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The Relationship Between Knowledge and Community Behavior In Efforts to Prevent Dengue Hemorrhagic Fever In The Sogaten Village Area, Manguharjo District, Madiun City In 2024

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ABSTRACT
DHF is one of the national priorities for infectious disease control in Indonesia, every year the cases always increase and are increasingly widespread, causing extraordinary events (KLB). Therefore, the purpose of this study was to determine the relationship between knowledge, health promotion media and health worker support for the incidence of dengue hemorrhagic fever in Sogaten Village, Manguharjo District, Madiun City. This type of research is quantitative research, using a questionnaire sample of 24 respondents. Measuring instruments in this study used univariate and bivariate with the chi-square test. The results of the study on the knowledge variable using the Chi-square test resulted in an Asymp.Sig value. (2 tailed) = 0.012 with a significance level of 0.05. While the results of research on health promotion media variables using the Chi-square test with an Asymp.Sig value. (2tailed) = 0.036 with a significance level of 0.05. Meanwhile, the results of research on health worker support variables using the Chi-square test with an Asymp.Sig value. (2tailed) = 0.039 with a significance level of 0.05. The test criterion is that the H0 hypothesis is rejected if Asymp.Sig < 0.05. Because the Asymp.Sig results of knowledge, health promotion media and health worker support are smaller than 0.05, it means that H0 is rejected, so there is a relationship between the incidence of DHF and knowledge, health promotion media and health worker support to the community.

Keywords: Prevention, Dengue Fever Incidence, Knowledge, Promotional Media, Support from Health Workers

INTRODUCTION

Dengue Hemorrhagic Fever (DHF) is one of the national priorities of Communicable Disease Control in Indonesia, dengue hemorrhagic fever control efforts need to be included because dengue fever every year always experiences an increase in cases and extends in a manner that causes extraordinary events (KLB). DHF disease occurs because it is difficult to break the chain of transmission and no vaccine has been found. Aedes aegypti plays a greater role in the transmission of this disease, because it lives in and around the house, while Aedes albopictus is more in the yard/garden, so its presence is less often in

contact with humans (except for children playing in the garden/garden or workers in the garden) (Isna & Sjamsul, 2021).

Dengue Hemorrhagic Fever (DHF) is a disease caused by Dengue virus infection transmitted through Aedes aegypti mosquito bites characterized by sudden fever, headache, and pain behind the eyeball, nausea and bleeding manifestations such as positive tourniquet test (rumple lead), red spots on the skin (petechiae), nosebleeds bleeding gums and so on. (Isna & Sjamsul, 2021)

Based on the World Health Organization (WHO) years of being aware of Dengue Hemorrhagic Fever (DHF) cases for more than five decades, it has become a public health problem in the world, not only in Indonesia (World Health Organization [WHO], 2021). The incidence of dengue has increased significantly worldwide in recent decades (WHO, 2021). Bhatt et al. (2013) estimated that there are 390 million dengue infections occur annually and 96 million of them have clinical manifestations with varying severity of the disease. This estimate is three times higher than the WHO estimate (2009). This year it set a record high. Largely due to global warming, this increases the likelihood of its spread. Dengue incidence is increasing globally, with reported cases since 2000 rising eightfold to 4.2 million by 2022 (Kemenkes RI, 2023).

While dengue cases in Indonesia from year to year are increasingly soaring, to be precise in January to July 2023, 42,690 people contracted dengue in Indonesia, 317 people died, while dengue cases in the last 3 years in 2020 were 95,893 cases, 2021 were 73,518 cases, 2022 were 131,265 cases, and data on deaths caused by dengue in the last 3 years in 2020 were 661 people died, 2021 were 705 people died, 2022 were 1,183 people died (Kementerian Kesehatan RI, 2022).

The incidence of dengue cases in the city of Madiun in 2021 decreased dengue cases compared to 2020, from 58 cases (IR: 32.7/100,000 population) to 48 cases (IR: 27/100,000 population) in 2021. This figure is below the national target (IR: 49/100,000 population) and considering that 39% of dengue cases affect elementary and junior high school age children, it is necessary to familiarize elementary and junior high school age children in “PSN behavior” by involving school jumantik cadres in school jumantik activities (Dinas Kesehatan PP dan KB Kota Madiun, 2022).

