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JOINT MODEL INNOVATION ON THE PARTICIPATION OF JUNIOR HIGH SCHOOL STUDENTS IN DHF PREVENTION IN JAMBI CITY

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ABSTRACT

Background: There is no vaccine or cure for dengue fever, the incident always occurs every year, investigation and observation activities for infectious diseases are carried out continuously and continuously, to explain disease patterns, study the history of the disease and provide basic data for controlling and overcoming the disease. *Aedes sp* is a mosquito that can cause dengue haemorrhagic fever. Several factors influence the spread and transmission of dengue fever, poor hygiene conditions, drinking water supply and proper waste disposal. Schools are areas that have characteristics such as households having clean water reservoirs and eating and drinking activities, so that waste produced by waste that is not managed properly during the rainy season will become a medium for storing clean water, and can become a breeding ground for mosquitoes.
Method: This research is a quasi-experimental design (quasi-experiment), with a non-equivalent control group design.
Results: Modelling (videos, leaflets and counselling) in understanding dengue fever in junior high school (SMP) students is very important for junior high school students in disseminating information to the household (parents/family), the environment around the household and even their peers.
Conclusion: Modelling that has duration 30 minutes has effect of increasing student actions in dengue fever control at Jambi City.

Keywords: Modelling; Video; Leaflet; DBD

INTRODUCTION

Indonesia Dengue fever is still a health problem because there are still many areas where it is endemic. A serious viral disease transmitted by mosquitoes is endemic in many countries in Southeast and South Asia, the Pacific and Latin America; characterized by increased vascular permeability, hypovolemia and impaired blood clotting mechanisms. Mainly attacks child attacks adults (Wang et al., 2020) (Gede Nara Swara et al., 2021). In dengue endemic areas, dengue fever outbreaks generally begin with an increase in the number of cases. Data from the Jambi Provincial Health Service. In 2023 to July 2023, 218 cases of dengue fever were observed in Jambi city residents, from January to February there were 49 cases of dengue fever, two of which died. (Dinas Kesehatan Provinsi Jambi, 2023)

Epidemiology activities are observations of disease in populations that are carried out continuously and continuously, to explain disease patterns, study the history of disease and provide basic data for controlling and overcoming the disease, by knowing the distribution of the species, the type of Aedes is known. The dominant SP in an area and area of the Aedes Mosquito. SP is a mosquito that can cause dengue fever. Several factors influence the spread and transmission of dengue fever, supported by : 1) the increasing number of residents in the city. 2) community attitudes and knowledge regarding disease prevention are still lacking, poor hygiene conditions, drinking water supply and correct

waste disposal (Da et al., 2020) (Sanyaolu, 2017) (Zulfikar et al., 2023) (Periatama et al., 2022).

Schools are areas that have characteristics such as households having clean water reservoirs and eating and drinking activities, so that waste produced by waste that is not managed properly during the rainy season will become a medium for storing clean water, and can become a breeding ground for mosquitoes. (Kularatne & Dalugama, 2022) (lina shofiyanah & mahalul azam, 2016). Dengue hemorrhagic fever (DHF) is a public health problem in Indonesia which is caused by the environment, the number of sufferers tends to increase and its spread becomes wider. With climate change, the prevalence of dengue fever is increasing (Kaeng et al., 2020). Indonesia is one of the Southeast Asian countries that reports the most cases of dengue fever. Based on the data obtained, dengue fever infections in Indonesia are mostly suffered by young adults (sumampouw, 2020).

Maria Lambertina Barek Aran (2020) **states** that areas at high risk of dengue fever transmission are urban areas with the highest income (Lambertina et al., 2020). How does modeling improve student actions in controlling dengue fever. This research aims to find out previous actions, modeling innovations in preventing dengue fever in school children in Jambi City.

Socialization and promotion are an invitation from facilitators to work together with the educational community in efforts to eradicate dengue fever through environmental cleanliness efforts and the outcome is ABJ and the incidence of dengue fever in junior high schools (SMP) education has decreased.

METHODS

This type of research is a quasi-experimental design (quasi-experiment), with a non-equivalent control group design. This research used a group that was given counselling treatment using the lecture method using videos, leaflets and lectures as well as questions and answers. The research was conducted from July – November 2023 to July-November 2024 and the research location was a state junior high school in the city of Jambi. The population in this study were all junior high school students in grades 7 to 9. The sample in the study were students in grades 7-9. Independent variables: using videos, leaflets and lectures as well as questions and answers and continued with field observations around the students' homes. Dependent variable: actions in controlling dengue fever in Jambi City, student actions were measured using a questionnaire. The data analysis used in this research was the Wilcoxon Chi-Square sample because the data was not normally distributed. Data analysis was carried out using a process SPSS version 20.

