Section: Management and Economics

Relationship of Knowledge, Attitude and Infrastructure Means with Community Behavior in the Eradication Dengue Hemorrhagic Fever in Port of Padangbai Karangasem

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Abstract:

Dengue hemorrhagic fever (DHF) is a disease that is still a problem in Indonesia, including Bali. The Padangbai Karangasem port area is one of the entrances to countries that are not yet free from dengue fever cases, because there are still reported cases of dengue fever. The number of House of Aedes Flicking Index is still more than 1%. Based on Minister of Health Decree number 431 of 2007 Port Buffer Area <1%. The implementation of the Mosquito Nest Eradication through 3M Plus is the most effective effort to prevent the transmission of Dengue Hemorrhagic Fever.The purpose of this study was to determine the relationship between knowledge, attitudes and infrastructure with the behavior of implementing the Eradication of Dengue Hemorrhagic Fever Nests. The research design was quantitative with a cross sectional design. This research was conducted in the Padangbai Karangasem Port Area, Bali. Data collection used a questionnaire about Knowledge, Attitudes,facilities and infrastructure and Behavior for Eradicating Dengue Hemorrhagic Fever Eradication. The number of samples of 89 respondents was taken proportional random sampling. The results showed that Knowledge, Attitudes and Infrastructure were significantly related to the eradication behavior of dengue fever mosquitoes due to the value of $p<\alpha=0.,05$. The most dominant variable associated with the implementation behavior of Eradication of Dengue Hemorrhagic Fever Eradication is Knowledge Variable because the highest OR value is 4.287 compared to Attitudes and infrastructure.

Preliminary:

Dengue hemorrhagic fever (DHF) is one disease that is still a problem in Indonesia, including Bali. The Padangbai Karangasem port area is one of the entrances to the country and cannot be said to be free from cases of dengue fever. Based on the

annual data report of the 2016/2017 Class I Port Health Office in 2017 the number of cases of Dengue Fever in the Padangbai Port Buffer area of 5 cases in 2016 increased by 7 cases in 2017, and the larvae density was also quite high, namely

House index (HI) and Container Padangbai Port Buffer Area Index (CI) for 2016 - 2017 has never reached <1%, According to Minister of Health Decree Number 431 concerning Environmental Health Risk Control in Ports / Airports / Cross-Border Posts for Quarantine Health Figures House Index (HI) Aedes aegypti in the buffer region is less than 1% and the mosquito population in the port environment is pressed as low as possible. Mosquito Nest Eradication (PSN) is the most effective and easy way to control mosquito vector or effort to break the chain of transmission of dengue.

The Denpasar Class I Port Health Office has socialized to the public about DHF vector control efforts that can be carried out independently by the community at home. A program known as Eradication of Mosquito Nests by Closing, Draining and Recycling Plus (3M Plus PSN). PSN 3M Plus provides an explanation of the behavior of removing DHF vector mosquito nests and steps to reduce the contact or bite of Aedes mosquitoes. Considering that there are many Aedes mosquito nests inside the house so that this action is considered necessary by the community to reduce the incidence of DHF. The successful program of the Eradication of Mosquito's Nest Plus 3 Movement is strongly influenced by the behavior of individuals and society. The better the behavior of the people, the better the success rate of the 3 M Plus Mosquito Nest Eradication Movement Program. According to Green (2000) Some factors that influence the formation of individual and community behavior are: 1) Predisposing factors include: knowledge, attitude, 2) Enabling factors include the availability of infrastructure, affordability at health facilities. 3) Strengthening Factors / Reinforcing factors include health care, community leaders and decision makers.

This research was conducted to find out the relationship between knowledge, attitudes and infrastructure with the behavior of the community in the Eradication of Dengue Hemorrhagic Fever (PSN-DBD) in port of Padangbai Karangasem Bali.

Methodology:

The research design was quantitative with a cross sectional design. The Research Population is the Head of the Family in the Buffer Harbor Area of Padangbai Karangasem Bali. The number of samples in this study were 89 respondents using Proportional Random Sampling techniques. Data collection used a questionnaire about Knowledge, Attitudes,facilities and infrastructure and Behavior for Eradicating Dengue Hemorrhagic Fever Eradication. Data analysis using univariate analysis, bivariate data analysis using chi square square test with a value of $\alpha = 0.05$. If the value of p value $> \alpha$ (0.05), it means there is no relationship, whereas if the value of p value $\leq$ value α (0.05) then there is a relationship and Multivariate Analysis using Multiple Logistic Regression with the highest OR value then the variable is the independent variable that is most dominantly related to the dependent variable