But in one of the working units of the health center in Madiun, the Ngegong Health center of Madiun City, dengue cases at the Ngegong Health center from year to year have increased to be precise in 2021 by 21 cases, 2022 by 33 cases and in 2023 as many as 53 cases of people infected with dengue disease consisting of 35 men and 24 women and none of the patients died. While in January 2024 there were 18 dengue cases including 4 people from Patihan Village, 8 people from Madiun Lor Village, 1 person from Ngegong Village, 5 people from Sogaten village one of the cases died (According To The Census,2024).

Dengue fever is a disease that is influenced by the behavior of society, but this behavior is the easiest to change. Therefore, knowledge factors, Health Promotion Services, Health Worker Support and across sectors are what is needed by the community so that they can change these behaviors, so basically the community has a big role to reduce dengue cases.

Factors of population mobility, population density, community/human and family behavior problems are one of the factors related to the eradication of dengue mosquito nests and have the potential to become an outbreak and cause extraordinary events (KLB). Efforts to prevent the spread of dengue fever, requires the role of families in implementing the eradication of Dengue Hemorrhagic Fever mosquito nests (Siswanto & Usnawati, 2019).

In addition, knowledge factors, Health Promotion media, health worker support are interrelated things, so when there is only one that is not good even though the others are good it has no meaning. The cleanliness of the home environment and environmental sanitation have contributed to the occurrence of dengue fever so that health workers are expected to provide counseling to the community, especially families on an ongoing basis so that families become more proactive in the management of dengue fever. Community participation, supported by the involvement of cadres, heads of the environment, PKK, community leaders, religious leaders and cross-sector support the success of the mosquito nets eradication program.

Program efforts to prevent dengue transmission are carried out by breaking the chain of dengue transmission by preventing bites from Aedes aegypti and Aedes albopictus mosquitoes. The optimal activity is to eradicate mosquito nests (PSN) by means of "3 M" plus but it can also be done by larvasidasi and fumigation (foging) (Kementerian Kesehatan Republik Indonesia, 2016). In addition, the prevention of Dengue Hemorrhagic Fever can also be done by conducting mobile broadcasts, counseling residents regarding the prevention of Dengue Hemorrhagic Fever, providing abate powder, and environmental service work .Therefore, and researchers are interested in conducting research in the village of Sogaten District Manguharjo Madiun.

There are several studies related to factors related to the incidence of Dengue Hemorrhagic Fever (DHF) in various regions. A study in 2019 in Gemaharjo Village, Pacitan Regency found a relationship between the application of 4M plus and waste management with dengue prevention efforts. In 2021, research in the Tanjung Pasir and Tanjung Batu coastal areas identified community behaviors related to dengue prevention, where 70% of people did not drain according to frequency, 77.6% did not drain appropriately, and 61% had bad PSN behavior.

Furthermore, in 2022, research was carried out in Sesetan Village, South Denpasar District, Denpasar City. The results showed that there is a relationship between maternal knowledge, the application of 4M plus, health promotion services, and the presence of mosquito larvae with the incidence of dengue in the region. Meanwhile, in 2024, research was carried out in Sogaten Village, Manguharjo District, Madiun City. This study analyzed the factors of public knowledge, Health Promotion media, and health worker support related to the incidence of dengue in the region.

This study aims to analyze factors related to community behavior with the incidence of Dengue Hemorrhagic Fever (DHF) in Sogaten Village, Manguharjo District, Madiun City. The general objective to be achieved is to analyze these factors. The specific objectives of this study are: 1) Identifying the incidence of Dengue Hemorrhagic Fever (DHF) in the village of Sogaten, Manguharjo District, Madiun City; 2) identifying public knowledge, Health Promotion media, support of health workers and Prevention of dengue hemorrhagic fever regarding the incidence of DHF in the village of Sogaten, Manguharjo District, Madiun City; 3) analyzing the relationship of knowledge community with DHF incidence in Sogaten Village, Manguharjo District, Madiun City.