In carrying out the evaluation, formative evaluation is carried out, the results of observations and immediate response during/after 3M action is carried out, controlling dengue fever, while the summative evaluation is a recapitulation and conclusion from observations and analysis of health status according to the time of the objective. The population in this study is junior high schools in the city of Jambi, owned by the Jambi City government, which always carries out the 3M movement to break the chain of mosquito breeding. Aedes. Sp. The sample was 8 junior high schools in the Jambi city research location.

RESULTS AND DISCUSSION

Dengue haemorrhagic fever is a disease that is currently a public health problem in Indonesia, often occurring during the rainy season and summer. This disease can cause death. Dengue fever is a problem such as extraordinary events that can cause death. This disease is a complex problem because there is no cure.

Table 1. Respondent Characteristics

Characteristics	Total	%
Gender		
Male	170	37,44
Female	284	62,56
Total	454	100

Based on the results of Chi-square analysis, all values of knowledge, 3M behavior, socialization, use of larvae cards, presence of larvae and prevention before and after obtained a p-value of 0.00. Based on this value, because the p value is> 0.05, it can be concluded that there is a significant influence before and after modelling with increasing prevention behaviour and understanding of efforts to avoid larval brooding and preventing dengue fever.

Table 2. Respondents' knowledge of combined model innovation in junior high school students for dengue fever prevention

Variable	Implementation						*P-Value*
	Before	Total	%	After	Total	%	
Knowledge	High	93	20,5	High	450	99,1	0,002
	Low	361	79,5	Low	4	0,9	
	Total	454	100	Total	454	100	
Behaviour 3M	Good	79	17,4	Good	451	99,3	0,005
	Bad	375	82,6	Bad	3	0,7	
	Total	454	100	Total	454	100	
Socialization	Good	50	11	Good	430	94,7	0,005
	Bad	404	89	Bad	24	5,3	
	Total	454	100	Total	454	100	
Use of Larvae cards	Good	30	6,6	Good	450	99,1	0,000
	Bad	424	93,4	Bad	4	0,9	
	Total	454	100	Total	454	100	
The presence of larvae	Good	354	78	Good	374	82,4	0,000
	Bad	100	22	Bad	80	22	
	Total	454	100	Total	454	100	
Prevention	Good	374	82,4	Good	370	18,5	0,000
	Bad	80	17,6	Bad	84	81,5	
	Total	454	100	Total	454	100	

Table 3. Bivariate Selection of Variables that Influence the Effect of Modelling on DHF Prevention

Variable	P-Value
Knowledge	0,002
Behaviour 3M	0,005
Socialization	0,005
Use of larvae cards	0,000
The presence of larvae	0,000
Prevention	0,000

Based on known statistical test outputs Asymp Sig (2 Tailed) has a value 0,000 because the value of 0,000 is smaller than <0,005 it can be concluded that the hypothesis is accepted, meaning there is a difference between before and after modelling so it can be concluded that there is an influence before and after modelling by increasing student actions in controlling dengue fever in the city of Jambi.

Table 4. Effect of Bivariate Selection of Variables that Influence the Effect of modeling on dengue prevention

Variable	Mean	95% confidence interval of the difference		t	Df	P-value
		lower	upper			
Knowledge Before – Knowledge after	-,786	-,826	-,747	-38,845	453	,000
Behavior 3m Before – Behavior 3m After	-,819	-,856	-,782	-43,435	453	,000
Socialization Before – Socialization After	-,837	-,882	-,792	-36,202	453	,000
Use of larvae cards Before – use of larvae cards After	-,925	-,952	-,898	-66,792	453	,000
The presence of larvae Before – The presence of larvae After	-,044	-,063	-,025	-4,569	453	,000
Prevention Before – prevention After	-,586	-,658	-,514	-15,932	453	,000

One of the factors that influence the level of knowledge is counselling using videos, social media, socialization of counselling and questions and answers. This can be seen by the increase in respondents' knowledge from before modelling and after modelling using videos, social media, outreach and questions and answers. Modelling is a combination of several media and is an effort to provide information. The more information you get, the more extensive your knowledge will be (Hasan et al., 2017).

Modelling is a teaching aid that functions as a tool to explain or present material. The advantages of video leaflets and socialization can increase understanding, including: the material becomes more interesting because there are detailed explanations, letters and animations, both text animations and animated images or photos. Visual information messages are easy for students to understand, and further stimulate children to find out more information about the importance of controlling dengue fever with the 3M movement. (Vindo Galaresa et al., 2023).

