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## **Society Efforts in Preventing Dengue Fever in Bergaslor, Bergas, Semarang**

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### **Abstract**

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The number of Dengue Fever sufferers in Indonesia in 2017 was reported as many 59.047 cases with a total death of 444 people (incidence rate/morbidity rate=22,55 per 100,000 population and case fatality rate(CFR)/mortality rate =0,75%). This assumption is often overlooked, even though it is very influential on peoples efforts in making decisions,especially against prevention of dengue. The purpose of this study was to determine society efforts in addressing the prevention of Dengue Fever(DHF) in bergaslor, bergas,semarang. This research used descriptive research with a qualitative approach. The subjects in this study were 6 mothers in Bergaslor,Bergas,Semarang ,taken by snow ball sampling. The results of the study indicate that the prevention of Dengue Fever(DHF) by the society is the most important thing to do is to clean the house and the surrounding environment and use mosquito repellent. Some activities that are still lacking in prevention of Dengue Fever(DHF) are draining the bath,burying scraps, the irregular abate using and fogging.

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## INTRODUCTION

Dengue Fever (DHF) is an endemic disease in more than 100 countries. Dengue has spread widely throughout the world, and this disease often appears as an outbreak (Extraordinary Events). High morbidity and mortality is a picture of this disease being an important health problem. Dengue fever is mostly found in tropical and sub-tropical regions (WHO, 2008).

The number of dengue sufferers in Indonesia in 2015 was reported as many as 129,650 cases with a total death of 1,071 people (Incidence Rate / morbidity rate = 50,75 per 100,000 population and Case Fatality Rate / CFR / mortality rate = 0,83%). Compared to 2014 with cases of 100,884 and Inci 39.80 there was an increase in cases in 2015 (Dirjen, 2012).

Dengue fever is still a serious problem in Central Java Province, as evidenced by 35 districts / cities that have been infected with dengue. The number of dengue morbidity in Central Java Province in 2017 was 47.9 per 100,000 population, an increase compared to 2014, which was 36.2 per 100,000 population. This means that the incidence rate dengue fever in Central Java is lower than the national target (<51 / 100,000 population, but higher compared to the RPJMD target (<20 / 100,000). The highest Incidence Rate is Magelang 158.14 per 100,000 population, In Jepara is 123.96 per 100,000 population and Semarang is 99.46 per 100,000 population. The lowest district / city with Incidence Rate is Wonosobo as much as 3.60 per 100,000 population, in Wonogiri 6.32 per 100,000 population, and Pekalongan 9.44 per 100,000 population while Semarang 48.56 per 100,000 population (Ministry of Health, 2015 )

The number of dengue fever illnesses per 100,000 population in Semarang in 2014 has increased compared to the previous year. Incidence rate dengue fever in 2014 amounted to 34.1 per 100,000 population out of 337 cases found and handled. Whereas the 2013 dengue fever Incidence Rate was 30.1 per 100,000 population out of 296 cases found and handled.

The highest number of Dengue Fever cases by gender, Public Health Center in 2014 was Ambarawa (56 cases), Bawen (42 cases) and Bergas (30 cases) (District Health Office Semarang, 2014)

Community efforts have an important role in the transmission of dengue (Nur'aini AD,2010). Family behavior is very important, therefore the family needs to know exactly how to keep the house and its environment free from the larvae of dengue mosquitoes. Through extension activities it is expected that the head of the family will be motivated to carry out prevention of dengue and can run smoothly. Prevention of dengue fever is known as the Eradication of Mosquito Nests which can be done by several techniques, namely chemistry, biology and physics. Chemical dengue fever control can be achieved by fumigation which is a technique used to control dengue fever using chemical compounds malathion and fenthion, which are useful for reducing transmission to a certain time limit and eradicating mosquito larvae with chemicals (Anggraini, 2010).

From the information obtained by researchers in Bergas on March 26, 2016, data was obtained from the Public Health Center in Semarang, Karangjati with 11 people. Also obtained data on the number of dengue sufferers every year in the Bergas experiencing fluctuations, namely 3 people in 2011, while in 2012 as many as 15 people despite declining again in 2013, namely as many as 12 people, again declined in 2014 and 2015 each of 5 people and increased sharply until September 2016 to 19 people. The data for this study are the highest in Bergas compared to 14 people in Waringin Putih and 11 people in Karangjati.