This research is expected to provide and add to the study of literature and science as well as information in future literature studies, especially on factors related to community behavior in an effort to prevent the occurrence of Dengue hemorrhagic fever. In addition, this study is expected to be a reference, source of information, and reference materials for future researchers and can be developed into a more perfect.

RESEARCH METHODS

Research Design

The method used in this study is a case control approach, which is an observational study. In this design, data were collected through questionnaires used as a means of collecting information from respondents. This study sought to explore the factors that influence the incidence of Dengue Hemorrhagic Fever (DHF) by comparing the case group (respondents who experienced DHF) and the control group (respondents who did not experience DHF). With this approach, we were able to analyze the relationship between knowledge, health promotion media, and health worker support on DHF incidence in Sogaten Village, Manguharjo Sub-district, Madiun City.

Population and sample

The population in the study of DHF patients and not DHF patients in Sogaten Village, Manguharjo District, Madiun city recorded in medical records in the working area of Ngegong Health Center, Manguharjo District, Madiun City with a period of 1 year there were 12 cases with a ratio of 1: 1 consisting of a population of 12 respondents and a control population of 12 respondents. So, the population in this study was 24 respondents. The sample in this study is the total population taken 12 respondents for the case Group and 12 respondents for the comparison or control group. The comparison or control group is a family whose members do not or have never suffered from dengue cases with a ratio of 1: 1. So that the number of possible samples in this study is as much as 24 samples.

Teknik Sampling Technique

Total Sampling is all members of the population used as a sample of research. Because the number of populations is less than 100, the entire population is sampled as a whole.

Research variables

There are 2 kinds of variables in a study are as follows:

a. Independent variable in this study is knowledge.
b. The dependent variable in this study is the incidence of Dengue Hemorrhagic Fever (DHF).

Research Instruments

Instrumentation used in this study is a questionnaire. To find out whether the questionnaire prepared is able to measure what we want to measure, it is necessary to test the uji correlation Test between the score (value) of each item (question) with the total score of the questionnaire. The questionnaire sheet is done by direct observation. The questionnaire in this study consists of several questions related to the Prevention behavior of Dengue Hemorrhagic Fever (DHF).

Validity Test

The questionnaire was tested on respondents suffering from dengue fever in the Sogaten Village, Manguharjo District, Madiun City with a sample of 10 respondents (5 for case respondents and 5 for control respondents). The results of the questionnaire through the questionnaire sheet will be tested using the product moment correlation formula. Determination of the validity of an instrument is measured by comparing r-count with r-table, if r-count > R-table means valid while r-count < r-table means invalid. Researchers tested the validity of the questionnaire in the working area in the Ngegong Village area, Manguharjo District, Madiun City in 2024 because the ponden has the same characteristics as the research sample.

Re-test of liabilities

Uji Reliability test can be seen from the value of Cronbach's Alpha, if the value of Alpha >0.549 then control question which is dimensi a variable dimension is reliable. So the questionnaire items on all variables are reliable.

Research Location

This research was conducted in the Sogaten Village area, Manguharjo District, Madiun City in 2024

Research Time

Table 1 Realization of Activities

NO	Activities	Implementation time						
		Jan	Feb	Mar	Apr	Mei	Jun	Jul
1.	Title and Consul	■						
2.	ACC title		■	■				
3.	Preparation and guidance of thesis proposal		■	■				
4.	ACC thesis proposal				■			
5.	Seminar proposal				■			
6.	Revised thesis proposal				■	■		
7.	Research					■		
8.	Data Entry and preparation of thesis report					■		
9.	Guidance report thesis					■		
10	Implementation of thesis seminar						■	
11	Revised thesis report						■	
12	ACC thesis						■	
13	Submit Journal							■

Data Collection Procedure

In this study, there are two types of data taken, namely

a. Primary Data

The primary Data was obtained from door-to-door surveys and interviews directly to respondents using questionnaire sheets.

b. Secondary Data.

