

# The Relationship between Perception of Dengue Hemorrhagic Fever and Prevention Behaviour in Sorogenen 2 Purwomartani Kalasan Sleman Yogyakarta

Ayuna Lintangari  
Faculty of Public Health  
Ahmad Dahlan University  
Yogyakarta Indonesia  
ayunalintang@gmail.com

Tri Wahyuni Sukesi  
Faculty of Public Health  
Ahmad Dahlan University  
Yogyakarta Indonesia  
Yunisukesi.fkmud@gmail.com

**Abstract**—Dengue Hemorrhagic Fever (DHF) is a disease found in most tropical and subtropical regions. The natural hosts of DHF are humans. The agent is a dengue virus that belongs to the family *Flaviridae* and the genus *Flavivirus*. Around 2.5 billion people in the world are at risk of contact with dengue. World Health Organization (WHO) estimates that around 50 million people worldwide are infected with dengue virus each year, with around 400.000 cases of DHF. People tend to respond to DHF is not a serious problem and is considered trivial, which causes the behavior to control the actions of DHF is still lacking. Prevention of DHF is to prevent the bite of *Aedes* mosquitoes that contain dengue virus to humans by maintaining environmental hygiene so as not to become a medium of suppression of *Aedes aegypti* mosquitoes. This study aims to determine the relationship of perceptions about DHF and Prevention of DHF behavior in Sorogenen 2 Purwomartani Kalasan Sleman Yogyakarta. We conducted quantitative research with an observational analytic design using cross-sectional approach. This research was conducted at Sorogenen 2 Purwomartani Kalasan Sleman, Yogyakarta with a sample of 87 respondents chosen with simple random sampling technique. As many as 71 (81.6%) respondent had a good perception of DHF and 16 (18.4%) respondents had a wrong perception of DHF. A total of 46 (52.9%) respondents had good behavior, and 41 (47.1%) respondents had good behavior towards prevention of DHF. It was a relationship between perceptions of DHF and prevention behavior (PR=1.84; CI=1.23 – 2.73; p=0.028). People who had poor perceptions of DHF more likely had lack behavior against DHF prevention. Perception of DHF increases the risk of the lack behaviour of DHF prevention in Sorogenen 2 Purwomartani Kalasan Sleman Yogyakarta.

**Keywords**—DHF, perception, behavior

## I. INTRODUCTION

Dengue Hemorrhagic Fever (DHF) is a disease found in most tropical and subtropical regions. The natural host of dengue is human, the agent is a dengue virus which belongs to the family *flaviridae* and genus *flavivirus*. DHF is transmitted to humans through the bite of infected mosquitoes, specifically the *aedes aegypti* and *aedes albopictus* mosquitoes [1].

More than half of the world's populations are in areas at risk of transmission of dengue fever. It makes dengue fever

one of the viruses for human with high morbidity and mortality. Within a few years, the incidence of dengue fever has developed rapidly throughout the world. About 2.5 billion populations in the world are at risk of infected by dengue fever. The World Health Organization (WHO) estimates that around 50 million populations worldwide are infected with the dengue virus each year, with around 400.000 cases are *Dengue Hemorrhagic Fever* [2].

At present, dengue fever is an endemic problem in 112 countries. It makes dengue fever one of the most common infectious diseases in the world. Three-quarters of all dengue cases in the world occur in Southeast Asia and the Western Pacific region. The United State of America in 2007 found that more than 890.000 cases of dengue fever, the 26.000 cases were dengue hemorrhagic fever. In addition to America, dengue hemorrhagic fever is also endemic in various regions in India, Sri Lanka and other Asian countries [3].

In 2012, dengue fever was a vector-borne disease in which the incidence of morbidity exceeds existing malaria cases. One study estimated that more than 230 million people were infected with dengue fever, with more than 2 million cases suffered from severe illness with 21.000 reported deaths, out of the 3.6 billion populations living in risky areas [4]. The recent world data showed that Asia is the highest population with DHF each year. Meanwhile, from 1968 to 2009, the World Health Organization (WHO) recorded Indonesia as the country with the highest DHF cases in Southeast Asia [5].