This increase in action was caused by the learning process by the respondent and occurred due to an increase in the subject's

sensitivity or readiness for the test given to the respondent. The DBD action that is carried out occurs after the person senses a certain object. Sensing occurs through the senses of sight, hearing, smell and touch. Increased student actions in controlling dengue fever are obtained through the eyes and ears. Video media is a type of audio-visual media. Audio visual media is media that relies on the senses of hearing and sight. Audio visual media is one of the media that can be used in listening learning (Aryani & Rodiyana, 2021). This media can increase students' interest in learning because students can listen and see pictures.

The use of modeling in learning and socialization can make students more active and enthusiastic, the benefits of media in the teaching process include that teaching will attract students' attention so that it can increase students' learning motivation, the meaning of teaching materials will be clearer so that it can be more easily understood by students, and students better understand or master the goals of learning. Learning methods using media will be more varied because it is not just verbal communication through the teacher's telling of words so that students do not get bored easily. (Wahid, 2018).

This is in line with the fact that health education is very influential in increasing knowledge, which can be seen from the comparison before health education (pre-test) and after health education (post-test). Where before being given health education, students' knowledge was lacking, while after being given health education, there was an increase in students' knowledge (Yuliana et al., 2022).

The absorption capacity of humans who only rely on the sense of sight is only around 82%. In the leaflet media, only obtaining material by relying on the sense of sight alone, there are factors that influence the failure of an extension process seen from the fact that the leaflet does not attract attention, the pictures that accompany the theme, the colour of the writing is less striking, the language used is less understandable to the public. targets, and monotonous delivery of material (M Anwas et al., 2009).

Lawrence and Green's theory which describes the predisposing, reinforcing framework and enabling cause in education diagnosis and evaluation where health education is related to changes that can change behaviour and help achievement that goal desired. According to modelling researchers in controlling dengue fever, dengue fever is one of the methods used to increase a person's knowledge about dengue fever with the aim of changing or influencing human behaviour in preventing dengue fever.

Socialization activities will be carried out after the regional head's decision. The school can be visited and learning can be reopened and students can provide information about the 3M Socialization plan to students.

Larval-free rate Surveys on the presence of mosquito larvae are needed to support controlling the transmission of dengue fever. This survey can be used as an indicator to predict the risk of dengue transmission in an area. One indicator that is often used is the Larval Free Rate (ABJ). An area that has a larvae-free rate equal to or greater than 95% is categorized as a larvae-free area. Larvae-free areas have the possibility of reducing the level of dengue fever transmission and vice versa. ABJ's achievements mean that Jambi City cannot be said to be safe from the risk of dengue fever transmission, based on the density of mosquito larvae. Calculating the density of mosquito larvae. The type of water reservoir where many larvae are found is a bathtub. The bathtub is the water reservoir where many larvae are found, the bathtub is the water reservoir where the most larvae are found, which means that the type of container that is found to be the most larvae positive. Aedes sp. are the bathtub, baking pan and barrel (anggraini shinta, 2018).

Surveys on the presence of mosquito larvae can also be used to identify the type of water reservoir (TPA). Identification that can be obtained includes the size of domestic landfills infected with larvae, the level of public knowledge about dengue fever, health promotion, water cleanliness conditions and community participation in activities to eradicate mosquito nests in endemic areas. The identification results obtained are useful for breaking the mosquito life cycle Aedes aegypt, the presence of larvae in water reservoirs is caused by the attitude of respondents regarding draining water reservoirs. They will drain the landfill if they feel that the water is dirty, smelly or not clear. The main reason respondents drained the bathtub was not to remove mosquito larvae or prevent the water reservoir from becoming a breeding ground for mosquitoes.

Based on research that has been carried out, it shows that there is a relationship between the existence of water storage areas and the presence of larvae. From the results of the observations, it was found that many of the respondents' water reservoirs contained mosquito larvae in them. The water reservoir is also not equipped with abate which is useful as a killer for mosquito larvae. Draining and abatement of water reservoirs is one of the preventive measures against dengue fever because it can reduce the growth rate of the Aedes aegypti mosquito, which is the main vector for transmitting dengue fever. The Aedes aegypti mosquito has the habit of breeding in water reservoirs (TPA) which contain clean, permanent water and are protected from direct sunlight. In previous research, it was also stated that the highest container index was in cement and clay vessels. Cement and clay materials easily become mossy, the surface is rough and porous on the walls. Rough surfaces have the impression of being difficult to clean, easily grow moss and have low light reflection. Low light reflection and porous walls result in low water temperatures, so that this type of landfill material will be preferred by the Aedes aegypti mosquito as a breeding place.

There is no difference in the use of the Dengue Hemorrhagic Fever (DBD) Larva Monitoring Card for groups of public and private primary school students, public junior high school students have already done it and gained understanding through socialization carried out by health workers when they were in settlements.

Students said that larva monitoring cards were easy to implement at school and at home, larva monitoring (Jumantik) was about efforts to reduce dengue fever numbers and free numbers, larva monitoring at schools were equipped with cards.