Secondary Data is data that cannot be obtained directly from the source, but from pihan other sources. Data Secondary Data yang obtained through health agencies Ngegong Health center Madiun.

Data Processing

Questionnaires and measurement sheets that have been filled then checked for completeness and processed by a computerized system using software data processing software. Here are the stages of data processing:

1. Editing
   Editing is an attempt to check or recheck the data and questionnaires yang obtained or collected. Editing can be done at the stage of data collection, questionnaire filling, and after the data is collected.
2. Coding
   Coding is the activity of changing data in the form of sentences into numeric data, which aims to simplify the process of data entry and data analysis. Coding is the activity of providing numerical codes (numbers) to data consisting of several categories.
   a. Coding for variable incidence of accidents :
      1 : ever

2 : Never

3. Entry or Processing
   The activity of entering data that has been in the form of numbers or has passed the coding process into a computer program or "software".
4. Cleaning
   The activity of checking back the data that has entry been entered or entered into a computer program, which is then repaired if there are errors or incompleteness.
5. Tabulating
   Tabulation is the grouping of data after editing and coding into certain tables according to its properties, in accordance with the purpose of the research. This table consists of columns and rows. The first column located at the far left is used for the serial number or code of the respondent. The second and subsequent columns are used for variables contained in the documentation.

Data Analysis

1. Univariate Analysis
   Univariate analysis aims to describe the characteristics of each variable, both in the independent and dependent variables. The Data is displayed frequency and percentage distribution table on each variable, both independent variables: knowledge, container placement, and use of container cover, container drainage, and health promotion services as well as the dependent variable: prevention behavior of Dengue Hemorrhagic Fever (DHF).
2. Bivariate Analysis
   Bivariate analysis performed using chi square test is one type of non-parametric comparative test conducted on two variables, where the scale of the data of both variables is nominal (Sutrisno, 2000). The value used to see the relationship between the independent variable and the dependent variable is the value p. If the value of p value ≤ is 0.05 then there is a meaningful relationship between the independent variable and the dependent variable. Conversely, if the value of p value > 0.05 then there is no meaningful relationship between the independent variable and the dependent variable.

   This study uses The Chi-Square test, this test is used to determine the relationship of variables that have data categoricthe principle of The Chi-Square test is to compare the frequency that occurs (observation) with the frequency of expectations (expectations), if the value of the frequency of observation with the value of the frequency of expectations is the same, then it is said it says there is a significant difference.

   However, please note that the requirements of this test are the frequency of respondents or large samples used, because there are several conditions in which The Chi-square test can be used, namely:

   1. there is no cell with a reality frequency value or also called the Actual Count (F0) of 0 (Zero).
   2. if the form of a contingency table is 2 X 2, then there should not be 1 cell that has an expected frequency or also called the expected count ("Fh") of less than 5.
   3. if the shape of the table is more than 2 x 2, for example 2 x 3, then the number of cells with an expectation frequency of less than 5 should not be more than 20%. (Negara & Prabowo, 2018)

Limitations of the use Uji Chi-Square of Chi-Square test is Chi-Square test techniques using discrete data with a continuous distribution approach. Dekatnya pendekatan yang The proximity of the resulting approximation depends size on the cell range of the contingency table, to ensure adequate approximation is used the basic rule of expectation frequency should not be too small.

RESULTS AND DISCUSSION

Univariate Analysis

The results of the univariate analysis were carried out to describe the characteristics of the respondents in each variable, both dependent and independent variables. Characteristics of respondents can be seen in the table below:

1. Distribution of Frequency of Spread of Dengue Incidence in Respondents in Sogaten Village, Manguharjo District, Madiun City.
   From the results obtained frequency distribution data basedon the incidence of dengue fever in the village of Sogaten district Manguharjo Madiun city can be seen in the table below:

Table 2 frequency distribution of DHF incidence in respondents

No	incidence of DBD	frequency	percentage
1.	Case	12	50.0
2.	Control	12	50.0
Total		24	24

Source: Primary Data, 2023

Based on Table 2 above, the incidence of DHF can be divided into two categories, from 24 respondents showed that respondents who had experienced DHF were as many as 12 respondents (50%) while respondents who had not or had never have been exposed to DHF were as many as 12 respondents (50%).

