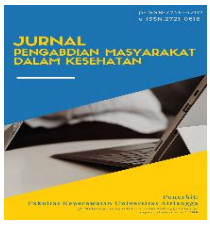

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EDUCATION ON DENGUE FEVER CONTROL AND ENVIRONMENTAL HEALTH HYGIENE

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ABSTRACT

Introduction: Dengue is a disease of global public health concern because mosquito-borne viruses can spread rapidly, especially in tropical and sub-tropical regions such as Indonesia. The purpose of community service activities is to increase public knowledge about dengue control and recognize environmental health hygiene behavior.

Methods: The learning method used is a medical examination and health education. The target participants are 100, however, the participants who fully participated in the activity were around 60.

Results: After carrying out educational activities, the results of increasing participants' knowledge about dengue control and environmental health hygiene were found. The evaluation has only been carried out in the cognitive domain, while the psychomotor realm has not been carried out because this activity is only carried out once, it is necessary to have continuous activities so that there is an increase in cognitive, affective and psychomotor abilities regarding health problems in the community.

Conclusion: Participants' knowledge related to dengue fever control and environmental health hygiene was found to slightly increase.

KEYWORDS

community; dengue; education; environmental health hygiene; health promotion

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1. INTRODUCTION

A healthy condition of society is the expectation of every leader and the community itself. The specific definition of health and illness is still the subject of discussion by experts, but the World Health Organization (WHO) since 1948 defines health as "the state of physical, mental and social well-being" (Van der Linden &; Schermer, 2022). Public health is determined by several factors, including social, economic, knowledge or education, and opportunities. In addition, public health is also determined by environmental and ecosystem health (Tait et al., 2014). So advocacy related to strengthening environmental and ecosystem health needs to be the center of health promotion.

Dengue is a disease of global public health concern because mosquito-borne viruses can spread rapidly, especially in tropical and sub-tropical regions (Kusuma et al., 2019). Aedes aegypti mosquitoes like to perch and breed in reservoirs, puddles in used cans, old tires, bottles, coconut shells, plastic that is thrown in any place, bird drinking places, bird vases, or potted water plants. Therefore, public awareness

is needed to maintain the cleanliness of the living environment.

Kadu Village is one of the villages in Curug sub-district, Tangerang Regency, Banten, Indonesia. It is directly bordered by Binong village to the east and Kadu Jaya village to the west. The characteristics of the village area vary, there are some areas that are clusters of housing, villages, home industries, warehouses, rice fields, gardens, and vacant land overgrown by wild plants. Figures 1 and 2 depict a small part of the area of Kadu village. Based on interviews with community leaders and cadres, during the rainy season, there are several areas affected by floods, and there are some residents who contract dengue fever. Data on the distribution of cumulative dengue cases per province in Indonesia in 2020 according to the Ministry of Health of the Republic of Indonesia, shows that there are 13 provinces with the highest cases covering parts of Sumatra, all of Java, parts of Sulawesi, Bali and Nusa Tenggara. Provinces with the highest number of cases are mostly spread across provinces that are trade centers, and industrial centers, with mobility and dense populations, where Banten province is included as one of them (Ministry of Health of the Republic of Indonesia, 2021). Community leaders and cadres informed that no health education had been conducted in their area. Health education is usually only conducted at the community health center, but not all residents have access to the community health center, due to distance and transportation costs.

Starting from the phenomenon found in the community and based on the community's need for health information, the team offered solutions to problems through educational activities, especially dengue hemorrhagic fever control and recognizing clean and healthy living behaviors. Based on discussions with community leaders and cadres, some people need health information. Communities need to be involved in decision-making as community involvement is identified as an important component of public health planning. Community involvement has the potential to build trust between caregivers and communities. Public health experts agree that community engagement has a positive impact on the outcomes of health promotion outcomes provided (Pringle et al., 2022).

Health education in the form of education can increase knowledge about health which can have an impact on healthier lifestyles and behaviors (Hoffmann &; Lutz, 2019). So the purpose of this community service activity is to increase public knowledge about dengue control and recognizing clean and healthy living behaviors.