A larva card is a form used to record the results of monitoring larvae and 3M plus activities in schools. Research results state that the use of larva cards in every school environment can facilitate examination and data collection of risk factors for dengue fever transmission and help students monitor larvae independently in the school environment. Activities Jumantik filling out larvae cards at schools is one of the community-based dengue vector surveillance activities. The larva monitoring sheet is able to help implement 3 M plus, especially monitoring mosquito larvae independently in the school environment. The results of this surveillance activity can provide an overview of the risk distribution in the form of density and habitat of dengue vector larvae in the school environment. Surveillance activities must be documented periodically and advocated for by those involved. has an interest in early detection, epidemiology and vector monitoring, so that it can determine strategies for implementing case management, vector control measures, and empowering students in schools.

Organizing larvae monitoring, the school should carry out activities related to the presence of supervisors, namely class teachers and larvae monitoring students, with the hope that this organization can make larvae

monitoring activities successful and the school area becomes larvae-free in accordance with the opinion of the Ministry of Health, showing the truth in the process of controlling dengue fever. cannot be separated from community empowerment efforts.

Where organizing among students will create an innovation program, the effectiveness of the organization that is formed should be carried out in schools by: Training a cadre of student larva monitors in each class, having supervisors who can carry out supervision in each class. It is necessary to have a larva monitoring coordinator issued to each class. so that someone is responsible. Considering that junior high schools with more than 500 students have more than 4 students, there will be increased participation and support. stake holder in the region in planning, implementing and evaluating PSN 3M Plus activities and the 1st class 1st jumatic movement in each class. The implementation of commitment raising at the school level, involving several stakeholders such as the Community Health Center, was marked by the production of several MOU for implementing the DHF program with several OPD.

Efforts made to avoid the cycle of dengue fever transmission in November, December, January and February, which are marked by the change of seasons and an increase in dengue cases, must be prevented so that dengue cases, which have decreased, suddenly increase sharply again. Therefore, in accordance with the existing program policy, 1 month before the Transmission Period Cycle, PSN month must be declared, so that the implementation of the dengue prevention and control program can be more effective, and provide encouragement to all students in implementing PSN eradication activities and the 1st class movement 1 Jumantik.

Based on Kepmenkes No. 92 / Menkes / SK / II / 1994 regarding the eradication of dengue fever, carried out by students and schools in villages / sub-districts, the DBD Working Group (DHF Working Group) was formed within the organizational framework of the LKMD (Village Community Resilience Institute) now changed to LPM (Community Empowerment Institution). DBD) at the District and City Level which is a cross-program and sectoral coordination forum within the LPM development team. The DBD Pokjanal aims to provide operational guidance for the implementation of various activities related to efforts to prevent and eradicate dengue fever in the work area in a tiered and sustainable manner starting from the central to regional levels. dengue fever. The DBD Working Group is human resources which are the main element in organizational management, being planners and active actors in each work area so that we have competent, capable and skilled resources that do not guarantee good work productivity. A total of 4 junior high schools have formed dengue control working groups in schools.

3.1 Knowledge

In the multivariate test results, all results show value p value = 0,000, so that p value < α (0,05). So, there will be at least 1 transformed variable that is not equal to zero. The results of Tests Within Subjects Contrasts show all p values < 0.05, this shows that all levels provide different results.

The results of the analysis show that there is an increase in PKK cadres' knowledge regarding dengue prevention after receiving a dengue trigger compared to before the dengue trigger. This is shown by the difference between pre and post DHF triggering. The average knowledge score of PKK cadres before the DHF trigger was lower than the average knowledge score after receiving the DHF trigger.

Student behavior, such as knowledge, attitudes and actions in efforts to eradicate mosquito nests (PSN), such as covering, burying and draining activities, has a direct relationship with the presence of larvae in schools.

The research was carried out at 4 state junior high schools with a total of 153

respondents, the research results are presented in the following table:

Tabel 5. Use of Larvae cards in controlling dengue fever in schools

Students understanding of use of larvae cards	Before modeling	Total	After modelling	Total
Understand	58	37,9	92	60,1
Not understand	95	62,1	61	39,9

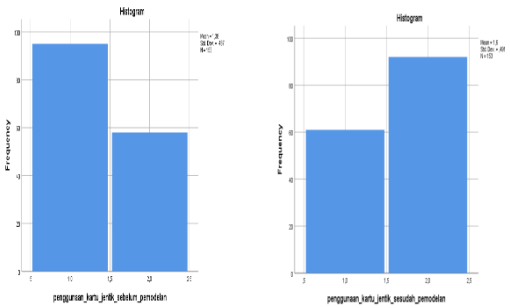

Figure 1. Use of larvae Cards

Based on the results of the T test before and after modeling, junior high school students in the city of Jambi were able to use flick cards before and after modeling with a sig value 0,00 meaning that there was an influence before and after modeling, there was a difference in the test with lower and upper values of 0,335-109 Pairet Sample Test results were obtained 0,000.

