

## Original Articles

### The Effect of Health Education on Increasing Behavior for The Prevention of Dengue Hemorrhagic Fever in The Community

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#### Abstract

**Background:** One form of prevention of dengue haemorrhagic fever is through increasing public knowledge and understanding of the incidence of dengue haemorrhagic fever.

**Objective:** This study was carried out with the aim of knowing the effect of health education on increasing behaviour for the prevention of dengue hemorrhagic fever in community.

**Methods:** This study used a research design in the form of a pre experimental design with one group pre-post test design approach. This research was conducted on September 5, 2021 at RT 01 Kali Pecabean Village, Candi Sub-District, East Java Province, Indonesia. The population of this research is all families who live in RT 01 Kali Pecabean Village. The number of research samples was 26 families that were determined by using a sampling technique in the form of purposive sampling. Families who became respondents in this study were represented by one of the family members who participated in social gathering activities. The inclusion criteria used were families who participated in health education activities conducted at regular social gatherings. The instrument used is The Dengue Haemorrhagic Fever Prevention Questionnaire (DHFPQ). The result of reliability test was .550 and the validity was .84. Analysis of the data used is the Wilcoxon Signed Rank Test with  $p$ -value  $< .05$ .

**Result:** The results showed that there was an effect of health education on increasing behaviour for the prevention of Dengue Haemorrhagic Fever in the community ( $p$ -value .0000).

**Conclusion:** With the results of this study, it is hoped that health workers are expected to increase public understanding through the provision of health education as a preventive measure against the incidence of Dengue Haemorrhagic Fever. In addition, health workers are also expected to provide assistance to the community.

## **INTRODUCTION**

Dengue hemorrhagic fever is a disease that appears in the rainy season (Diana & Riesmiyatiningdyah, 2020). This disease is usually caused by dengue virus infection which is transmitted into the human body through the intermediary of *Aedes aegypti* and *Aedes albopictus* mosquitoes (Candra, 2010). At the beginning of 2019, there were 13,683 cases of dengue hemorrhagic fever reported with 133 deaths in Indonesia. Based on this case, East Java Province was ranked first out of ten provinces that had the highest incidence rate in Indonesia, with 2,567 cases with 47 people dead (Damanik, 2019).

Symptoms that arise in patients with Dengue Hemorrhagic Fever vary depending on the serotype of the infecting virus. The most common symptom is fever which has a horseshoe-like pattern to death (Sukohar, 2014). To overcome this situation, the Indonesian government through the Ministry of Health has created the PSN 3M Plus program as an effort to prevent Dengue Hemorrhagic Fever (Ministry of Health, 2016); Rohmawaty, 2019). This program has been socialized to the public, but the incidence of Dengue Hemorrhagic Fever is still quite high. Therefore, the researchers wanted to conduct a study to determine the effect of health education on increasing the knowledge of prevention behavior of dengue hemorrhagic fever in the community. This needs to be done so that more effective approach methods can be obtained in the prevention of Dengue Hemorrhagic Fever in the community.

## **METHODS**

### ***Study Design***

This study used a pre-experimental design with one group pre-post test design approach.

### ***Settings***

This research was conducted on September 5, 2021, at RT 01 Kali Pecabean Village, Candi Sub-District, Sidoarjo District, East Java Province, Indonesia.

### ***Research Subject***

The population of this study is all families who live in RT 01 Kali Pecabean Village, Candi Sub-District, Sidoarjo District, East Java Province. The sampling technique used is purposive sampling. Where the criteria used in determining the sample are families who participate in regular social gathering activities and follow health education until the activity is completed. The sample size in this study was 26 families according to the criteria set by the researcher. Families who became respondents in this study were represented by one of the family members who participated in social gathering activities.

### ***Instruments***

The research instrument used was The Dengue Hemorrhagic Fever Prevention Questionnaire (DHFPQ) developed by the researcher. This questionnaire consists of 7 items containing closed questions related to behavior in the prevention of dengue hemorrhagic fever and the first treatment

when dealing with cases of dengue hemorrhagic fever in the family environment. The questionnaire used is in the form of multiple-choice. The method of assessing was if the answer is wrong the value is 0, while if the answer is correct the value is 1. After that, the accumulated value is categorized into 3, namely good prevention behavior with correct values of 6-7, sufficient prevention behavior with a correct value of 4-5, and less preventive behavior with a correct value of  $\leq 3$ . The result of the validity test of the questionnaire using I-CVI was .84 and the reliability test of the questionnaire was .550.

### ***Data Collection***

Data collection was carried out 2 times, namely before health education (Pre-Test) and after health education (Post Test). Post-test data was retrieved after 1 hour of health education. The health education was implemented by direct counseling, distributing leaflets, and slide shows presentation. Health education was implemented only once. First, the respondent was asked the consent to join the research then the questionnaires were distributed. The research was implemented by strictly following the Health Protocol of COVID-19 prevention. The researchers were wearing masks, kept a distance, and used latex gloves in all the data collection processes.

