects that act as disease vectors. The more locations for mosquitoes to lay eggs and breed, the higher the risk of dengue (Rosmala & Rosidah, 2019).

Aedes Aegypti mosquitoes in one egg can produce one hundred to two hundred eggs. The process of developing from an egg to an adult mosquito takes seven to ten days. The skyrocketing number of dengue cases in Indonesia is greatly influenced by people's behavior. Lack of attention to environmental cleanliness has led to the emergence of places that support the breeding of Aedes Aegypti mosquitoes (Kabalu et al., 2023).

The "Healthy Indonesia in 2010" program focuses on disease prevention through preventive efforts. However, the high incidence of various diseases such as dengue shows that this program has not been effective in the community. In various areas, both in cities and villages, there are still frequent deaths due to dengue, which is an environmental health problem that continues to increase along with population growth and high mobility (Kurniawan, 2011).

The high number of dengue cases also reflects the lack of effectiveness of prevention efforts carried out by the government, such as the "Dengue Watch" program which has cost a

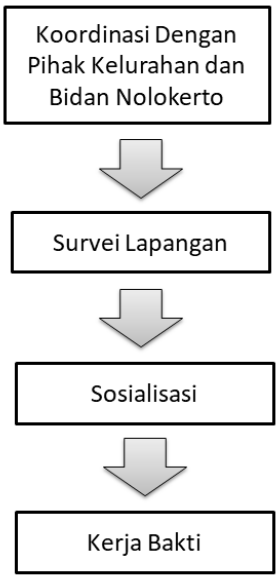
lot but has not provided satisfactory results. Therefore, community empowerment is needed through Mosquito Nest Eradication (PSN) activities using the 3M Plus method—draining, closing water reservoirs, and recycling used goods—as well as additional efforts such as sprinkling larvacides, raising larvae-eating fish, and replacing water in flower pots (Sumampouw, 2020).

Prevention of dengue requires active participation from the entire community, because until now there is no vaccine or drug to overcome the Dengue virus. Therefore, vector mosquito eradication is the only effective way. In this context, the role of the Larval Monitor (Jumantik) is very important in providing supervision and counseling to the community to ensure the correct implementation of PSN and prevent an increase in dengue cases (Ariyanto et al., 2019).

Symptoms of dengue can be identified clinically and laboratoryally. Clinically, symptoms include a sudden high fever for 2-7 days, bleeding manifestations, to shock conditions and a drop in blood pressure. Laboratoryly, the diagnosis is made based on a decrease in platelet count and an increase in hematocrit. In Nolokerto Village, a lot of garbage and puddles were found around residents' houses which increased the risk of dengue transmission. Lack of knowledge about dengue prevention is the main factor in the high number of cases in this area. Therefore, UIN Walisongo Semarang students in KKN in Nolokerto Village are trying to help by compiling counseling and presenting relevant resource persons to increase public awareness about dengue prevention (Kaeng et al., 2020).

2. METHOD

The activities carried out use methods in the form of socialization. Socialization is the most effective way to increase public insight. Coordination was carried out with the village and Nolokerto village midwives before carrying out socialization activities. This, aims to get support and assistance for the smooth running of each event and to find out the number of residents in Nolokerto Village, so that in this activity presents PKK women and RW 01-11 women as representative *audiences* covering all Nolokerto villages, because almost all villages have the same problem regarding dengue, in addition, a field survey was carried out with the aim of finding out which locations have high potential for dengue, Furthermore, the socialization activity was carried out at the Nolokerto Village Hall, accompanied by Mrs. RW from RW 01 to RW 11, the activity ended with a community service to clean the river which is considered the most potential location for the breeding of *Aedes mosquitoes.* The following is a flow chart of the implementation of the activity.



Picture 1 Activity Implementation Flow Chart

3. RESULTS AND DISCUSSION

As an effort to prevent the transmission of *the dengue* virus (dengue fever), this community service focuses on socializing how to prevent dengue fever in the community of Nolokerto Village. This activity includes socialization about the prevention and control of dengue. The community is given education about simple steps that can be taken at home or in the surrounding environment to reduce the population of *Aedes aegypti mosquitoes*, so that the number of dengue cases can be reduced. Socialization activities to reduce the risk of spreading dengue are carried out by starting with coordination with the village head. Several cases of dengue in Nolokerto Village cause death, especially when attacking children. After obtaining the results of the coordination, then the place for dengue socialization at the Village Hall was determined with the participation of all communities in Nolokerto Village.

The socialization activity was held on August 3, 2024 with the theme "Dengue Education and Control: Effective Tips and Strategies to Protect Families from Dengue". The community was very enthusiastic about asking questions and providing information related to dengue cases that had occurred in Nolokerto Village.

Figure 2 Socialization participants give rebuttals to resource persons

Based on figure 3.1, it shows that Mr. Suudi gave a statement about the dengue case from Nolokerto Village and told the experience of Nolokerto Village becoming the 2nd winner of the environmental cleanliness competition at the Kaliwungu District level, so that the problem of environmental cleanliness is good and must be maintained. However, on one side in the river near residential areas there is a pile of garbage that disturbs and pollutes the environment. Many local residents dispose of plastic waste, even baby presses on the riverside with the aim of not paying garbage carriers in the area. Based on these reasons, people are reluctant to dispose of garbage in the right way and make it easy for mosquitoes to breed.

The results of the socialization presented by the resource person, Mr. Oprianto, provided counseling related to dengue with a summary of the material as follows. Dengue fever is a disease caused by dengue virus infection that enters the human body through the bite of the aedes aegypti mosquito. Until the end of June 2024, there were 9,370 cases of dengue fever in Central Java, the number of deaths due to dengue reached 115 million. Klaten Regency is the area with the highest dengue cases with 868 cases and 30 deaths. People affected by dengue have symptoms such as high fever, headache and muscle pain, nausea and vomiting, skin rashes and bleeding such as nosebleeds. Dengue fever can also cause serious complications, even fatal if not treated appropriately. The treatment method is to consume a large amount of fluids, especially water, consume guava and foods that are easy to digest, take fever and pain relievers and get enough rest. The prevention method is to do 3M Plus once a week, which consists of draining water storage areas, closing water reservoirs, and disposing of and closing containers that can hold water. In addition, avoid mosquito bites, especially in the morning and evening and use mosquito repellent to spread and install mosquito nets.

Figure 3 River Environmental Cleanup

Figure 3.2 shows the process of cleaning the river environment that causes mosquito growth *Aedes aegypti*. After the implementation of socialization for the surrounding community, the 18th MIT KKN students of post 112 together with the community cleaned the river near the settlement which became a breeding ground for mosquitoes due to the accumulation of non-organic waste. Previous service was also carried out by Kisanjani, (2023) who socialized about dengue prevention and mutual cooperation to clean the environment. It is also similar to the service carried out, but different in terms of application. This latest service is more specific about cleaning in a place that is very prone to becoming a mosquito nest.

4. CONCLUSION

The socialization carried out succeeded in increasing public awareness about the importance of maintaining environmental cleanliness as a measure to prevent dengue. In addition, good waste management, including waste segregation and the removal of mosquito breeding grounds, has proven effective in reducing the population of Aedes aegypti mosquitoes.

5. ACKNOWLEGDE

Thank you to all parties who have provided support, especially to the Village Head and all village officials who have been willing to provide facilities for the smooth running of this dengue socialization event. Thank you also to all the people who have participated in the dengue socialization event, hopefully it can be useful and can prevent the spread of dengue.

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