Tabel 6. Effectiveness of organizing larvae monitors on dengue larvae free rates in Jambi City Middle Schools

Monitoring Effectiveness	Before Modelling	Total	After Modelling	Total
Effective	86	56,2	93	60,8
Ineffective	67	43.8	60	39,2

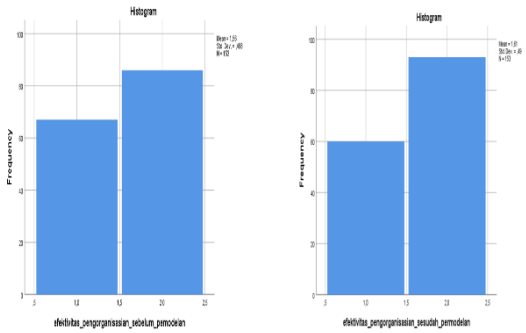

Figure 2. Effectiveness of Organizing

Based on the results of the T test before and after modeling, junior high school students in the city of Jambi were able to use flick cards before and after modeling with a sig value of 0.00, meaning that there was an influence before and after modeling, there was a difference in the test with lower and upper values of 0.84-0. 08, Pairet Sample Test obtained a value of 0.000, continue testing using one sample Kolmogorof smirnov 0,19.

Based on the results of the T test before and after modeling for junior high school students in the city of Jambi, the effectiveness of organizing before and after modeling was obtained with a sig value of 0.19, meaning that there was no influence before and after modeling, there was a difference in the test with lower and upper values of 0.84-0. 08, Pairet Sample Test obtained a value of 0.19.

Table 7. Formation of Working Groups in Junior High Schools for Larva Free Number activities

Working Group	Before Modelling	Total	After Modelling	Total
Terbentuk	1	25	4	100
Tidak Terbentuk	3	75	0	0

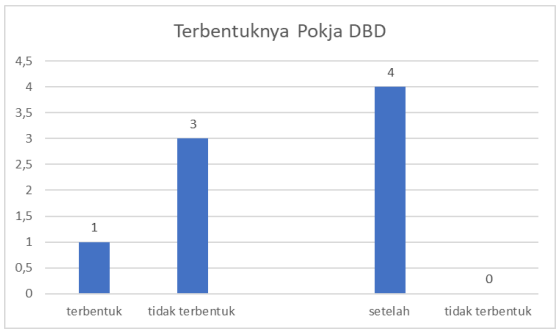

Figure 3. Establishment of the DBD Working Group

Before the new school modeling was carried out, 1 larva eradication working group was formed, but after the modeling was carried out, all schools had formed a 100% working group for controlling and eradicating mosquito nests.

3.2 Known actions before and after modelling in junior high schools in Jambi City in controlling dengue fever

Based on known statistical test outputs Asymp Sig (2 Tailed) have value 0,000 because the value 0.000 is smaller than <0.005 then It can be concluded that the hypothesis is accepted, meaning there is a difference between before and after modeling so it can be concluded that there is an influence before and after modeling by increasing student actions in

controlling dengue fever in the city of Jambi.

3.3 Known student actions before and after modeling in junior high schools in Jambi City in controlling dengue fever

Hypothesis:

Ho: there is no difference in the average of measures before the DHF modelling

Ha: there are differences in the average differences in measures before the DHF modeling.

Negative ranks or difference (negative) between modeling for before and after are mean rank of 15,00 ND sum rank of 135,00 this shows an increase in the pre and post test scores. Meanwhile, positive rank or difference (positive) between modeling actions before and after 135 students experienced an increase in their actions after modeling the pre and post scores, the mean rank or average increase was 121 while the positive rank or sum of ranks was 10119,50.

Ties is the similarity between the pre-test and post-test values, which is 0, so it can be said that there is a difference before and after modelling. Based on the statistical output test, it is known that Asymp Sig (2 Tailed) has a value 0,000 because the value of 0.000 is smaller than <0.005, it can be concluded that the hypothesis is accepted, meaning there is a difference between before and after modelling, so it can be concluded that there is an influence before and after modelling with increasing student action in controlling dengue fever in the city of Jambi.

One of the factors that influence the level of knowledge is counseling using videos, social media, socialization of counseling and questions and answers. This can be seen by the increase in respondents' knowledge from before modeling and after modeling using videos, social media, socialization and questions and answers. Modeling is a combination of several media which is an effort to provide information. The more information you get, the more extensive your knowledge will be.