Indonesia's tropical climate is a good place for animal and plant life. A right place for the development of the disease especially diseases carried by vectors. One disease in Indonesia that is transmitted by vectors is dengue fever [6].

Based on Indonesian health data and information in 2016, there are 201.885 cases of DHF from 258.946.860 people in Indonesia, with 1585 deaths, spread throughout Indonesia. The incidence of DHF of Yogyakarta in 2016 has reached 6.247 cases out of 3.720.912 populations in this city, with a death rate about 26 deaths [7].

The case of DHF that occurred in Sleman district in 2016 reached 880 cases with nine people died. This number increased by 40% or as many as 360 cases higher compared in

2015. In 2015, the total cases of DHF were 520 cases with nine people died. While in 2017, the number of cases of DHF that occurred in Sleman district were 427 cases out of the total population, where this number decreased from the previous year, but still at a high rate. Most cases of DHF attack the population aged 15 years to 44 years old with a percentage of 45%. Various factors influence the high increase in dengue cases. one of which is the influence of the climate (rainy season). So that much rainwater that has the potential to become a breeding place for *Aedes aegypti* mosquitoes coupled with the behavior of the people who do not pay attention to clean and healthy lifestyles [8].

Environmental factors and human behavior itself influence the incidence of DHF. The supporting environmental factors are the environmental condition, population density, population mobility, existences of places of worship, the presence of ornamental plant pots, the presence of rainwater channels, and the presence of artificial or natural containers in landfill or in other trash cans that the condition is not so good. Whereas, community behavior factors related to the presence of DHF vectors are among others due to unfavorable actions taken by the community itself such as the habit of hanging clothes [9].

The spread of DHF can be influenced by the participation of the community, especially in the prevention of the presence of DHF vectors, for example with mosquito nests eradication (PSN) activities. The realization of community participation will be achieved if there is a change in the behavior of the community itself, where the behavior leads to better or even worse behavior. Changes in behavior itself occurs after a person experiences a process, starting from knowing, comprehension, application, analysis, synthesis and evaluation [10].

Environmental cleanliness is also a supporting factor in the case of DHF. Vector of DHF *Aedes aegypti* mosquito needs a living place that is suitable to grow and breed. Unclean and unhealthy environmental conditions are a supportive capacity for the development of *Aedes aegypti* mosquitoes. Also, mobility and community activities can affect the incidence of DHF [11].

Prevention of DHF that can be conducted is to prevent the bite of *Aedes* sp. which contains the dengue virus to humans. One way to prevent DHF is to keep the environment clean so that it does not become a medium for *Aedes aegypti* mosquito breeding, namely mosquito nests eradication (Pemberantasan Sarang Nyamuk/PSN), fogging, larvacidation, and 3M implementation (draining, closing, and burying). In every health problem, including in the effort to overcome DHF, behavioral factors always play an essential role. Attention to behavioral factors is as important as attention to environmental factors, especially in terms of efforts to prevent disease [12].

Prevention and eradication of the incidence of DHF) cannot be achieved without cooperation and participation from the community and related agencies and organizations in every effort to prevent and control DHF. The community is encouraged to participate in PSN activities, such as draining water reservoirs, cleaning solid waste, preventing vector proliferation, and protecting themselves from mosquito bites. Prevention and eradication of DHF will succeed if all elements

of society including related organizations play a role to achieve the eradication of DHF [13].

Previous studies in Pakistan explained that health education on PSN was able to increase respondents' knowledge of DHF, but it has not been fully demonstrated in real preventive behavior. The problem that often occurs in the implementation of the PSN is that the community does not seem to have a proper and correct understanding of the prevention and control of DHF vector. It is often indicated by hygiene activities that are sometimes misdirected [14].

Lack of knowledge and low level of awareness are estimated to have an adverse impact on the quality of public health. Lack of knowledge and differences in perceptions with indications of low awareness will reduce people's behavior towards health care, especially in efforts to prevent DHF. From previous experience, it is proven that behavior based on knowledge and awareness will be more lasting, than behavior that is not based on knowledge and awareness [15].