2. Frequency Distribution Of Public Knowledge
   From the results obtained frequency distribution data basedon the knowledge of respondents can be seen in the table below:

Table 3 Frequency Distribution of Knowledge of Respondents

KNOWLEDGE	INCIDENCE OF DENGUE				TOTAL	
	CASE		CONTROL			
	N	%	N	%	N	%
GOOD	9	81.8	2	18.2	11	100.0
NOT GOOD	3	23.1	10	76.9	13	100.0
TOTAL	12	50.0	12	50.0	24	100.0

Source: Primary Data, 2023

Based on Table 3 above knowledge is divided into two categories, of 24 respondents showed respondents who have good knowledge as many as 11 respondents (45.8%) while respondents who have less knowledge as many as 13 respondents (54.2%).

Bivariate Analysis

Bivariate analysis aims to determine the relationship and the magnitude of the value odd ratio of the risk factor odd ratio, and is used to find the relationship between the free variable and the bound variable with statistical tests that are tailored to the scale of the existing data. Statistical test using Chi-Square and determination of Odds Ratio (OR) with a confidence level (CI) of 95% and a significance level of 0.05. Here are the results of bivariate analysis:

1. **The results of the analysis of the relationship of knowledge with the incidence of DHF in sogaten village, Manguharjo district, Madiun city.**

Table 4 relationship of knowledge relationship analysis with DHF incidence In the area of sogaten village, manguharjo district, Madiun city

KNOWLEDGE	OF DENGUE INCIDENCE				TOTAL		P-VALUE	RP (95%CI)
	CASE		CONTROL					
	15.000 N	%	N	%	N	%		
GOOD	9	81.8	2	18.2	11	100.0	0,012	0.012
NOT GOOD	3	23.1	10	76.9	13	100.0		
TOTAL	12	50.0	12	50.0	24	100.0		

Source: Primary Data, 2023

Based on Table 5.9 above, it can be seen that the respondents with good knowledge in the case Group were 9 (81.8%), greater than the control group which was only 2 (18.2%) while the lack of knowledge in the case Group was 3 (23.1%) and for the control group as many as 10 (76.9).

Based on The Chi-Square test that has been done, it can be seen that the correction (Continuity Correction) with the P-Value Sig0, 012 means that there is a relationship between community knowledge and the incidence of dengue in the Working Area of Sogaten village with an OR value of 15,000 or > 1 which means that respondents who have less ability in the DHF compared with respondents who have good knowledge in the control group.

Discussion

The relationship of knowledge to the incidence of dengue in the Working Area of Sogaten Village, Madiun City

Based on the results analysis of univariate analysis of the distribution frequency distribution of knowledge of respondents to the incidence of dengue fever in the Working Area of Sogaten Village, Madiun city, it can be seen that most respondents have good knowledge, namely good knowledge as many as 11 respondents (45.8%) while respondents who have less knowledge as many as 13 respondents (54.2%). Based on the results of bivariate analysis using Chi-Square test to determine the relationship between knowledge variables with the incidence of dengue fever in the Working Area of Sogaten Village, Madiun city, it can be seen that respondents in the case Group who have good knowledge of good knowledge in the case Group are 9 (81.8%), greater than the control group which is only 2 (18.2%) while the less well-informed group of cases as much as 3 (23.1%) and for the control group as much as 10 (76.9).

Based on The Chi-Square test that has been done, it can be seen that the correction (Continuity Correction) with the P-Value Sig0, 012 means that there is a relationship between community knowledge and the incidence of dengue in the Working Area of Sogaten village with an OR value of 15,000 or > 1 which means that respondents who have less ability in the DHF compared with respondents who have good knowledge in the control group.