## METHODS

The type of research used is descriptive research with a qualitative approach. The subjects in this study were 6 mothers in Bergaslor, Bergas, Semarang, taken by snow ball sampling. The research instrument used in-depth interviews about society efforts in preventing dengue fever. The interview is based

on an in-depth interview guide to the questions that have been prepared.

## RESULT AND DISCUSSION

### Characteristics of Research Participants

The study was conducted for 1 month where researchers had collected data and observations by in-depth interviews with 6 research participants about community efforts in the prevention of dengue fever in Bergaslor, Bergas, Semarang with the following characteristics:

**Table 1.** Characteristics of the community in Bergaslor, Bergas, Semarang.

Informant	Age	Education	Employment
Participant 1	29 years	Junior High School	Housewife
Participant 2	45 years	Primary School	Housewife
Participant 3	48 years	Senior High School	Private Employee
Participant 4	33 years	Vocational High School	Housewife
Participant 5	45 years	Junior High School	Housewife
Participant 6	62 years	Primary School	Farmer

The results of the interviews obtained the age of participants were 2 early adults (26-35 years), 2 final adult participants (36-45 years), 1 participant of the early elderly (46-55 years) and 1 participant of the elderly (56-65 years). Participant education 2 participants graduated from elementary school, 2 participants graduated from junior high school and 2 participants graduated from high school. Employment of 4 participant housewife, 1 private participant and 1 farmer participant.

### Indepth Interview Results

#### Knowledge of dengue fever

The results of the interview stated that participants' knowledge about dengue fever was a disease caused by mosquito bites that could be fatal.

*"Mosquito-borne diseases" "yes that have caused fatalities, the second one is mosquitoes (P1)*

The results of the interview stated that 5 participants said the cause of dengue fever was black mosquitoes with white stripes. However 6 participants differed in their knowledge and stated that the cause of dengue was due to fatigue at work. The results of the interview stated that according to 3 participants the signs and symptoms of dengue fever were hot, vomiting, red spots appeared. But participant 5 said the heat was not down and participants 1 said they did not know. The results of the interview stated that prevention of dengue fever is cleaning the tub, environment and garbage, burying cans, cleaning gutters, not hanging clothes and using mosquito repellent lotion or insect repellent. But participant 6 stated by drinking guava juice.

Dengue fever is a disease that can cause concern for the community because of the rapid illness and can cause death in a short time. Until now, this disease is an infectious disease which often causes Extraordinary Events (KLB) in Indonesia. There have been many programs implemented by the government in the effort to prevent dengue fever, some of which are counseling / socializing programs '3M', spraying / fumigation (fogging), distribution of abate, and implementation of mutual cooperation to clean the environment.

#### Attitudes to prevent dengue fever

The results of the interview stated that the participants' attitude about efforts to prevent dengue fever by draining, burying, hoarding agreed and stated that 3 M could prevent and eradicate dengue fever mosquitoes. 3 M.

*"Our efforts should not be to put water / anything in the bucket for a long time, so to clean dirty places for mosquito nests" (P5)*

The results of the interview stated that the mother's attitude about efforts to prevent dengue fever from using mosquito repellent drugs, participants said they did not use insect repellent and put on mosquito rackets. The results of the interview stated that 4 participants said that the attitude of mothers about prevention of dengue fever using fogging agreed that the mosquitoes die. But participant 1 expressed disagreement because it was dangerous for the child and participant 2 said he did not know. The results of the interview stated that 4 participants said that the mother's attitude about preventing dengue fever from giving abate powder agreed to kill mosquito larvae. But participants 1, 3 and 6 said they did not agree because it was enough to be drained once a week.

But until now dengue disease has not been completely resolved, dengue sufferers still still fill the treatment rooms in the hospital, some even die because of the delay in giving help. Dengue Fever will not be eradicated if it only relies on the role of health workers. High community involvement is very helpful in preventing dengue disease. However, it turns out that the community still has different knowledge, attitudes and behaviors in efforts to prevent dengue disease.

#### **Behavior for prevention of dengue fever**

The results of the interview stated that draining 3 participants said that they drained once a week. 2 participants 2 weeks and 6 long participants do not drain or once a year.