Another factor that causes the occurrence of DHF is public perception, because of the low effort to cope with DHF and insufficient understanding of the community about the benefits of PSN to prevent DHF. In this case as in previous studies the perception of cadre PSN in South Kalimantan Banjarbaru. The results of that studies indicate that the role of cadres as a manifestation of community participation in PSN in Banjarbaru City is considered lacking. PSN cadre have not done, even during the last six months in where researcher live, never visited by PSN DHF cadre to perform Mosquito larvae Periodic Inspection (CHD). In addition, it is also influenced by the public perception that fogging is the most appropriate action to overcome DHF and the lack of understanding of the community about the benefits of PSN of DHF. This caused a lack of participation from the community to help the PSN cadre [16].

Concerns about DHF still influenced by perceptions of DHF. The community tends to respond the DHF is not a serious problem and is considered trivial, causing behavior to control DHF control measures is still lacking. Prevention of DHF emphasizes environmental cleanliness. The cleanliness of the environment that is a concern is not enough to clean the surrounding environment, but the cleanliness of the general environment or other public facilities must be a concern. Therefore, it is necessary to anticipate the control of DHF is carried out by further encouraging active participation of the community to carry out PSN activities voluntarily [17].

## II. METHOD

This study was a quantitative research design with observational analytic method using cross-sectional approach, to determine the relationship between the perception of DHF and behavioral prevention in the community in the Sorogonen 2.Purwomartani Kalasan Sleman Yogyakarta, the working area of the Kalasan community health center which was an endemic area at Sleman Regency in 2017. The research was conducted in July 2018 with sampling taken in a simple random sample, where all communities had the opportunity to become respondents without regard to the existing strata. The population in this study was 638. The sample size was calculated using the Slovin formula. The sample size obtained was 87 respondents. The instrument used in this study was a questionnaire.

### III. RESULTS

#### A. The Characteristics of Respondents

Characteristics of respondents taken in this study included age, gender, education level and occupation. The characteristic of respondents can be seen in the following table:

##### 1. Sex

TABLE I. CHARACTERISTICS OF RESPONDENTS BASED ON SEX IN SOROGENEN 2, PURWOMARTANI, KALASAN SLEMAN YOGYAKARTA IN 2018

Sex	Frequency (f)	Percentage (%)
Male	19	21.8
Female	68	78.2
Total	87	100.0

Source: Primary Data

According to the table 1 the results showed most respondents were female (68; 78.2%) compared to male (19; 21.8%).

##### 2. Age

TABLE II. CHARACTERISTICS OF RESPONDENTS BASED ON AGE GROUP IN SOROGENEN 2 PURWOMARTANI KALASAN SLEMAN YOGYAKARTA IN 2018

Age	Frequency (f)	Percentage (%)
<= 20 years old	2	2.3
21-25 years old	6	6.9
26-30 years old	14	16.1
31-35 years old	9	10.3
36-40 years old	12	13.8
41-45 years old	13	14.9
46-50 years old	5	5.7
51-55 years old	8	9.2
56-60 years old	18	20.7
Total	87	100.0

Source: Primary Data

Based on table 2, the results showed most respondents aged between 56-60 years old (18; 20.7%) of respondents aged turtles and at least 20 ng of the Year 2 (2, 3%).

##### 3. Education

TABLE III. CHARACTERISTICS OF RESPONDENTS BASED ON EDUCATION IN SOROGENEN 2 PURWOMARTANI KALASAN SLEMAN YOGYAKARTA IN 2018

Education	Frequency (f)	Percentage (%)
Elementary school	17	19.5
Junior high school	20	23.0
Senior/vocational high school	33	37.9
Diploma	6	6.9
Bachelor	11	12.6
Total	87	100.0

Source: Primary Data

Based on table 3, the results showed majority of respondents were senior/vocational high school graduate (33; 37.9%) and a little respondent were a diploma graduate 6; 6.9%).

#### 4. Employment

TABLE IV. CHARACTERISTICS OF RESPONDENTS BASED ON EMPLOYMENT IN SOROGENEN 2 PURWOMARTANI KALASAN SLEMAN YOGYAKARTA IN 2018

Age	Frequency (f)	Percentage (%)
Entrepreneur	20	23.0
Housewives	47	54.0
Private sector	8	9.2
Laborer	8	9.2
Student	2	2.3
Teacher	1	1.1
College student	1	1.1
Total	87	100.0

Source: Primary Data

Based on table 4, the results showed most respondents worked as housewives as many as 47 (54%) and the least work as teacher and student, respectively, 1 (1.1%) and 1 (1.1%).

