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Health Education in Increasing Prevention Behavior of Dengue Hemorrhagic Fever in Families at Gubeng Village, Surabaya, Indonesia

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Abstract

Dengue Hemorrhagic Fever (DHF) is the fastest spread of mosquito-borne viral disease in the world–an annual health problem in Indonesia. Efforts to prevent and eradicate DHF are focused on efforts to control infectious vectors through the Mosquito Nest Eradication movement known as 3M Plus, but community participation in preventing DHF is still low due to a lack of understanding in its importance, so that the health education is needed to improve understanding and awareness of DHF. This study aims to analyze the effect of health education on the increasing prevention behavior of DHF. This research is a type of comparative analytic research using non-equivalent control group with a quasi-experimental design. The sample of this study–72 families–are the people who lived in RT 03 RW 03 Gubeng, Surabaya, which was taken using a cluster sampling technique. Data were analyzed using the Wilcoxon sign rank test and Wilcoxon Mann-Whitney test with a significance level of 0.05. The results showed that there was a significant increase in family behavior in the prevention of DHF between before and after health education was carried out in the treatment group. Also, there were significant differences in family behavior in the prevention of DHF between the treatment and control groups after health education. Considering that health education has a significant influence in improving family behavior in the prevention of dengue, it is advisable to health workers in the Puskesmas to conduct health education about DHF and its prevention regularly and continuously to reduce the incidence of DHF.

Keywords: *Health education, behavior, prevention, Dengue Hemorrhagic Fever.*

Introduction

Dengue Hemorrhagic Fever (DHF) is the fastest spread of mosquito-borne viral disease in the world. In the past 50 years, the incidence of dengue has increased 30-fold with extensive geographical expansion[1]. Dengue fever is also still a health problem in Indonesia every year, especially during the rainy season. Data taken from the Directorate of Vector and Zoonoses Infectious Diseases Control of the Ministry of Health of Indonesia said that during January 2016[2] there were 3,298 cases of dengue fever with 50 deaths or Case Fatality Rate (CFR) of 1.5%. In 9 Regencies and 2 Cities from 7 Provinces which are KLB areas, there were 492 cases, 25 of which died or CFR of 5%. In Surabaya, which is an endemic area of dengue fever, we need to watch out for the possibility of a case surge. The Surabaya City Health Office found 60 cases of dengue fever in January 2016. This number increased compared to the same month in 2015 totaling 48 cases.

Vaccines to prevent and drugs to effectively eradicate dengue virus are not yet available. Therefore, prevention and eradication of dengue fever focused on efforts to control the infectious vectors through the Mosquito Nest Eradication. However, in reality, community participation in the prevention of dengue fever is still lacking. Therefore, the behavior of eradicating mosquito nests needs to be continually grown, especially in many countries that have been proven to reduce dengue fever

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cases. Outbreaks of dengue fever in Indonesia related to a variety of risk factors, including the limited public understanding of the importance of eradicating mosquito nests[2]. To increase knowledge, understanding, and awareness of the community can be pursued through health education.

Method

This research is a type of comparative analytic research that compares the prevention behavior of DHF of the community who get the health education and who was not. The research design used was a quasi-experimental non-equivalent control group. The study population is a family who lives in the area of RW 03 Gubeng Surabaya, Indonesia. The sample of this study was the family who lived in the area by using cluster sampling. The sample divided into two groups, namely the treatment group (36 families who get health education) and the control group (36 families who did not get health education). Data collected by filling out a questionnaire and analyzed using the Wilcoxon sign rank test and the Wilcoxon Mann-Whitney test with a significance level of 0.05.

Results

The results of this study include family demographic data as well as specific data on the prevention behavior of DHF; before and after health education. Demographic data shows that all (100%) of respondents are women. One-third (33.33%) of the treatment group and half (52.78%) of the control group were middle-aged. Nearly half (41.66%) of the respondents in the treatment group and the majority (61.11%) in the control group had a high school education, and a small proportion (16.67%) had college. Most (55.56%) of the respondents in the treatment group and 52.78% of the respondents in the control group worked as private employees, entrepreneurs, and civil servants. Majority of the treatment group (80.56%) and control group (83.33%) did not have a history of dengue fever–the complete data presented in Table 1.