Modelling is a teaching aid that functions as a tool to explain or present material. The advantages of video leaflets and socialization can increase understanding, among other things: The material becomes more interesting because there are detailed explanations, letters and animations, both text animations and animated images or photos. Visual information messages are easy for students to understand, and further stimulate children to find out more information about the importance of controlling dengue fever with the 3M movement.

This increase in action was caused by the learning process by the respondent and occurred due to an increase in the subject's sensitivity or readiness for the test given to the respondent. The DBD action that is carried out occurs after the person senses a certain object. Sensing occurs through the senses of sight, hearing, smell and touch. Increased student actions in controlling dengue fever are obtained through the eyes and ears. Video media is a type of audio-visual media. Audio visual media is media that relies on the senses of hearing and sight. Audio visual media is one of the media that can be used in listening learning. This media can increase students' interest in learning because students can listen and see pictures.

The use of modelling in learning and socialization can make students more active and enthusiastic, this is in accordance with the opinion of Sudjana and Ahmad Rivai who revealed that the benefits of media in the teaching process include that teaching will attract students' attention so that it can create student learning motivation, teaching materials The meaning will be clearer so that it can be more easily understood by students, and students will better understand or master the objectives of learning better. Learning methods using media will be more varied because it is not just verbal communication through the teacher's telling of words so that students do not get bored easily.

This is in line with the fact that health education is very influential in increasing knowledge, which can be seen from the comparison before health education (pre-test) and after health education (post-test). Where before being given health education, students' knowledge was lacking, while after being given health education, there was an increase in students' knowledge.

The absorption capacity of humans who only rely on their sense of sight is only around 82%. In left-let media, you only obtain material by relying on your sense of sight. In accordance with the theory of Notoatmodjo (2003), there are factors that influence the failure of an extension process, seen from the factors that the letters do not attract attention, the pictures that accompany the theme, the colour of the writing that is less striking, the language used is less understandable to the target audience, and the delivery of the material. monotonous.

Lawrence and Green's theory which describes the predisposing, reinforcing framework and enabling cause in education diagnosis and evaluation where health education is related to changes that can change behaviour and help achieve desired goals. According to modelling researchers in controlling dengue fever, dengue fever is one of the methods used to increase a person's knowledge about dengue fever with the aim of changing or influencing human behaviour in preventing dengue fever.

Socialization activities will be carried out after the regional head's decision. Schools can be visited and learning can be reopened and students can provide information about the 3M Socialization plan to students.

Larval-free rate Surveys on the presence of mosquito larvae are needed to support controlling the transmission of dengue fever. This survey can be used as an indicator to predict the risk of dengue transmission in an area. One indicator that is often used is the Larval Free Rate (ABJ). An area that has a larvae-free rate equal to or greater than 95% is categorized as a larvae-free area. Larvae-free areas have the possibility of reducing the level of dengue fever transmission and vice versa. ABJ's achievements mean that Jambi City cannot be said to be safe from the risk of dengue fever transmission, based on the density of mosquito larvae. Calculating the density of mosquito larvae. The type of water reservoir where many larvae are found is a bathtub. The bathtub as a water reservoir where many larvae are found is also conveyed by research from Alim, et al (2017) which states that the bathtub is the water reservoir where larvae are found most often. which says that the type of container that has the most larvae positive cases *Aedes sp.* are the bathtub, baking pan and barrel (Anggraini Shinta, 2018).

Surveys on the presence of mosquito larvae can also be used to identify the type of water reservoir (TPA). Identification that can be obtained includes the size of domestic landfills infected with larvae, the level of public knowledge about dengue fever, health promotion, water cleanliness conditions and community participation in activities to eradicate mosquito nests in endemic areas. The identification results obtained are useful for breaking the mosquito life cycle Aedes aegypt Research conducted by Suyasa, et al (2008) stated that the presence of larvae in water reservoirs was caused by the attitude of respondents regarding draining water reservoirs. They will drain the landfill if they feel that the water is dirty, smelly or not clear. The main reason respondents drained the bathtub was not to remove mosquito larvae or prevent the water reservoir from becoming a breeding ground for mosquitoes.

Based on research that has been carried out, it shows that there is a relationship between the existence of water storage areas and the presence of larvae. From the results of the observations, it was found that many of the respondents' water reservoirs contained mosquito larvae in them. The water reservoir is also not equipped with abate which is useful

as a killer for mosquito larvae. Draining and abatement of water reservoirs is one of the preventive measures against dengue fever because it can reduce the growth rate of the Aedes aegypti mosquito, which is the main vector for transmitting dengue fever. The Aedes aegypti mosquito has the habit of breeding in water reservoirs (TPA) which contain clean, permanent water and are protected from direct sunlight. In previous research, it was also stated that the highest container index was in cement and clay vessels. Cement and clay materials easily become mossy, the surface is rough and porous on the walls. Rough surfaces have the impression of being difficult to clean, easily grow moss and have low light reflection. Low light reflection and porous walls result in low water temperatures, so that this type of landfill material will be preferred by the Aedes aegypti mosquito as a breeding place.