#### B. Analysis of Univariate

##### 1. Perception on Dengue Hemorrhagic Fever

TABLE V. PERCEPTION OF DHF IN THE COMMUNITY OF SOROGENEN 2 PURWOMARTANI KALASAN SLEMAN YOGYAKARTA IN 2018

Perception	Frequency (f)	Percentage (%)
Bad	16	18.4
Good	71	81.6
Total	87	100.0

Source: Primary Data

Based on table 5, the results showed only small respondent perceived bad on DHF (16; 8.4%), while most of them had good perception (71; 81.6%).

##### 2. Community Behavior Against Prevention of DHF

TABLE VI. COMMUNITY BEHAVIOR AGAINST PREVENTION OF DHF IN SOROGENEN 2 PURWOMARTANI KALASAN SLEMAN YOGYAKARTA YOGYAKARTA IN 2018

Behavior	Frequency (f)	Percentage (%)
Bad	41	47.1
Good	46	52.9
Total	87	100.0

Source: Primary Data

Based on table 6, the results showed community behavior towards the prevention of DHF were relatively equal, which bad behavior as many as 41 (47.1%) respondents and good behavior as many as 46 (52%) respondents.

#### C. Bivariate Analysis

A bivariate analysis was conducted to determine the relationship between the independent variables of perception about DHF and the dependent variable behavioral of prevention of DHF. The statistical test used was the Chi-square test with  $p\text{-value} < \alpha 0.05$ .

TABLE VII. THE RESULT OF CHI-SQUARE TEST THE RELATIONSHIP BETWEEN THE PERCEPTION OF DHF AND DHF PREVENTION BEHAVIOR IN SOROGENEN 2, PURWOMARTANI, KALASAN SLEMAN YOGYAKARTA IN 2018

Percep tion	Behavior				Total		PR	95 % CI	P Va lue
	Bad		Good						
	F	%	F	%	F	%			
Bad	12	13.8	4	4.6	16	18.4		1.2 33	
Good	29	33.3	42	48.3	71	81.6	1.8 36		0.0 28
Total	41	47.1	46	52.9	87	100		2.7 34	

Sample of a Table footnote. (Table footnote)

Based on Table 7, it can be seen that of the 87 respondents, most respondents had a good perception on DHF and had a good tendency to prevent DHF as many as 42 (48.3%) respondents. Hypothesis testing was performed by using Chi Square correlation analysis, we obtained the coefficient of the relationship between perceptions of DHF and the prevention behavior of DHF with  $p\text{-value}=0.028$ . It meant there was a relationship between the perception of DHF and the prevention behavior of DHF with PR 1,836 (CI: 1.233-2.734) which means that people or respondents who have poor perceptions had 1.836 times risk to have poor behavior against DHF prevention. There was a relationship between perceptions of DHF and the behavior of the prevention of DHF.

#### IV. DISCUSSION

Perception is the activity of feeling or the ability to feel, understanding the soul of objects, quality and others through meaning, awareness, and comparison. Deep knowledge, intuition or the ability of the five senses in understanding something (the life process that is owned by everyone, from the point of view of people at a certain point) [18].

Behavior is defined in several meanings including, the behavior is an effort of an individual in a situation, whether it is to make changes from one situation to another, or to maintain what is there at that time [19]. Behavior is something that someone does that can be observed, measured, and repeated [20].

The results of the study of perceptions of DHF in the community showed the most respondents had a good perception of DHF (71; 81.6%). The respondent's good perception can be caused by several factors including the age of the respondent. Our result indicated that most of respondent aged between 56-60 years old (18; 20.7%). It shows that adulthood is able to make perceptions with external factors such as experiences in life. Our result showed that respondents know that DHF is a disease caused by *Aedes aegypti* mosquito and is a dangerous disease and needs to be eradicated. Perception about disease greatly influences community involvement in prevention efforts. A person's perception of mosquitoes which is considered an intruders and not a cause of disease affects the involvement of changes in perception. The results of this study were strengthened by Sumitra [20] which states that perception is generally influenced by both internal and external factors, in other words include: characteristics of past experiences; characteristics of

respondents such as age, sex, education, occupation, and social status; motivation and personality.