*"Every 2 weeks ... That's using water, sich"*

*"once a week. yes, all the water is cleaned, hehe, it's brushed, yes, it's about 1 hour not filled first hehe "*

*"Even though this year, this time I've got a lot of money, I've got a lot of money, a lot of water, a lot of water, a lot of water, it's just an annual" (P6)*

The results of the interview stated that the act of handling waste all said there were officers who took and sometimes burned. The results of the interview stated that the act of using mosquito repellent 5 participants said that they did not use mosquito repellent and

only 4 participants took insect repellent. The results of the interview stated that the action of fogging, participants said once a year and if there were new cases from the government and the Public Health Center held. The results of the interview stated that the participants' use of abate said they had never and who said they had been for a long time.

Eradicating the nest of mosquitoes with dengue hemorrhagic fever is the activity of egg eradication, larvae, and cocoon of mosquitoes transmitting dengue fever (*Aedes Aegypti*) in their breeding sites. Eradication of mosquito larvae is done by "3M plus", namely: 1. Drain and brush water reservoirs, such as bathtubs / lavatories, drums, etc. once a week. 2. Closing meetings of water shelters, such as water barrels / jars, etc. 3. Burying and removing used goods that can hold rainwater (M3). In addition to eradicating mosquito larvae carried out by means of "3M plus" can also be done in other ways, such as: 1. Changing flower vase water, places where birds are minimal or other similar places once a week. 2. Repairing channels and gutters that are not smooth / damaged. 3. Close holes in bamboo / tree pieces, etc. 4. Spread larvicidal powder, for example in places that are difficult to drain or in areas that are difficult to water. 5. Maintain larvae fish in ponds / tubs - water-filled baskets. 6. Installing wire netting. 7. Avoid the habit of hanging clothes in a room. 8. Seek adequate lighting and ventilation of space. 9. Using a mosquito net. 10. Use drugs that can prevent mosquito bites.

The most important precautionary measure carried out by the community is cleaning the house and the surrounding environment and using mosquito repellent. These activities are considered to have freed every family member from the bite of the *Aedes aegypti* mosquito. If there is one family member suffering from dengue fever, fumigation is a countermeasure that is powerful enough to kill the mosquitoes that cause dengue fever and all these activities are still dependent on activeness or participation of health workers. Prevention is done by avoiding

mosquito bites in the morning to evening, because the Aedes mosquito is active during the day (not night). For example, avoid being in a location where there are many mosquitoes during the day, especially in areas where there are dengue sufferers. Some of the most effective ways to prevent dengue disease through vector control or control methods are: 1. Eradication Mosquito Nests ,solid waste management, place modification. mosquito breeding byproducts of human activities, and improvements in home design. 2. Maintenance of larvae (fighting fish / betta fish) on pond water, and bacteria. 3. Smoked / fogging (by using malathion and fention). 4. Provide abate powder (temephos) at water reservoirs such as water barrels, vases, ponds, and others. To be able to eradicate dengue fever, the action taken is to break the chain of transmission by eradicating the vector.

Ways that can be used to eradicate mosquitoes are: 1. Protection of individuals to prevent the bite of Aedes aegypti mosquito which can be done by eliminating mosquito nests in the house. The best way is to install mosquito repellent gauze. Other ways that can be done are: a. Using anti-mosquito spray / spray b. Pour hot water when the bath contains a little water c. Giving more direct sunlight into the room.

2. Long-term vector eradication. A way that can be done continuously is to properly dispose of cans, bottles, tires, and all that might be a place for mosquitoes to nest. Flower vases are replaced once a week. The inner walls of the bathtub and other water storage areas are rubbed regularly at low water levels to get rid of mosquito eggs. Before refilling, the water storage area should be emptied first to get rid of the larvae. If funds and facilities are limited, vector eradication efforts can be helped by using chemicals. Two of the three ways above involve the full role of society. The problem of community participation is inseparable from the behavior of individuals as members of the community itself. Therefore, so that people want to behave in health, it is necessary to increase knowledge not only to the stage of

knowing and understanding, but reaching the stage of application, analysis, synthesis and evaluation. Like wise with attitude. Attitudes also have levels based on their intensity. This attitude emphasis does not only reach the stage of accepting and responding, but must be deeper in that it reaches a level of respect and responsibility.