3.4 The effectiveness of the use of larvae monitoring cards by junior high school students on the larvae-free rate in school is known

There is no difference in the use of Dengue Hemorrhagic Fever (DBD) Larva Monitoring Cards for groups of public and private primary school students, public junior high school students have already done this and gained understanding through socialization carried out by health workers at the time of settlement.

Students said that larva monitoring cards were easy to implement at school and at home, larva monitoring (Jumantik) was about efforts to reduce dengue fever numbers and free numbers, larva monitoring at schools were equipped with cards. A larva card is a form used to record the results of monitoring larvae and 3M plus activities in schools. Research results state that the use of larva cards in every school environment can facilitate examination and data collection of risk factors for dengue fever transmission and help students monitor larvae independently in the school environment. Activities Jumantik filling out larvae cards at schools is one of the community-based dengue vector surveillance activities. The larva monitoring sheet is able to help implement 3 M plus, especially monitoring mosquito larvae independently in the school environment. The results of this surveillance activity can provide an overview of the risk distribution in the form of density and habitat of dengue vector larvae in the school environment. Surveillance activities must be documented periodically and advocated for by those involved. has an interest in early detection, epidemiology and vector monitoring, so that it can determine strategies for implementing case management, vector control measures, and empowering students in schools.

3.5 The effectiveness of organizing larvae monitoring on the dengue larvae free rate in Jambi City Middle Schools is known

Organizing larvae monitoring, the school should carry out activities related to the presence of supervisors, namely class teachers and larvae monitoring students, with the hope that this organization can make larvae monitoring activities successful and the school area becomes larvae-free in accordance with the opinion of the Ministry of Health, showing the truth in the process of controlling dengue fever. cannot be separated from community empowerment efforts.

where organizing among students will create an innovation program, the effectiveness of the organization that is formed should be carried out in schools by: Training a cadre of student larva monitors in each class, having supervisors who can carry out supervision in each class. It is necessary to have a larva monitoring coordinator issued to each class, so that someone is responsible. Considering that junior high schools with more than 500 students have more than 4 students, there will be increased participation and support. stake holder in the region in planning, implementing and evaluating PSN 3M Plus activities and the 1st class 1st jumatic

movement in each class. The implementation of commitment raising at the school level, involving several stakeholders such as the Community Health Center, was marked by the production of several MOU for implementing the DHF program with several OPD.

Efforts made to avoid the cycle of dengue fever transmission in November, December, January and February, which are marked by the change of seasons and an increase in dengue cases, must be prevented so that dengue cases, which have decreased, suddenly increase sharply again. Therefore, in accordance with the existing program policy, 1 month before the Transmission Period Cycle, PSN month must be declared, so that the implementation of the dengue prevention and control program can be more effective, and provide encouragement to all students in implementing PSN eradication activities and the 1st class movement. 1 Jumantik.

3.6 Formation of Working Groups in Junior High Schools for Larva Free Number activities

Based on Kepmenkes No. 92 / Menkes / SK / II / 1994 tentang pemberantasan penyakit DBD, carried out by students and schools in the Village / Subdistrict, Pokja DBD (DBD Working Group) was formed within the organizational framework of LKMD (Village Community Resilience Institute) now changed to LPM (Community Empowerment Institution). and City Level which is a cross-program and sectoral coordination forum within the LPM development team. The DBD Pokjanal aims to provide operational guidance for the implementation of various activities related to efforts to prevent and eradicate dengue fever in the work area in a tiered and sustainable manner starting from the central to regional levels. dengue fever. The DBD Working Group is a human resource which is the main element in organizational management, being a planner and active actor in each work area so that we have competent, capable and skilled resources that do not guarantee good work productivity. A total of 4 junior high schools have formed dengue control working groups in schools.

3.7 Discussion

One of the factors that influence the level of knowledge is counseling using videos, social media, socialization of counseling and questions and answers. This can be seen by the increase in respondents' knowledge from before modeling and after modeling using videos, social media, socialization and questions and answers. Modeling is a combination of several media which is an effort to provide information. The more information you get, the more extensive your knowledge will be (Bestari & Ramanda, 2020).

Modeling is a teaching aid that functions as a tool to explain or present material. The advantages of video leaflets and socialization can increase understanding, including: the material becomes more interesting because there are detailed explanations, letters and animations, both text animations and animated images or photos (Suryani et al., 2021). Visual information messages are easy for students to understand, and further stimulate children to find out more information about the importance of controlling dengue fever with the 3M movement.