Our study is in line with the research Habibullah and Ashraf [21] that found that 70% of students know about dengue and its control method. Nearly 66% of students believe that dengue infection can be controlled and 33% think that eradicating mosquitoes is the most appropriate method for dealing with DHF.

Our study is strengthened by Respati et al [22], the factors that influence the incidence of DHF in Bandung are sex, higher education, sanitation, general knowledge of DHF, knowledge about the symptoms of DHF and perceptions of DHF. As for other factors that can influence perception is knowledge, in line with the research of Trisnaniyanti I et al [15], who said that the higher the knowledge, the higher the cadre's perception of the prevention of dengue disease. In line with the research Fauzy et al [23] that still exist society who does not know the danger of dengue fever, so they felt no fear of dengue fever, therefore it needs to be disseminated more widely and health education to the public about dengue fever, so that people know the threat of disease dengue fever for one's health.

Our study found that most of the community behavior towards the prevention of DHF was good (46; 52.9%). However, a total of 41 (47.1%) respondents had a bad attitude towards the prevention of DHF. Some respondents rely more on the officers of the Jumentik to check the existence of larvae in their homes. As many of them pay less attention to the cleanliness of their own home environment, it can be seen from the environment that is less comfortable and less attentive during cleaning of water reservoirs and house cleanliness, as seen in the results of the questionnaire given.

On factor that influences the good behavior of respondents was sex. In this study, the majority were females (68.2%) respondents. Female tend to care about something related to health. it is in line with Respati et al study [22], that women being the majority of respondents in this study is very important to be observed. Traditionally female has become the leading players in protecting their homes and their environment so that if female does not have sufficient knowledge and does activities related to dengue well, the dengue fever program, especially in the Eradication of Mosquito Nest (PSN) is not achieved. Cultural conventions that provide different roles between male and female determine their exposure to vector-borne diseases.

The results of this study are supported by the theory of Green et al. (1999) in Notoatmodjo [24]. The health of individuals and society is influenced by two factors, namely behavioral factors and non-behavior factors. Furthermore, these behavioral factors are determined by three groups of factors including: a person's behavior related to predisposing factors, possible factors and reinforcing factors. One of the factors that influence this behavior is demographic factors. Strengthened in the theory of Green et al. (1999) in Notoatmodjo [24]. Demographic factors such as social status - economy, age, sex and family size are also crucial as predisposing factors. In this case, support or encouragement from other people is needed for the prevention of illness. Besides, the attitudes and behavior of health workers also become a role model for someone or society.



Other factors that influence people's behavior are education. Most respondents were senior/vocational high school graduate (33; 37.9%). Education will influence the understanding of DHF and ways to overcome it. Relatively low education is the cause of difficulty of the population to know the concept of the incidence of Dengue Hemorrhagic Fever and how to eradicate it. The results of this study are in line with Sari research [25]. Sari concluded that there is a statistically significant relationship between formal education and maternal behavior in the prevention of dengue hemorrhagic fever in families, the better the mother's education level, the better of mother behavior, the better of prevention of DHF. In accordance with Lawrence Green's theory, the behavior is also influenced by the interest of the individual to carry out a series of activities in achieving a goal. Emotions/moods for doing an activity are influenced or dependent on one's mood, and because of other people where individuals have a dependence on one another, therefore changes in the behavior of surrounding individuals can also affect them, Notoatmodjo [24].

Similar with Manulu et al study [16], communities in the study area generally lacked positive attitudes and behavior to the prevention of DHF, attitudes towards prevention of transmission of DHF is still less completely reflected in the majority of respondents statement have not implementing 3M principles. They only carry out voluntary work that is less focused on regular draining of water reservoirs and always closes them, burns or buries used goods which are thought to be a breeding places for mosquitoes transmitting DHF. Strengthened in the theory of Green et al. (1999) in Notoatmodjo [24] predisposing factors in the formation of behavior are triggers/antecedents factors of behavior that give or motivate such behavior is knowledge. In accordance with Wuryaningsih [28] study, with the results of differences in knowledge of the respondents had a significant influence on the behavior in the PSN DHF at Kediri city.