Table 1. Distribution of family demographic characteristics

Demographic Data	Treatment Group F (%)	Control Group F (%)
Gender:		
Male	0 (0)	0 (0)
Female	36 (100)	36 (100)
Age:		
Young (21-40 y.o)	15 (41.67)	10 (27.78)
Middle-aged (41-59)	12 (33.33)	19 (52.78)
Elderly (≥ 60 y.o)	9 (25.00)	7 (19.44)
Education:		
Elementary School	10 (27.78)	5 (13.89)
Junior High School	10 (27.78)	3 (8.33)
Senior High School	15 (41.66)	22 (61.1)
College	1 (2.78)	6 (16.67)
Occupation:		
Not working	16 (44.44)	16 (44.44)
Civil Servant	0 (0)	4 (11.11)
Private employe	7 (19.44)	5 (13.89)
Entrepreneur	13 (36.12)	11 (30.56)
History of DHF:		
There is	7 (19.44)	6 (16.67)
None	29 (80.56)	30 (83.33)

The results of this study indicate that the behavior of DHF prevention when prior to health education in the treatment group was obtained almost entirely (80.56%) in the sufficient category and only a small proportion (19.44%) behaved well, whereas in the control group obtained most (63.89%) behaved adequately and almost half (36.11%) behaved well (Table 2). Based on Table 2, it can be concluded that the behavior of DHF prevention, before health education, is better in the control group than the treatment group.

Table 2. Distribution of family behavior of DHF prevention before health education

Behavior of DHF Prevention	Treatment Group F (%)	Control Group F (%)
Good	7 (19.44)	13 (36.11)
Enough	29 (80.56)	23 (63.89)
Total	**36 (100)**	**36 (100)**

Table 3 indicates that the behavior of DHF prevention after health education in the treatment group found most (58.33%) in the sufficient category and almost half (41.67%) in the good category. The same condition was also found in the control group, where most (63.89%) families behaved adequately, and almost half (36.11%) behaved well in the prevention of DHF.

Table 3. Distribution of family behavior of DHF prevention after health education

Behavior of DHF Prevention	Treatment Group F (%)	Control Group F (%)
Good	15 (41.67)	13 (36.11)
Enough	21 (58.33)	23 (63.89)
Total	36 (100)	36 (100)

After being given health education to the treatment group, their behavior in preventing DHF showed improvement (Table 2 and Table 3), where before being given health education, it was seen that families who behaved well at 19.44% then after being given health education the number increased to 41.67%.

Descriptive statistics on the score of DHF prevention behavior in the treatment group also showed an increase after being given health education, both in the mean value and median value, as listed in Table 4.

Table 4. Differences in DHF prevention behavior between before and after health education in the treatment group

Behavior of DHF Prevention	Descriptive Statistics	
	Before HE	After HE
Mean	70.03	74.28
Median	69.50	73.50
St. deviation	7.15	5.81

p = 0,000

Based on the results of hypothesis testing using the Wilcoxon signed ranks test, it obtained a p-value of 0.000, which means that DHF prevention behavior in the treatment group after getting health education was higher or better than before getting health education.

Descriptive statistics about the difference in scores of DHF prevention behavior between before and after health education showed that the treatment group had a higher difference than the control group, as listed in Table 5.

Table 5. Differences in DHF prevention behavior between treatment and control groups after health education conducted

Behavior of DHF Prevention	Descriptive statistics	
	Treatment Group	Control Group
Mean of the difference in score	4.31	0.33
Median of the difference in score	4.00	0.00
Std deviation of the difference in score	4.88	1.24

p = 0.000

The results of hypothesis testing using the Wilcoxon-Mann Whitney test showed that the behavior of DHF prevention after health education in the treatment group was higher or better than the control group, with a p-value of 0.000.

Discussion

Before health education was carried out in the treatment group, almost all (80.56%) of DHF prevention behavior in families were in the sufficient category and only a small percentage (19.44%) behaved well, whereas in the control group, most of them (63.89%) behave adequately and almost half (36.11%) behave well. DHF prevention behavior in the community influenced by knowledge from various media. The level of education strongly influences the ability of the community to understand information. In the control group, high school and tertiary education levels are more than the treatment group, so the ability to receive information is easier so that it produces better behavior than people with low levels of education. This research is in line with the results of a study that junior high school education has a preventive behavior of low dengue hemorrhagic fever before health education[3] and it in accordance with a theory which states that education influences the learning process, the higher one's education the easier it is for the person to receive information[4]. The more information about health that comes in, the more knowledge gained about health. Communities with low education need empowerment through health education to increase their knowledge. With his awareness and knowledge, the ability of the community to behave well in the prevention of dengue arises.