Results and Discussion:

1. Univariate Analysis of Dependent Variable

The results showed that the majority of respondents behaved less as much as 57 people (64%), while those who behaved well were 32 people (36%), as shown in table 1 below

Table 1. Description of Respondent's Behavior in Eradicating the Nest of Dengue Hemorrhagic Fever (PSN-DBD)

Behavior	Sum	Percentage
Good	32	36
less	57	64
Total	89	100

2. Analysis of Independent Variable Univariate

Based on univariate analysis that respondents with good knowledge were 27 people (30.3)% while respondents who had less knowledge were 64 respondents (69.7)%. Respondents who have a good attitude of 29 (32.6%) people who are lacking attitudes are 60 people (67%). Renspondent with a

category of goodfacilities and infrastructure as many as 35 people (39%) while with a category less sebnyak 54 people 60.7%

Table 2.Knowledge overview, attitude and infrastructure of Respondents in Eradication of Nest of Dengue Hemorrhagic Fever (PSN-DBD)

Independent variable	Sum	Percentage
Knowlade		
good	27	30.3
less	64	69.7
Attitude		
good	29	32.6
less	60	67.4
infrastructure		
good	35	39.3
less	54	60.7
Total	**89**	**100**

Bivariate Analysis

1. **Knowledge Relationship with Respondents' Behavior in Eradicating Nest of Dengue Hemorrhagic Fever (PSN-DBD)**

Based on the results of the analysis it is known that respondents who have good knowledge with good behavior are 17 people (19.1%) while respondents who have less knowledge with less behavior are 47 people (52.8%). Based on the results of bivariate analysis, it is known that the p value = 0.001 <α (0.05) means that H0 is rejected or there is a relationship between Knowledge and Community Behavior in the Implementation of Eradication of Dengue Hemorrhagic Fever (PSN-DHF) in Padangbai Karangasem Sea Port, Bali data in the following table 3:

Table 3.Knowledge with Respondents' Behavior in Eradicating Dengue Hemorrhagic Fever (PSN-DBD)

Knowladge	Behavior						P Value
	Good		Less		Total		
	F	%	F	%	F	%	
Good	17	19.1	10	11.2	27	30.3	**0.001**
Less	15	16.9	47	52.8	62	69.7	
Total	32	36	57	64	89	100	

2. **Relationship between Attitudes and Respondents' Behavior in Eradicating Dengue Hemorrhagic Fever (PSN-DBD)**

In the study, there were 17 respondents (19.1%) having good attitudes and good behavior, while 45 respondents (50.6%) had less attitudes and less behaviors. Based on the results of bivariate analysis, it is known that the p value = 0.002> α (0.05) means that H0 is rejected or there is a relationship between Attitudes with Community Behavior in the Eradication of Dengue Hemorrhagic Fever (PSN-DHF) at Padangbai Karangasem Sea Port, Bali. As in table 4 below:

Table 4.Relationship between attitude and Respondents' Behavior in Eradicating Nest of Dengue Hemorrhagic Fever (PSN-DBD

Attitude	Behavior						P Value
	Good		Less		Total		
	F	%	F	%	F	%	
Good	17	19.1	12	13.5	29	32.6	**0.002**
Less	15	16.9	45	50.6	60	67.4	
Total	32	36	57	64	89	100	

3. **Relationship between Facilities and Marketing and Respondents' Behavior in Eradicating Nest of Dengue Hemorrhagic Fever (PSN-DBD)**

Based on the results of the study found that respondents who have good facilities and infrastructure with good behavior as many as 18 people (20.2%) while respondents who have facilities and infrastructure are lacking with less behavior as many as 40 people (44.9%). Based on the results of bivariate analysis, it is known that the p value = 0.014 <α (0.05) means that H0 is rejected or there is a relationship between Facilities and Infrastructure with Community Behavior in the Eradication of Dengue Hemorrhagic Fever (PSN-DBD) at Padangbai Karangasem Sea Harbor,Bali . Can be described in the following table 5:

Table 5. Relationship between Facilities and Infrastructures and Community Behavior in Eradicating Nest of Dengue Hemorrhagic Fever (PSN-DBD)

Infrastructure	Behavior						P Value
	Good		Less		Total		
	F	%	F	%	F	%	
Good	18	20.2	17	19.1	35.0	39.3	**0.014**
Less	14	15.7	40	44.9	54.0	60.7	
Total	32	36.0	57	64.0	89.0	100	

Multivariate Analysis Results:

Multivariate analysis aims to obtain the dominant factor in the behavior of respondents in PSN-DBD. At this stage an analysis of several factors related to the behavior of respondents in PSN-DBD was carried out together, namely the level of knowledge, attitudes, and facilities and infrastructure. The stages:

1. **Selection of candidate models**

   The first step is to determine the variables that will be included in the modeling with a value of p value <0.25. In this study there were 3 independent variables related to the behavior of respondents in PSN-DBD. Variables that have a value of p <0.25 are included in the multivariate model as shown in the following table:

Table 6 Simple logistic regression analysis resultsbetween independent variables and independent variables of Respondents in PSN-DBD

No	Variabel	p-value
	Knowladge	0.012
	Attitude	0.009
	infrastructure	0.016

Based on the results of simple Logistic regression analysis in three independent variables, namely knowledge, attitudes and infrastructure meet the entry in the form of a multivariate model because the value of p <0.25

2. **Selection of Multivariate Models**

   The 3 independent variables included in the multivariate model were then analyzed by considering the valuation of the disposal of the variable with the highest p-valuation value then processed again by excluding variables with the highest p-valuation value, until the loglikerhood ratio was obtained (p <0.05), the final result of choosing a multivariate model as shown in the following table:

Table 7 Final Results of the Selection of Multivariate Models

Variable	Knowladge	Attidue	infrastructure	Constants
B	1.456	1.191	0.007	-3.787
Waid	6.094	4.781	0	10.508
DF	1	1	1	1
Sig	0.014	0.029	0.09	0.01
OR	4.287	3.290	0.993	0.023
95% CI ORLower upper	1.350 13.618	1.131 9.568	0.304 3.236	-

From these results also seen the variables that have the greatest Odd Ratio (OR), namely the knowledge variable of 4,287 thus the knowledge variable is the most powerful variable relation to community behavior in the Implementation of Eradication of Dengue Hemorrhagic Fever (PSN-DHF) in Sea of port Padangbai.

Discussion:

1. **Knowledge Relationship with Respondents' Behavior in the Implementation of Eradication of Dengue Hemorrhagic Fever Nests (PSN-DBD)**

   Based on the results of bivariate analysis it is known that the p value = 0.001 <α (0.05) means that H0 is rejected or there is a relationship between Knowledge and Community Behavior in the

Implementation of Eradication of Dengue Hemorrhagic Fever (PSN-DHF) in Padangbai Karangasem Sea Port, Bali.

Knowledge Respondents of important Eradication of Mosquito to break the chain of transmission of Dengue Fever will have good behavior in the implementation of the DBN PSN. The knowledge examined in this study consisted of 12 questions about (1) knowledge about 3M (2) vectors of Dengue Fever (3) Things that can be done by the community to prevent the spread of Dengue Fever (PSN DBD). Based on the results of the study, most people in Padangbai Karangasem Port of Bali have of knowledge a lack about the Eradication of Dengue Hemorrhagic Fever (PSN-DHF), which is 64 people (69.7%). Knowledge PSN DBD of less are In the respondents there were on the items are question about eradicating the 3M mosquito nest (Draining, Mentup, and Burying / Hoarding).

According to Fuka (2017). The knowledge of PSN 3M Plus in the community relates to DHF control measures in the community in eradicating mosquito nests and avoiding themselves from the bite of the Aedes mosquito. 3M Plus PSN behavior can break the chain of transmission of dengue virus so the expected result is a decrease in the incidence of dengue.

Based on the results of the study, 17 respondents (19.1%) had good knowledge and good behavior, while 47 respondents (52.8%) had less knowledge are with less behavior. According to Notoatmodjo (2003), the level of Knowledge has the first 3 levels, namely (1) Know, (2) Understanding (Comprehension), and (3) Application (Application). When the respondent knows and understands that dengue fever is a disease that can cause death that is transmitted through the Aedes Aegepty mosquito vector and can be prevented by routinely conducting dengue PSN, the respondent will have the Behavior to do prevention by routinely conducting dengue PSN. This can be seen in the bivariate test, there are 15 people (16.5%) respondents who have good Knowledge and Behavior of PSN. The results of this study prove that Notoatmodjo's theory states that behavior is influenced by 2 factors, namely internal factors and external factors. Internal factors include: knowledge, intelligence, perception, emotion, motivation and so on which function to process stimuli from the outside. While external factors include the surrounding environment, both physical and non-physical such as: climate, human, socio-economic, culture, and so on

The results of the multivariate analysis of the three independent variables were found that the knowledge variable had the strongest relationship to the behavior of the implementation of PSN-DBD. This condition can be seen from the odds ratio (OR) of the knowledge variable is 4,287, meaning that respondents who have good knowledge have an opportunity of 4,298 times to implement the Eradication of DHF Mosquito Nests

According to Notoatmodjo (2003) research has shown that behavior based on knowledge will be more lasting than behavior that is not based on knowledge. Therefore providing health education interventions regarding PSN-DHF needs to be done to improve public knowledge about DHF and efforts to prevent dengue disease in the form of counseling or training in the formation of jumantik cadres at the community level. The results of Argina (2011) research show that there is an increase in public knowledge about DHF, so that it can improve the quality of behavior in preventing DHF.