Prevention of DHF can be started from a living environment such as a home. One of the existing family functions is behavior, where family health can be started through behaviors in life that are supported by good knowledge in line with the results of Suharti's research [26]. Good behavior to maintain a healthy and clean environment from mosquito nests can be realized if the motivation of the whole family is also good.

Hypothesis testing was performed using Chi-Square analysis. Our results found that p-value was  $0.028 < 0.05$ . From this results, it can be concluded that there is a relationship between the perception of DHF and the behavior of prevention of DHF with the closeness of the relationship was 0.256, which means a low closeness. The prevalence ratio (PR) was 1.836, it shows that people who have good perceptions will influence to conduct a good behavior in the prevention of DHF 1.836 times better compared to people who have bad perception. Most respondents had good perception DHF that lead to tend to prevent DHF (42; 48.3%).

Almost all respondents know what DHF is and how efforts should be made to prevent DHF. Our study found that more respondents had good perceptions of DHF and had good behavior towards the prevention of DHF. However, some respondents who had poor perceptions tended to lack in the behavior of prevention of DHF. Some people rely more on

Jumantik officers to conduct larva checks, while in Sorogenen 2, Jumantik activities have not been running for nearly two months.

Perception is the result of thinking or how to view a knowledge obtained. When someone has perceptions means that someone already knows the object being perceived. Then this perception affects a person to act in accordance with abilities that he/she understands to himself/herself. Someone with good knowledge will certainly have a different perception compared to someone who has mediocre knowledge. So that they can act under what they know and understand [6].

Behavioral responses cannot be represented physically and can be automatically activated when perceptions arise, behaviors and perceptions are closely related in the memory of the human brain. Behavior is a response from the existence of forms of social knowledge that automatically arise due to the understanding of social stimulus which will eventually activate memory in compiling knowledge [27].

According to Qomaruddin and Attamimy [29] individuals who believe that they have a lower risk of DHF are more likely to take unhealthy actions, and individuals who see a high risk of DHF they will be more likely to carry out behaviors to reduce risk attacked by DHF. These actions are manifested in the behavior of prevention of DHF which are an attempt made to prevent the occurrence of DHF. This research is also in line with an Wuryaningsih study [28], the influence of PSN behavior is the knowledge, respondent perception and marital status, the higher the respondent's knowledge, the better the PSN behavior, the better the respondent's perception of PSN, the better the PSN behavior. The results of the study are also in line with the research of Trisnaniyati I et al [15], that there is a relationship between the perceptions of the activities of PSN cadres in the prevention of DHF, the higher the perception, the higher the activity of PSN cadres in conducting DHF.

Prevention is more emphasized on environmental hygiene, it is not enough just to clean the house surrounding, but the cleanliness of the general environment or facilities. The results of this study are in line with Rasyid [30] research, the results of this study indicate that there is a significant relationship between perceptions of barriers to the behavior of PSN in the working area of the community health center in Banjarmasin. However, the results of this study are not in line with the research of Istiqomah et al [31], which shows that there is no relationship between perceptions and respondent behavior. This is not in line with Lawrence Green's theory, because the respondents claimed that sanctions were only applied if respondents were detected positive larvae for 3x in a row. If on the first occasion the respondent is detected positive larvae, then on the next occasion it will drain the bath.

## V. CONCLUSION

Based on the results of research conducted by the community that has a good percentage of Dengue Hemorrhagic Fever as many as 71 (81.6 %) respondents and 16 (18.4 %) respondents have a poor perception about Dengue Hemorrhagic Fever. Community behavior towards prevention of Dengue Hemorrhagic Fever is 46 (52.9%) respondents have good behavior, and 41 (47.1%) respondents have bad behavior towards prevention of Dengue Hemorrhagic Fever. There is a

relationship between the perception of Dengue Hemorrhagic Fever with the behavior of prevention of Dengue Hemorrhagic Fever in the community in Sorogenen 2 Purwomartani Kalasan Sleman, Yogyakarta.

## VI. RECOMMENDATION

1. It became an additional insight into how good behavior for the prevention of Dengue Hemorrhagic Fever should not befall the community.

