Analysis of Public Knowledge in Vector Control of Dengue Fever

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ABSTRACT

This study aims to determine public knowledge in vector control of dengue fever in Enam Lingkung Sub-district, Padang Pariaman Regency - Indonesia. The method used in this research is this research method using Research and Development (R & D) using the ASSURE model approach, with the sample in this research amounting to 62 respondents. The results of the research on the pretest showed that on average the respondents had sufficient knowledge about dengue fever and mosquito repellent plants (50%), knew enough about the motivation to live healthy (46.8%), and lacked skills regarding dengue vector control (58.1%).

Keywords: Public Knowledge, Vector Control, Dengue Fever, Padang Pariaman.

INTRODUCTION

During COVID-19 pandemic, dengue is one of the diseases that we are very wary of because it has the same symptoms as COVID-19, namely, fever although with a different pattern. In 2020, dengue cases were spread across 472 districts/cities in 34 provinces with deaths from dengue occurring in 219 districts/cities. At the end of 2020, there were 51 additional cases of DHF and 1 additional death due to DHF as much as 73.35% or 377 districts/cities have reached the Incident Rate (IR) of less than 49/100,000 population[1].

In 2015-2017, 95% of districts/cities in West Sumatra Province were urban districts that were endemic to DHF [2]. The morbidity rate or incidence rate of DHF in each 100,000 population of West Sumatra Province is among the three highest on the island of Sumatra from 2015-2017. Until the end of 2019, the DHF morbidity rate in West Sumatra Province increased by 9% (38.13 per 100,000 population in 2010 to 41.59 per 100,000 population in 2019). In 2020, West Sumatra Province is a province with a yellow zone of dengue cases with a fairly high mortality rate[3].

Padang Pariaman Regency is one of the regencies that tends to increase the number of dengue cases in West Sumatra Province. Data from the Padang Pariaman District Health Office in 2016 states that in 2013 the number of DHF sufferers was 96 people, in 2014 there were 100 people, in 2015 there were 172 people, and in 2016 there were 191 people. Then in 2018 it decreased to 97 cases[4], from 2019 to September there were 99 cases and in 2020 there were 38 cases of DHF in Padang Pariaman Regency[5]. The fluctuating cases that occur indicate that Padang Pariaman Regency is an endemic area of DHF. Enam Lingkung health center has DBS data with quite high fluctuations. Data of Enam Lingkung health center in 2020 stated that of the 9 existing cases, it was known that Nagari Pakandangan had 4 cases, and was followed by Nagari Parit Malintang

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with 3 cases of DHF, while the third rank was occupied by Nagari Koto Tinggi with 2 cases of DHF.

Many factors in endemic areas, including environmental conditions, climatic conditions of the house, supply of drinking water and waste disposal[6], education and community work, the distance between houses, the existence of water reservoirs, the presence of ornamental plants and yards as well as mobilization. Population[7]. Among all these factors, the climate factor is an aspect that is difficult to change. This condition causes people to be able to adapt and live in a climate and environment that is at risk of contracting the dengue virus. Furthermore, the factors of knowledge, attitudes and practices carried out by the community are factors that greatly affect DHF cases, but most can be changed[8], although not in a short time. In addition, knowledge, attitudes, and practices are interrelated, so that when one is not good even though the other is good, it has no meaning[9].

Various efforts have been made by the government to minimize the risk of DHF, one of which is vector control. Efforts or vector control programs that have generally been carried out by the government are the Mosquito Nest Eradication Program (PSN) using 3M Plus, spraying mosquito repellent (fogging), abatization by sprinkling abate powder so that mosquito larvae die, outreach to the public to cover, reverse, or remove other water reservoirs and install mosquito nets throughout the house ventilation so mosquitoes do not enter[10].

However, efforts to realize the health program in Padang Pariaman Regency have not shown satisfactory results. According to[11 12], the government's efforts to control the vectors of Aedes aegypti and Aedes albopictus mosquitoes are still limited in the health sector. The government does not yet have a special program based on the environmental conditions where the community lives, it is limited to programs that are informational or appealing so it has not been able to reduce the number of DHF sufferers nationally. According to[13 14], the failure of control efforts was caused by a lack of knowledge and trained workforce, lack of community participation, and poor waste disposal practices by residents. The emergence of the incidence of DHF is due to the mutual interaction between agents (dengue virus), susceptible hosts, and the environment that allows vectors to grow and reproduce[15]. Therefore, as an endemic area that is vulnerable to vector development, it is necessary for the people in Padang Pariaman Regency, especially Lubuk Alung Sub-district to be able to control the DHF vector.

Public awareness, especially among housewives, of the importance of healthy living behavior, will be reflected in independent efforts in carrying out mosquito nest eradication activities, without having to be encouraged by other parties. Therefore, it is very important to do research with the title analysis of the need for the development of an empowerment model with the use of mosquito repellent plants in controlling dengue fever vectors in Enam Lingkung Sub-district, Padang Pariaman Regency - Indonesia.