### ***Data Analysis***

The data collected were analyzed using the Wilcoxon Signed Rank Test with a p-value  $< .05$ .

### ***Ethical Consideration***

This research has gone through a series of health research ethics tests at the Health Polytechnic of Kerta Cendekia and it has been stated that this research can be carried out with research ethics test number 16/KEPK.PKC/VIII/2021.

## **RESULTS**

### ***Characteristics of Respondents***

Table 1. Distribution Frequency of Respondents Based on Age and Educational Level in the RT 01 Kali Pecabean Village, Candi Sub-District, Sidoarjo District, East Java Province, Indonesia on September 5, 2021.

<b>Characteristics of Respondents</b>	<b>Frequency (f)</b>	<b>Percentage (%)</b>
<b>Age</b>		
20-30 years	6	23.08
31-40 years	13	50.00
41-50 years	5	19.23
> 50 years	2	7.69
<b>Total</b>	<b>26</b>	<b>100.00</b>
<b>Educational Level</b>		
Elementary school	2	7.69
Junior high school	2	7.69
Senior high school	16	61.54
College/ university	6	23.08
<b>Total</b>	<b>26</b>	<b>100.00</b>

Based on the research data in table 1, it was found that half of the respondents in this study were aged 31-40 years as many as 13 respondents (50.00%). The most educated respondents in senior high school are 16 people (61.54%).

Table 2. Analysis of The Effect of Health Education on Increasing Behavior for The Prevention of Dengue Fever in The Community using Wilcoxon Test

Before Health Counseling	After Health Counseling						Total	
	Good Prevention Behavior		Sufficient Prevention Behavior		Less Prevention Behavior			
	f	%	f	%	f	%	f	%
Good Prevention Behavior	3	11.53	1	3.85	0	0.00	4	15.38
Sufficient Prevention Behavior	17	65.39	3	11.53	0	0.00	20	76.92
Less Prevention Behavior	1	3.85	1	3.85	0	0.00	2	7.70
Total	21	80.77	5	19.23	0	0.00	26	100.00

Asymp. Sig. (2-tailed) = .000

Based on table 2, Most of the respondents who had sufficient prevention behavior of dengue hemorrhagic fever before health education were 17 respondents (65.39%) who changed to good prevention behavior after the intervention. The result of this study also found that there is an effect from the implementation of health education on the behavior of prevention of Dengue Hemorrhagic Fever (p-value = .000). The results of the study showed that preventive measures against Dengue Hemorrhagic Fever increased after this program was implemented. The preventive action intended in this case is the implementation of the 3M Plus program and basic first aid for families experiencing Dengue Hemorrhagic Fever.

## DISCUSSION

Based on the results of the study, it was found that there was a change in the level of knowledge related to preventive behavior against dengue hemorrhagic fever. Prevention behavior towards dengue hemorrhagic fever is influenced by several things, one of which is the provision of health education that aims to increase dengue hemorrhagic fever prevention. People who get health education will experience improvement of knowledge related to prevention behavior toward dengue hemorrhagic fever. Moreover, the information is more applicable in life, the person will be more interested in applying it in their daily lives (Green & Kreuter, 2005). Changes in a person's health behavior begin with knowledge of something, then followed by attitudes and actions. Based on the results of research conducted by Diana & Riesmiyatiningdyah (2020), it was found that there is a relationship between one's knowledge and behavior towards eradicating the *Aedes aegypti* mosquito nest. The same thing was also expressed by Suoth et al., (2019) who said that knowledge and attitudes are related to a

person's actions to prevent dengue hemorrhagic fever. The implementation of health education activities can influence a person to make changes to their healthy behavior (Febriani et al., 2018).

### **Limitation**

This study only assesses changes in knowledge of a person's behavior in preventing dengue hemorrhagic fever. Further research is needed to assess the behavior of respondents in implementing dengue hemorrhagic fever prevention directly in their lives.

### **Conclusion**

This study has shown the effect of implementing health education on knowledge about the prevention of dengue hemorrhagic fever. With the results of this study, it is hoped that health workers will provide information to the public regarding the prevention of dengue hemorrhagic fever so that people can take early prevention in their environment. In addition, health workers are expected to assist the community in the behavior change process.

### **AUTHOR CONTRIBUTION**

Kusuma Wijaya Ridi Putra : Conceptualization, methodology, and writing-review and editing  
Riesmiyatiningdyah : writing-original draft and supervision  
Meli Diana : Visualization, and project administration  
Khoiri Ahmad Fauzi Imron : Software, and validation  
Junaidah Anugraheni : formal analysis, and investigation  
Winda Puspa Sari : resources, and data duration  
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### **CONFLICT OF INTEREST**

The authors have consented and no conflicting interests.

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