The results of a previous study by Yani JSA (2005) found that the results of community behavior in preventing the occurrence of dengue disease were 20.41% good, 78.57% sufficient and 1.02% less. Behavior in maintaining environmental health is 54.08%, 45.92% is good. Behavior in daily healthy living habits is 51.02% less, 44.90% is sufficient, and 4.08% is good (Yani, 2005) Previous research by Priesley F, Reza M, Rusj in SR. (2017) in Andalas, the results showed a significant relationship between 3M Plus Eradicate mosquito nests behavior and the incidence of dengue fever in Andalas. Each respondent who did not conduct 3M Plus eradicate mosquito nests behavior was at risk of developing dengue fever 5,842 times compared to respondents who did 3M Plus PSN behavior well. (Priesley, Reza and Rusjdi, 2018).

Research by Hussein RD, Puri A. (2014.) research of 89 respondents found participation in the eridicate mosquito nests in the bad category was 50.6%, while the incidence of dengue fever was 25.8% and the statistical test obtained p-value of 0.164 ( $p > \alpha$  (0.05)) which shows that there is no significant relationship between community participation in eradicate mosquito nests and the incidence of dengue fever. (Husein and Puri, 2014) Previous research by Minapadi W, Nusukan K, Kustini H, Betty F (1995) in the Working Areas of South Denpasar Health Center I (IN Gede Suyasa 1), N Adi Putra<sup>2</sup>) and IW Redi Aryanta<sup>3</sup> showed environmental factors that related to the presence of dengue fever vectors are population density, population mobility, the existence of places of worship, the existence of ornamental plant pots, the existence of rainwater channels and the presence of containers. Community behavior factors related

to the presence of dengue fever vectors are actions and habits of hanging clothes (Minapadi et al., 1995).

Previous research by Task P, Family K (2014). In the Beringin, Ngaliyan it was found that family health duties on the prevention of Dengue Fever were very good, with the results of recognizing 95% of the health problems of family members, making 95% of decisions, caring for sick family members 96%, changing the environment home is 97%, and utilization of health facilities is 91% (Julian Rio, 2014).

Macpal SDC Research, Joseph WBS, Rattu JAM, Kapantow NH. (2012) In Manado City Environment City Urban Village, the results showed that knowledge with prevention measures of dengue hemorrhagic fever from statistical test results obtained a probability value ( $p = 0, 10$ ;  $p > 0.05$ ), attitudes with prevention measures of dengue fever from the results of statistical tests obtained a probability value ( $p = 0.01$ ;  $p < 0.05$ ).

Based on the results of the study it can be concluded that there is no relationship between knowledge with the prevention of dengue fever in the Batu Environment III community in Manado and there is a relationship between attitudes and prevention measures for dengue fever in Batu Environment III Manado (Macpal et al., 2012).

Research by Didi Intan Pratiwi RH. (2017). Conclusions obtained In tackling dengue disease occurring in Payaman the past one can be done by residents by utilizing village potential, resources and actions commonly carried out by village communities. By increasing the larva free rate which is the most dominant cause, it is expected that Payaman will avoid mosquito-borne diseases, especially dengue disease.

The actions of citizens who can cause dengue disease include; late handling of dengue disease, not draining the bathroom, poor household waste management, improper handling of used items, and laying animal pens in the house. while the actions of citizens who can prevent dengue disease include; sleep using

mosquito nets and keep fish in the bath (Didi Intan Pratiwi, 2017).

## CONCLUSIONS AND SUGGESTIONS

The results of the study indicate that the prevention of dengue fever by the community is the most important thing to do is to clean the house and the surrounding environment and use mosquito repellent. These activities are considered already free every family member from the bite of the aedes aegypti mosquito. If there is one family member who suffers from dengue fever, then fumigation is a countermeasure that is powerful enough to kill mosquitoes that cause dengue fever. All these activities are still dependent on the activity or participation of health workers.

Suggestions for the public should be information about prevention of dengue fever delivered by health workers, certainly truly understood by the family and the community. Activities that are still lacking in prevention of dengue and should be done are draining the tub, burying used goods, using irregular and frequent fogging, which is regularly carried out.

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