METHODS

This research method uses research and development (R & D) which is a process or steps to develop a new product or improve an existing product that can be accounted for[5 16]. The model in this study was developed using the ASSURE approach (Analyze Learners; State Objectives, Select Methods, Media and Materials; Utilize Media and Materials; Require Learner Participation, and Evaluate and Revise). The ASSURE model was developed by[17] in the book

Instructional Technology and Media for Learning. The choice of the ASSURE model approach in this study was due to the steps or stages of the ASSURE model involving community involvement in the implementation of the model, the design of which was designed and developed to create effective and efficient activities, logical and straightforward, so it is very suitable for achieving the objectives of this study. Secondary data collection is done by tracing and reviewing reports or documents related to the studied problems, and types of primary data with the distribution of questionnaires. Secondary data on DHF have been obtained from the Health Office and the Central Statistics Agency (BPS) Padang Pariaman Regency with analytical techniques and descriptive statistical analysis.

RESULT AND DISCUSSIONS

Research results

The research is motivated by the low awareness of the community, especially housewives regarding the living environment in Six Lingkung Sub-district, Padang Pariaman Regency which is susceptible to dengue disease or is an endemic area of dengue fever, it is necessary to develop a community empowerment model, especially housewives as Jumantik actors to be able to carry out vector control DHF by utilizing mosquito repellent plants.

At this stage, an analysis of the knowledge of DHF, motivation for healthy living, and vector control skills of housewives was carried out. This stage uses a questionnaire that has been validated by several expert lecturers in the field of evaluation. From the results of the validity of the questionnaire containing knowledge of DHF, it is known that there are 2 items out of 30 questions regarding knowledge of dengue fever and mosquito repellent plants, 3 items out of 20 statements regarding motivation to live healthily and 1 item out of 20 statements regarding vector control both physically and biologically. These invalid items were not used in the study. More details can be seen in Table 1 below.

Table 1. Reliability test results of research instruments

Variable	r Alpha	r Critical	Information
Knowledge	0.822	0.60	High reliability
Healthy living motivation	0.860	0.60	High reliability
Vector control skills	0.812	0.60	High reliability

Source: Processed results of primary data (2022).

Furthermore, the validated questionnaire was filled out by 62 housewives from 62 families (including housewives from houses occupied by several families). The results of filling out the questionnaire or pretest, a reliability test was carried out on the question items that were declared valid. A variable is said to be reliable or reliable if the answers to questions are always consistent. So the results of the instrument reliability coefficient regarding DHF knowledge are 0.82, the healthy living motivation instrument is 0.86, and the DHF vector control instrument is 0.81 with

the "Cronbach Alpha" value greater than 0.600, which means the three instruments are declared reliable or meet the requirements. For more details, see Table 2 below.

Table 2. Pretest of jumantik empowerment model development

Variable	Frequency (f)	Percentage (%)
DHF knowledge		
Not enough	14	22,6
Enough	31	50
Well	17	27,4
Healthy Living Motivation		
Not enough	23	37,1
Enough	29	46,8
Well	10	16,1
Vector Control		
Not enough	36	58,1
Enough	25	40,3
Well	6	9,6
Amount	**62**	**100**

Source: Processed results of primary data (2022).

Table 2 above is the result of the pretest of 62 housewives which shows that on average the respondents have sufficient knowledge about dengue fever and mosquito repellent plants (50%), know enough about the motivation for healthy living (46.8%), and lack skills regarding dengue vector control (58.1%). Therefore, it is necessary to empower jumantik in Nagari Pakandangan to avoid increasing the risk of developing dengue disease.

Discussions

This study aims to develop a jumantik empowerment model by utilizing mosquito repellent plants in controlling dengue fever vectors in Enam Lingkung Sub-district, Padang Pariaman Regency. The development of this jumantik empowerment model was carried out using the ASSURE model in the hope of changing the behavior of the community, especially housewives who were initially ignorant of the risk of DHF, cleanliness of the surrounding environment, and habits that could breed dengue vectors into the behavior of jumantik cadres.

A person's behavior that describes a habit will be very difficult to change if it is done without an approach. In this study, changes in the behavior of housewives were carried out with a behavioral approach through giving examples and experiences either directly or indirectly to housewives (nonaversive strategies), as well as providing information or knowledge (aversive strategies)[18]. In addition to this approach, making housewives jumantik cadres is more because women tend to have a high commitment to their families despite having many obstacles[19]. The following are the stages of developing the jumantic model using the ASSURE model. The analysis of students, or in this case a housewife. At this while, an analysis of the knowledge, habits of the community, and environmental conditions is carried out which is obtained from the results of filling out the instrument, interviews, and observations. The results of the analysis show that housewives do not know about dengue vector control both physically and biologically, and are accustomed to unhealthy living behaviors (such as lots of puddles, scattered garbage, drying/hanging/piling

clothes in the house, the bathtub is rarely drained) and the condition the physical and humid environment of the house, lack of lighting and air ventilation and the size of the house is not proportional to the number of family members living. This is to the results of research by[20] which mentions the lack of public knowledge about the home environment that supports the habitat of dengue vectors. If the community has poor knowledge about DHF, the community will also have poor DHF prevention efforts (Waruwu et al, 2014). Whereas knowledge is one of the predisposing factors that will play a role in shaping a person's behavior and this behavior will encourage someone to take an action[21].

CONCLUSIONS

Based on the results of the research and discussion, it can be concluded as follows: The results of the pretest of 62 housewives show that on average the respondents have sufficient knowledge about dengue fever and mosquito repellent plants (50%), know enough about the motivation to live healthy (46.8%) and lack of skills regarding dengue vector control (58.1%). Therefore, it is necessary to empower jumantik in Nagari Pakandangan to avoid an increased risk of developing dengue disease.

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