2. It can be a reference for making community programs related to how to strengthen public perceptions about the prevention of Dengue Hemorrhagic Fever (DHF).

## ACKNOWLEDGMENT

High appreciation delivered to Faculty of Public Health Ahmad Dahlan University and Kalasan village government.

## REFERENCES

- [1] Candra, A., 2010, Dengue Fever : Epidemiology, Pathogenesis, and Risk Factors for Hemorrhagic Fever Transmission: Epidemiology, Pathogenesis, and Its Transmission Risk Factors, *Dengue Fever: Epidemiology, Pathogenesis, and Risk Factors for Transmission* , 2 (2) , pp. 110–119.
- [2] Chanyasanh, C., Han, MM, Teetipsatit, S., 2013, dengue hemorrhagic fever knowledge, perception, and preventive behavior among secondary school students in Bangkok, *Journal of the Medical Association of Thailand = Chotmaihet thangphaet* , 96 Suppl 5, pp. 14–24.
- [3] Bota, R. , Ahmed, M., Jamali, MS, Aziz, A. , 2014, Knowledge, attitude and perception regarding dengue fever among university students of Sindh interior, *Journal of Infection and Public Health* . King Saud Bin Abdulaziz University for Health Sciences, 7 (3), pp. 218–223. doi: 10.1016 / j.jiph.2013.11.004.
- [4] Gubler, DJ, 2012, The economic burden of dengue, *American Journal of Tropical Medicine and Hygiene* , 86 (5), pp. 743-744. doi: 10.4269 / ajtmh.2012.12-0157.
- [5] Achmadi, UF, 2010, Dengue Hemorrhagic Fever, *Window Epidemiology Bulletin* , 2, p. 48.
- [6] Waris, L., Yuana, WT, 2013, Community Knowledge and Behavior of Dengue Hemorrhagic Fever in Batulicin District, Tanah Bumbu Regency, South Kalimantan Province, *Epidemiology and Animal Source Disease* , 4 (3), pp. 144–149.
- [7] Ministry of Health., 2017, Data and Information Health Profile Indonesia in 2016 , the Ministry of Health .
- [8] Suyasa, ING, Putra, NA, Aryanta, IWR, 2007, Association of Environmental Factors and Community Behavior with the Presence of Dengue Hemorrhagic Fever Vector (DHF) in South Denpasar Health Center I Work Area, *Ecotrophic* , 3 (1), pp. 1–6. doi: ISSN: 1907-5626.
- [9] Ipa, M., Lasut, D., Yuliasih, Y., Delia, T . , 2009, Overview of Knowledge, Attitudes and Actions of Communities and Their Relation to the incidence of dengue fever in Pangandaran District, Ciamis District Description of Society's Knowledge, Attitude, Practice, and Their Relationship with Occurrences of , *Journal of Aspirator* , 1 (7), pp. . 16–21.
- [10] Sukei, TW, 2012, Monitoring of Aedes Aegypti L. Mosquito Population in Dengue Hemorrhagic Fever Vector in Gedongkiwo , Mantriheron District, Yogyakarta City, *Public Health Journal* , Vol.6, No.1.
- [11] Monintja, Tyrsa CN, 2015, Relationship Between Individual Characteristics of Knowledge and Attitudes with DHF Actions of DHF Community of Malalayang I Malalayang District, Manado City, *JIKMU* , Vol.5, No.2b.
- [12] Zahir, A., Ullah, A., Shah, M., Mussawae, A. , 2016, Community Participation, Dengue Fever Prevention and Practices for Control in Swat, Pakistan, *International Journal of MCH and AIDS (IJMA)* , 5 (1) , pp. 39–45. doi: 10.21106 / ijma.68.
- [13] Fathi, Keman, S., Wahyuni, CU, 2005, The Role of Environmental Factors and Behavior on the Transmission of Dengue Fever in the City of Mataram, *Journal of Environmental Health* , 2 (1), pp. 1–10.
- [14] Riyanto, BC, 2010, Relationship between Education Levels, Knowledge and Attitudes of Housewives with 3M Dengue Hemorrhagic Fever Activity in Loa Ipuh Health Center , Kutai Karta Negara District , Thesis, Sebelas Maret University, Family Medicine Study Program.