The results of this study are not in line with Lawrence Green's theory which states that knowledge is a predisposing factor that can cause a person's behavior to occur. This is because a well-informed person can also carry out behaviors contraryto his own knowledge. This can be based on the experience of DHF events in the respondent's environment, activities that are too high sothat they do not have time to do PSN and also other respondent characteristic factors.

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This is in accordance with the opinion (Notoatmodjo, 2014) that knowledge is the result of knowing, and this happens after people do sensing a certain object. Sensing occurs through the human senses, namely the senses of sight, hearing, smell, taste, and touch. Most human knowledge is acquired through the eyes and ears. Knowledge or cognition is a very important domain in shaping a person's actions (overt behaviour) (Fatimah et al., 2020)

according to (Wirna & Nursia, 2023) The factors for the occurrence of dengue fever are inseparable from humans themselves, namely human knowledge and behavior. Individuals who are well or highly knowledgeable about the disease, of course they have the right attitude or action. Knowledge is enough to influence a person's initial motivation to behave.

According to Waris research (2013) that a person's knowledge is influenced by a person's education level. The higher a person's education, the easier it will be to absorb and understand health messages in the prevention and eradication of Aedes aegypti mosquitoes. A person's level of education is also very influential in making a decision. A highly educated person who finds a problem will try to solve the problem as best as possible. Highly educated people tend to be able to think calmly about a problem. People who have a higher level of education are more oriented towards preventive measures, know more about health problems and have a better health status. Preventive measures as an early prevention to cope with dengue cases (Hidayani, 2020).

Based on the results of the research I conducted, it shows that respondents who have good knowledge in the case group are 9 respondents, this good knowledge can be caused because when they have been exposed or infected with dengue fever, these respondents have never received counseling experience about dengue fever and how to prevent and eradicate dengue fever in the area. Whereas respondents who were less knowledgeable in the control group because these respondents had never had the experience of counseling or socialization about dengue fever and how to prevent and eradicate dengue fever. The more information obtained, the more knowledge gained so that one's knowledge will increase. The knowledge that a person has can be useful for anyone, namely for themselves and others. The results showed that most people who have been infected with DHF have good knowledge about DHF disease. This can affect people's attitudes and actions in eradicating, preventing, and maintaining the environment around the house, so the role of health workers and cadres is very important to intensify information and education consultation (IEC) activities by conducting counseling to the entire community in order to increase public knowledge about dengue disease and how to prevent and eradicate dengue, Periodic Flick Checking (PJB) activities carried out within a certain period of time, and the implementation of Mosquito Nest Eradication (PSN).

Research Limitations

In the implementation of the study, researchers faced several limitations related to the availability of respondents ' time. One of the challenges faced is the limited interview time between researchers and respondents. Many respondents have other activities outside the home and therefore do not always have free time to be interviewed. In addition, it was also found that some respondents had moved house during the data collection process, making it difficult for researchers to conduct a complete

interview. This condition is one of the obstacles in collecting data thoroughly from all respondents needed in the study.

CONCLUSION

Based on the results of research and discussion of factors related to community behavior in efforts to prevent the occurrence of Dengue hemorrhagic fever (DHF) in the Sogaten Village area, Manguharjo District, Madiun City in 2024, it can be concluded that several things are as follows: First, the incidence of dengue in the Klagenserut Health center work area showed that there were 12 respondents in the case Group and 12 respondents in the control group. Second, related to the factors studied, it was found that respondents with knowledge in both categories amounted to 11 people, residents who had received Health Promotion media as many as 10 people, and respondents who received the support of health workers in the active category as many as 12 people. Furthermore, the results of the analysis showed that there is a relationship between community knowledge and the incidence of dengue fever in the working area of Sogaten Village, Manguharjo District, Madiun City, with a p value (Asymptp.sig. (2-tailed)) = 0,012 < α (0,05). In addition, it was also found that there was a relationship between health promotion media (p = 0,036 < α 0,05) and health worker support (p = 0,039 < α 0,05) with the incidence of dengue in the region.

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