Based on the description above, it can be concluded that there is a relationship between knowledge and behavior of DHF mosquito nest eradication, so this research is in accordance with the concepts of Notoatmodjo and green. Furthermore, it can be explained through the knowledge possessed about dengue fever, how to eradicate what must be done with 3M (drain, close and bury) the reservoir, so the respondents tend to have the desire to implement 3M. This desire arises from the background of his desire not to contract dengue fever. If you see the level of relationship including the strongest category, it means that the better the knowledge

about eradicating mosquito nests, the better the behavior of eradicating mosquito nests. So increasing knowledge is very important to do in order to improve the implementation of the eradication of mosquito nests.

2. Relationship between Attitudes and Respondents' Behavior in the Implementation of Eradication of Dengue Hemorrhagic Fever Nests (PSN-DBD)

Based on the results of bivariate analysis it is known that the value of p value = 0.002> α (0.05) means that H0 is rejected or there is a relationship between Attitudes with Community Behavior in the Implementation of Eradication of Dengue Hemorrhagic Fever (PSN-DBD) at port of Padangbai Karangasem, Bali . Most of the people in Padangbai Karangasem Port of Bali have a lack of attitude regarding the Eradication of Dengue Hemorrhagic Fever (PSN-DHF) which is 60 people (67.4%)

These results indicate that respondents who are positive and respondents who behave negatively have differences in the implementation of PSN. This might happen because the more positive a person's attitude or view of things, for example attitudes toward dengue disease, the better the actions taken to prevent the disease are by doing PSN. Someone who knows about DHF and knows the consequences that will be experienced if they do not take preventive action, then it will bring someone to think and try to avoid the disease. In the process of thinking there are components of emotion, motivation and confidence so that in the end someone has a positive attitude towards prevention efforts, namely by doing PSN. This is in accordance with what was stated by Notoatmodjo (2005). That behavior is based on knowledge, awareness, and a positive attitude, then the behavior will be long lasting. Attitudes related to individual motivation to do something, thus in this case a positive attitude will motivate individuals to carry out PSN activities

According to Mar'at (1984) states that attitude is a product of a socialization process, where a person

will react according to the stimulation he receives. In relation to this attitude is very closely related to the knowledge gained both from own experience and from the environment.

According to Sarwono (1993) where attitudes are a tendency to respond positively and negatively to an object through persuasion, role models from someone or from a social group. This is consistent with what Green found in Notoatmodjo (2003) that a person's behavior is influenced by knowledge, attitudes, beliefs and others. Thus a positive public attitude will affect their own behavior towards PSN. Although a person's behavior is influenced by attitudes but not always attitudes will automatically manifest in an action, because to be able to realize an attitude to become a real force needed supporting factors include facilities, support from other parties and experience, environment and motivation (Azwar 2008)

In this study the results of the multivariate analysis of attitude variables were ranked second after knowledge, in getting the odds ratio (OR) attitude variable of 3.29, meaning that respondents with good attitudes had an opportunity of 3.29 times eradicating behavior DBD mosquito nests were compared who have a lack of attitude. So an increase in attitude is needed in order to improve the eradication behavior of Aedes aegypti mosquito nests.

This is in accordance with the research conducted by Dewi, Nila. 2015. With the title Factors relating to the eradication of the family nest of dengue fever mosquitoes in the village of Mulyoharjo, Jepara Subdistrict, Jepara District, this study found that there was a significant relationship between family knowledge and attitudes towards the practice of eradicating dengue mosquito nests

3. Relationship between Facilities and Infrastructure and Respondents' Behavior in the Implementation of Eradication of Dengue Hemorrhagic Fever Nests (PSN-DBD)

Based on the results of bivariate analysis it is known that the value of p value = 0.014 <α (0.05)

means that H0 is rejected or there is a relationship between Facilities and Infrastructure with Community Behavior in the Implementation of Eradication of Dengue Hemorrhagic Fever (PSN-DHF) at Padangbai Sea Port Karangasem Bali. The majority of the people in Padangbai Karangasem Port of Bali have less behavior regarding the Eradication of Dengue Hemorrhagic Fever (PSN-DHF), which is 57 people (64%).