- [15] Trisnaniyanti, L., Prabandari, YS, Citraningsih, Y., 2010, Perception and Activities of DHF PSN Cadres Against Prevention and Eradication of Dengue Hemorrhagic Fever, *Community Medical News* , 26 (3), pp. 132–137.
- [16] Manulu, HSP, Munif, A., 2016, Knowledge and Behavior of Communities in the Prevention of Dengue Fever in the Provinces of West Java and West Kalimantan, *Journal of Aspirator* , Vol. 8 (2), pp. 69–76.
- [17] Harisah, A., Masiming, Z., 2008, Human perception of signs, symbols and spatial , *SMARTek* , 6 (February 1), pp. 29–43.
- [18] Bergner , RM, 2011, What is behavior? And so what ? , *New Ideas in Psychology Elsevier. Elsevier Ltd* , 29 (2), pp. 147–155. doi: 10.1016 / j.newideapsych.2010.08.001.
- [19] Bicard, SC, Bicard, DF, IRIS, 2012, Defining Behavior , [https://iris.peabody.vanderbilt.edu/WpContent/Uploads/Pdf\\_Case\\_Studies/Ics\\_Defbeh.Pdf](https://iris.peabody.vanderbilt.edu/WpContent/Uploads/Pdf_Case_Studies/Ics_Defbeh.Pdf) . doi: 10.1016 / S0022-3913 (12) 00047-9.
- [20] Sumitra, T., 2003, Relationship Between Communication Behavior and Community Forestry Peasants' Perspeption (HKm with its Participation in HKm Development). Thesis, Post Graduate, Bogor Agricultural Institute, Bogor.
- [21] Habibullah , S., Ashraf J., 2013, Perceptions and Practices for Control of dengue Fever in Karachi - A School Based Survey, *Pak J Med Res* Vol. 52, No. 4.
- [22] Respati, T., Raksanegara, A., Djuhaeni, H., Sofyan, A., Agustian, D., Faridah, L., Sukandar , H., 2017, Various Factors Affecting the incidence of dengue fever in the city of Bandung, *Journal Aspirator* , pp 91-96.
- [23] Fauzy, S., Zaenal S., Nurjanah, 2014, Public Perception of DHF Risk and How to Prevent it in Sendangmulyo Sub-District Tembalang District, Semarang City in 2014, Thesis , Faculty of Health, Dian Nuswantoro University, Semarang.
- [24] Notoatmodjo , S., 2014. *Science of Health Behavior* . Jakarta: Rineka Cipta, p. 135- 167 .
- [25] Sari, AM, 2010, Relationship between Formal Education of Mother and Prevention of Dengue Hemorrhagic Fever in Families, Thesis , Faculty of Medicine , Sebelas Maret University, Surakarta.
- [26] Suharti 2010, relations with Behaviors Knowledge and Motivation Head of Family in Mosquito Nest Eradication of Dengue Hemorrhagic Fever , Thesis , University of March, Surakarta.
- [27] Ferguson MJ, Bargh JA., 2004, How Social Perception Can Automatically Influence Behavior , *TRENDS in Cognitive Sciences* Vol.8 No.1.
- [28] Wuryaningsih, T., 2008, Relationship Between Knowledge and Perception with Community Behavior in the Implementation of Dengue Hemorrhagic fever (PSN) in Kota Kediri, Thesis, Sebelas Maret University, Surakarta.
- [29] Qomaruddin, MB, Attamimy, HB, 2017, Application Health Belief Model Behavior Prevention of Dengue Hemorrhagic Fever , *Journal of Health Promotion* , Vol.3, No.2, things 245-255.
- [30] Rasyid, MN, 2018, Relationship of Obstacles Perception to Eradication Behavior of Mosquito Nest in the Context of Prevention of Dengue Fever with a Study in Community Work Area of Pemurus In Banjarmasin Health Center, Thesis , Faculty of Medicine, Lambung Mangkurat University.
- [31] Iqomah, Syamsulhuda BM., Big TH., 2017, Factors Associated with Prevention of Dengue Hemorrhagic Fever (DHF) in Housewives in Kramas , Semarang City, *Public Health Journal (e-journal)*, Volume 5, p. 510-518.