Figure 1. The Environment

Figure 2. The Recidential Area

2. MATERIAL AND METHODS

The initial survey was conducted sometime before the implementation of the activity. The survey aims to determine the characteristics of the target area, which include community demographics and some locations of flooding during rain, as well as discuss with community leaders health-related problems felt by the community and health-related information needed by the community. Community leaders

Table 1. Schedule of activities

NO	TOPIC	TIME	Minutes	PIC/ Description
	Section 1: Event Preparation & Opening			
1.	Preparation & Open Registration	08.00 – 09.00	60'	1. Checking height, and weight, write the name, age, and gender on small paper, and give informed consent 2. Checking blood pressure 3. Checking blood glucose
2.	Greetings by MC Opening Prayer	09.00 – 09.05	5'	MC : Hedena Prayer: citizen representation
3.	Foreword by TMD Lippo Village	09.05 – 09.15	10'	Welcome remarks : TMD MC : Hedena
4.	Pre-Test	09.15-09.25	10'	
	Section 2 : Material			
5.	Introduced speaker 1 & 2	09.25 – 09.30	5'	MC : Hedena Facilitator provides leaflet material
6.	Session 1 : "Dengue Control Efforts"	09.30 – 09.55	20'	Speaker Catharina
8.	Session 2: "Getting to Know Environment Health Hygiene for a Healthy Community"	09.55 – 10.15	20'	Speaker Riama Marlyn Facilitators help to demonstrate hand-washing with hand sanitizer
9.	FAQs	10.15– 10.30	15'	Speaker & MC/ Moderator (Present)
	Section 3: Closing Event			
10.	Post – Test	10.30 – 10.40	10'	Participants fill out the Post-Test questionnaire
11.	DoorPrize	10.40 – 10.50	10'	Door prize winners
12.	Concluding Words & Prayers	10.50 – 11.00	10'	Closing; Catharina Prayers: citizen representative
13.	Documentation	11.00-11.05	5'	Sie documentation

Table 2. Frequency Distribution of Participant Characteristics (N=60)

Characteristics	Frequency (f)	Percentage (%)
Gender		
Man	12	20
Woman	48	80
IMT		
<18,5 (underweight)	5	8,33
18,5-24,9 (normal)	16	26,66
25-29,9 (overweight)	30	50
>30 (obesity)	9	15
Blood pressure		
<120/80 (normal)	14	23,33
120-139 / 80-89 (Pre Hypertensive)	12	20
140-159 / 90-99 (HT grade 1)	14	23,33
>160 / >100 (HT grade 2)	20	33,33
Blood sugar		
<200 mg/dL	54	90
>200 mg/dL	6	10
Uric acid		
Normal	49	81,66
Abnormal	11	18,33

provide information that many people have contracted dengue fever and there has never been health education conducted in their area. The activity is a continuation of the health education activity "Recognizing and Preventing Dengue Hemorrhagic Fever during a Pandemic" which was previously carried out online.

Because the community has never received health education, the method used in community service activities is to use lecture and demonstration

Figure 3. Health check-up activities

Figure 4. Redemonstration of 6 steps of hand washing

Table 3. Evaluation of Health Education

Average session 1 pretest score	Average session 1 Posttest score	Average session 2 pretest score	Average session 2 posttest score
46,22	81,76	63,70	78,31

methods, accompanied by simple health checks. The method of carrying out activities is carried out by health checks which include measuring height, weight, blood pressure, checking blood sugar and uric acid. Medical examinations which are invasive procedures are carried out by a team of nursing lecturers, while students help carry out health checks without invasive procedures. After the medical examination, participants did several pretest questions that aimed to identify participants' knowledge before getting information on health education activities. The first material on "Efforts to Control Dengue Fever with the Mosquito Nests Eradication, 3M Plus Program " was delivered by the speaker, a lecturer in Community Nursing. In Indonesia 3M Plus means mosquito nest eradication by draining and brushing, closing water reservoirs, utilizing used goods PLUS preventing mosquito bites and breeding. The second material "Knowing Environmental Health Hygiene for a Healthy Society" was also delivered by a Nursing lecturer. In the second material, students helped to demonstrate 6 steps of hand washing.

In addition to collaboration between lecturers and students of the Faculty of Nursing, health examination, and education activities also occurred in collaboration between community leaders in Kadu village and the corporate social responsibility (CSR) team from the Township Management Division (TMD) of Lippo Village. The steps of this activity are carried out through several stages, namely:

Pre activity

At this stage, preparations are made, including the target participants, the method to be used, the time of the activity, speakers, media (flyers), and the schedule of events.

Activities

Activities are carried out according to plan at the pre-activity stage. The medical examination and health education will be held on Wednesday, May 31, 2023, at 08.00-11.05 am, in the yard of the house of the chairman Kadu village, Curug village, Tangerang. The schedule of activities is described in table 1.

Monitoring and evaluation

Evaluation is carried out including evaluation of structure, process, and results. Evaluation of the structure related to the preparation of media, means, and parties involved in activities. Process evaluation related to the process of running activities. Evaluation of results leads to cognitive achievement of activity participants. Evaluation of activities is carried out by

providing posttest sheets and evaluation of activities to the participants. To measure knowledge of dengue fever, the pre and post-test asked about the causes, signs and symptoms, and treatment efforts. As for measuring knowledge about Environmental Health Hygiene, the pre and post-tests asked about the definition, benefits, how to wash hands, the purpose and the right time to wash hands.