The results of data collection on PSN facilities and infrastructure during the study revealed that limited warehouse ownership questions have the tendency to store used items such as bottles because they are sold where stacked used goods have the potential to become water reservoirs / mosquito breeding grounds. In addition, people tend to have water reservoirs that are not equipped with covers. The community feels that with the cover disturbing comfort in water use activities.

This result is in accordance with Green in Notoatmodjo (2003) which reveals facilities and infrastructure is a factor that will support the community to do or behave well in health, meaning that with supporting factors (facilities and infrastructure), the community will carry out real activities in nest eradication Ades aegypti mosquito. Thus the role of facilities and infrastructure is to support the PSN-DBD activities, especially in terms of the availability of abate which requires good planning in fulfilling abate needs for the implementation of PSN-DBD so as to achieve the PSN-DBD target, as the researchers found in terms of access to obtain abate powder it is sufficient but abate obtained by the community is not used properly. Because the community thinks it has an impact on water clarity. This condition shows that the public's understanding of the use of abate needs to be improved through PSN socialization / counseling which focuses on the procedures for using abate.

Another condition found in the field, namely the availability of clean water in this case sourced from the PDAM, is still limited (scheduled) so that people tend to hold water for> 2 days. This condition has the potential to become a breeding place for mosquitoes if it is not equipped with a cover and application of 3 M specifically "M" (Drain).

Based on the results of the multivariate analysis, the variables of facilities and infrastructure are variables related to community behavior in the PSN DBD. Odds Ratio (OR) of facilities and infrastructure variable is 0.993. Respondents who have good facilities and infrastructure have the opportunity to implement PSN-DBD 0.993 times higher than those who have less facilities and infrastructures.

This research is in line with previous research conducted by Agus Riyanto 2005 entitled Analysis of Factors Associated with Community Behavior in Eradicating the Nest of Dengue Hemorrhagic Fever (PSN-DHF) in Cigugur Central Village, Cimahi City, where the results indicate that there is a significant relationship between the infrastructure and the behavior of respondents in eradicating mosquito nest.

Conclusions and Recommendations:

Conclusion:

1. There is a relationship between Knowledge and Respondents' Behavior in the Implementation of the Eradication of Dengue Hemorrhagic Fever (PSN-DBD) in Padangbai Karangasem Sea Port, Bali. The value of Odd Ratio (OR) knowledge is the biggest compared to other variables of 4,287

2. There is a relationship between Attitudes and Respondents' Behavior in the Implementation of Eradication of Dengue Hemorrhagic Fever (PSN-DHF) in Padangbai Karangasem Sea Harbor, Bali with an Odd Ratio (OR) of 3.29

3. There is a relationship between Facilities and Infrastructure with Respondent's Behavior in the Implementation of Eradication of Dengue Hemorrhagic Fever (PSN-DBD) in Padangbai Karangasem Sea Harbor, Bali with an Odd Ratio (OR) of 0.993

4. Knowledge Variables have the strongest relationship with the behavior of Respondents in the Implementation of Eradication of Dengue Hemorrhagic Fever (PSN-DHF) odds ratio (OR) of the knowledge variable is 4.287, meaning that respondents who have good knowledge have an opportunity of 4,298 times to carried out the Eradication of DHF Mosquito Nests in Padangbai Karangasem Sea Harbor,

Suggestion

1. For the community, it is expected to increase knowledge about PSN-DBD, so that the community is expected to be able to do PSN-DBD independently, with 3M movements and avoid mosquito bites including the 3M Plus movement.

2. For Village Devices and traditional institutions in the Padangbai Port area, the relevant agencies are expected to provide motivation to the community to be able to carry out independent eradication activities not dependent on visits from health workers. It can also be done through empowerment through the establishment of larva monitoring (JUMANTIK) cadres from residents of each hamlet. Other activities can be through the joint cleaning work movement every holiday or week to foster community motivation.

3. For relevant agencies, it is expected to always provide information about the implementation of PSN and use abate to the community so that the community better understand and respond to PSN properly, so that the implementation of the appropriate PSN is created. Periodic control of the environment is also carried out, and invites the public to actively participate in prevention of dengue and reporting of cases that occur. Activating community participation in the implementation of PSN by forming cadres involving sub-village level equipment, schools, customary institutions.

5. For other researchers, it is expected to examine further about other factors such as behavioral

relationships with a difference in the index of genetics, behavior of Ae mosquitoes. aegypty for dengue incidence, as well as people's behavior in accommodating water against larvae indexes.

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