Prevention of DHF behavior before health counseling can also be attributed to family experience in treating DHF patients, which in the treatment and control groups is almost the same, both have experience

having treated family members who suffer from dengue. Thus people who have experienced dengue hemorrhagic fever will participate more in preventing DHF by doing 3M Plus. Notoatmodjo said that behavior is the result of experience and the process of interaction with the environment, which manifests in the form of knowledge, attitudes, and practices so that a balanced state between the driving force and the holding strength achieved[5]. This statement is supported by a study which states that experience as a source of knowledge is a way to obtain the truth of knowledge by repeating the knowledge gained in solving problems in the past[4]. So that experience is what gives us lessons about how to avoid dengue.

After health education for the treatment group, most of them (58.33%) behaved adequately, and almost half (41.67%) were in a good category. The same condition was also found in the control group, where most families behaved adequately, and almost half behaved well in the prevention of DHF. The results of this study indicate that health education about the prevention of DHF has a positive effect on improving community behavior in preventing DHF. Following the opinion of Azwar[6] quoted by Maulana[7] in the general conception of health, health education defined as health education activities carried out by disseminating messages and instilling confidence. Thus, the community not only is aware, knows, and understands, but also wants and can make health-related recommendations. Fitriani[8] added that health education is a dynamic process of behavior change, not a process of transferring material or messages from someone to another person and not a set of procedures.

In this study health education changed family behavior to better prevent dengue hemorrhagic fever by doing 3M Plus, where it is following Mubarak[9] statement that counseling for health education, in general, is to change unhealthy behavior, to be healthy. Families after receiving health education change unhealthy behaviors into healthy behaviors because they already have the awareness that in the preventive behavior of dengue hemorrhagic fever through 3M Plus is beneficial for themselves, their families and surrounding communities. Surya[10], as cited in Maulana[7], that counseling is a relief effort given to counseling (students) so that they gain self-concept and self-confidence, to be utilized by him in improving his behavior in the future. With the concept of self-confidence, the family can improve its behavior in the prevention of dengue hemorrhagic fever. This statement reinforced by WHO[11], as cited in Mubarak[9], that the goal of health education is to change the behavior of people or society from unhealthy behavior to healthy behavior.

The results of this study indicate that there is a significant increase in DHF prevention behavior in the treatment group between before and after health education. In other words, health education has proven effective in improving family knowledge about prevention of dengue. According to Notoatmodjo[5], if there are an innovation or development programs in the community, then what often happens is that some people are swift to accept the innovation or change that is changing their behavior, and some people are prolonged to accept the innovation or change because each person has a willingness to change or readiness to change that is different. Every person in a society has a different willingness to change, even though the conditions are the same. Notoatmodjo[5] also states that health education can influence and or invite others, both individuals, groups, and communities to carry out healthy behavior. Operationally is an activity to provide knowledge, attitudes, and practices of the community in maintaining and improving their health.

The basic principle of health education is the learning process. In this process, there is a reciprocal influence of various factors, including the subject of learning, teaching, learning method and techniques, learning aids, and the material or material learned. In this study health education was carried out in groups with a total target of 36 participants housed in the Post RT room, the material was delivered using the lecture and question and answer method with the media of powerpoint slides and leaflets equipped with images relevant to the material. The participants seemed enthusiastic and focused their attention on the material discussed. Classical or group counseling also enables interaction and sharing of information and experiences between participants, thus increasing their broader horizons. This condition is following Notoatmodjo[5] states that for large groups where more than 15 counseling participants, good method include lectures. Factors that influence an educational process in addition to input are method, materials or messages, educators, or officers who do and assistive devices or educational aids. In order to achieve an optimal result, these factors must work in harmony.

DHF prevention behavior after health education in the treatment group is higher or better than the control group. According to Azwar[6], changes in one's behavior influenced by knowledge, experience, and certain

environmental situations. Therefore, families can change to behave better after getting a lot of information and knowledge while attending counseling. In conducting health counseling, the instructor must be able to convince information about the family. After hearing and seeing the educational slide shows and pictures on the leaflets, awareness of the family will arise so that their behavior will change for the better. Good behavior that occurs in the family is possible to arise because the family has gained good knowledge about dengue fever so that it will affect behavior changes from before it is not good to be good. After the family gets good knowledge about dengue fever, they can see things related to dengue fever prevention so that their behavior changes to pay more attention to their health.

Conclusions

There is a significant increase in the behavior of dengue prevention between before and after health education is carried out in the families of the treatment group.After conducting health education, behavioral prevention of DHF in the treatment group was higher or significantly better than the control group.Given that health education has a significant influence in improving family behavior in the prevention of dengue, it is advisable to health workers in the health center to conduct health education about DHF and its prevention regularly and continuously in order to reduce the incidence of DHF.

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