3. RESULTS

Pre-Dengue Control Education Activities and Getting to Know Healthy Living Behaviour

The team conducted 3 times visits as an initial survey. The first visit was to apply for permission and discuss with the head of the Neighbourhood and cadres about health problems that are often experienced by residents. The second visit was conducted to discuss with the head of Hamlet about health problems in Kadu village, as well as the need for health information. The third visit was conducted to survey the final location of the implementation of health examination and education activities. The team also collaborates with TMD Lippo Village, so it is necessary to conduct a coordination meeting before the implementation of the activity.

The target participants who are expected to participate in community service activities are 100 participants. The method of activities to be carried out is a health examination which includes measurements of weight, height, blood pressure, blood sugar, and uric acid. Health education is carried out using presentation and demonstration methods with media flyers given to each participant. Both speakers were lecturers from the Faculty of Nursing Universitas Pelita Harapan who were also on the committee of community service activities.

Medical Check Activities and Dengue Fever Control Education & Knowing Environmental Health Hygiene

Health workers have a role to carry out health promotion efforts by inviting the participation of individuals and communities, in order to increase health literacy and improve the degree of public health. This activity is an effort to provide solutions to partner problems, namely by medical checks and education on dengue control and getting to know environmental health hygiene.

The activity was carried out in accordance with the previously prepared plan and was attended by as many as 60 participants who seemed enthusiastic and actively participated in participating in the series of activities. Based on Table 2, the frequency distribution of participants' characteristics by gender showed that 80% (48) of participants were women and had the status of housewives. This is because activities are carried out in the morning until noon, on weekdays, so men and fathers are working. Some studies have also found that women are more active in participating in health education activities, in addition to many women who have free time because they are not bound by formal work, women also tend to have an interest in learning about health (Ishikawa et al., 2018; Kusuma et al., 2019; Sitaresmi et al., 2020).

The results of the basic medical examination showed that 50% (30) participants had a body mass index of 25-29.9 or *overweight* and 33.33% (20) Participants have the potential to suffer from grade 2 hypertension. However, further examination is needed to ascertain the condition of the health status, so we direct some of these individuals to conduct further examinations at the nearest health facilities such as clinics and Puskesmas. The rapid but unbalanced development of the environment affects the risk of non-communicable diseases, such as hypertension and diabetes mellitus (Zhang et al., 2023) . Tests of current blood sugar and uric acid showed that most had good results. Some participants who have abnormal blood sugar and uric acid values are given education to do follow-up checks at the nearest healthcare facility.

4. DISCUSSION

Questions are given as pretest and posttest evaluation materials based on the two materials that have been given. Based on table 3 which contains the results of pretest and posttest analysis of each material shows that there is an increase in the average value. In the first material regarding dengue control efforts with the Mosquito Nests Eradication 3M Plus movement, the average value increased by 33.54 points. The second material on recognizing environmental health hygiene for healthy people also increased the average value by 14.61 points.

An increase in the average value in the evaluation of activities indicates an increase in knowledge or cognitive ability. However, because this educational activity is only carried out once a meeting, the psychomotor aspect cannot be assessed. People need to understand that dengue hemmorrhagic fever is caused by the dengue virus carried through the bite of A. aegypty mosquitoes. So there is no vaccine or antiviral that can control dengue hemorrhagic fever. The community needs to have a good understanding of mosquito eradication efforts, larvae, and environmental health hygiene efforts, so that people do not contract dengue fever and recognize the signs and symptoms of dengue hemorrhagic fever so that they know when is the right time to seek help from health workers (Boonchutima et al., 2017) (Ng et al., 2023).

Research has found that health education and promotion provided to the public can increase knowledge and awareness of health (Hoffmann &; Lutz, 2019). Health education programs positively impact knowledge and behavior toward disease prevention in elementary, middle, and high school students. This increase in knowledge is one of the efforts to improve health literacy and improve the degree of public health. Health literacy is the result of individual capabilities and community needs in the health care system. Increasing health literacy in the community facilitates community decision-making and enables people to independently maintain the health status of individuals, families, and surrounding groups (Ishikawa et al., 2018). (Wang &; Fang, 2020)

5. CONCLUSION

This community service activity was carried out with the aim of increasing public knowledge about dengue control and getting to know environmental health hygiene. Cognitively, the participants showed increased knowledge about dengue and environmental health hygiene control materials. However, the psychomotor aspect cannot be studied because the activity is only carried out once.

There needs to be continuous health education efforts that can be provided to the community. In addition, with the discovery of data on body mass index (BMI) and blood pressure that shows health status at risk for health problems, it is necessary to have health education related to obesity and hypertension.

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