This increase in action was caused by the learning process by the respondent and occurred due to an increase in the subject's sensitivity or readiness for the test given to the respondent. The DBD action that is carried out occurs after the person senses a certain object. Sensing occurs through the senses of sight, hearing, smell and touch. Increased student actions in controlling dengue fever are obtained through the eyes and ears. Video media is a type of audio-visual media. Audio visual media is media that relies on the senses of hearing and sight. Audio visual media is one of the media that can be used in listening learning. This media can increase students' interest in learning because students can listen and see pictures (Sari Pratiwi et al., 2018).

The use of modeling in learning and socialization can make students more active and enthusiastic, this is in accordance with the opinion of Nurita (2018) who revealed that the benefits of media in the teaching process include that teaching will attract students' attention so that it can create student learning motivation, teaching materials The meaning will be clearer so that it can be more easily understood by students, and students will better understand or master the objectives of learning better (Nurrita, 2018). Learning methods using media will be more varied because it is not just verbal communication through the teacher's telling of words so that students do not get bored easily.

This is in line with research (Hermawan,2013 dkk) that health education is very influential in increasing knowledge can be seen from the comparison before health education (pretest) and after health education (posttest) (Hermawan & Ikhsan Nur Komara, 2013). Where before being given health education, students' knowledge was lacking, while after being given health education, there was an increase in students' knowledge.

In research by Nurul Aini, et al (2013), it was revealed that the absorption capacity of humans who only rely on the sense of sight is only around 82%. In leaflet media, you only obtain material by relying on your sense of sight (Aini et al., 2013). In accordance with the theory of Notoatmodjo (2003), there are factors that influence the failure of an extension process, seen from the factors that the letters do not attract attention, the pictures that accompany the theme, the color of the writing that is less striking, the language used is less understandable to the target audience, and the delivery of the material. monotonous.

Lawrence and Green's theory which describes the framework of predisposing, reinforcing and enabling causes in education diagnosis and evaluation where health education is related to changes that can change behavior and help achieve desired goals. According to modeling researchers in controlling dengue fever, dengue fever is one of the methods used to increase a person's knowledge about dengue fever with the aim of changing or influencing human behavior in preventing dengue fever.

Another result of this program is the formation of the school children's PSN jumantik organizational structure and the teacher in charge (PJ). In connection with activities during the COVID 19 period, students are still carrying out WFH and learning activities are carried out online, with online learning the implementation of research by conducting socialization cannot yet be carried out. carried out, and in the current situation we are still carrying out the licensing process for other schools so that the research can be carried out in junior high schools.

Socialization activities will be carried out after the regional head's decision. Schools can be visited and learning can be reopened and students can provide information about the 3M Socialization plan to students.

Larval-free rate Surveys on the presence of mosquito larvae are needed to support controlling the transmission of dengue fever. This survey can be used as an indicator to predict the risk of dengue transmission in an area. One indicator that is often used is the Larval Free Rate (ABJ). An area that has a larvae-free rate equal to or greater than 95% is categorized as a larvae-free area. Larvae-free areas have the possibility of reducing the level of dengue fever transmission and vice versa. ABJ's achievements mean that Jambi City cannot be said to be safe from the risk of dengue fever transmission, based on the density of mosquito larvae. Calculating the density of mosquito larvae. The type of water reservoir where many larvae are found is a bathtub. The bathtub as a water reservoir where many larvae were found was also conveyed by research from Anggraini Sinta (Anggraini Shinta, 2018), who said that the bathtub was the water reservoir where larvae were found most often. which says that the type of container that has the most larvae

positive cases *Aedes sp.* are the bathtub, baking pan and barrel.

Surveys on the presence of mosquito larvae can also be used to identify the type of water reservoir (TPA). Identification that can be obtained includes the size of domestic landfills infected with larvae, the level of public knowledge about dengue fever, health promotion, water cleanliness conditions and community participation in activities to eradicate mosquito nests in endemic areas. The identification results obtained are useful for breaking the mosquito life cycle Aedes aegypt, Research conducted by Suyasa, et al (2008) stated that the presence of larvae in water reservoirs was caused by the attitude of respondents regarding draining water reservoirs. They will drain the landfill if they feel that the water is dirty, smelly or not clear. The main reason respondents drained the bathtub was not to remove mosquito larvae or prevent the water reservoir from becoming a breeding ground for mosquitoes (Susilowati & Cahyati, 2021).

CONCLUSION

Modeling carried out at 9 junior high schools in the city of Jambi has had an influence on increasing action in knowledge, 3M movements and understanding of dengue fever control in Jambi City. Modeling with a time of 30 minutes has the effect of increasing student actions in controlling dengue fever in the city of Jambi.

CONFLICT OF INTEREST

The author declares that there is no conflict of interest in this research.

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