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RESEARCH ARTICLE

The Effect of Training and Digital Flyers on Dengue Hemorrhagic Fever Control Prevention Behaviour in Students of SMAN 11 Pangkep and SMAN 1 Pangkep

Hiejrah Rahmat Anas[1*], Ridwan Amiruddin[2], Andi Zulkifli[3], Wahiduddin[4], Sukri Palutturi[5]

[1,2,3,4] Department of Epidemiology, Faculty of Public Health, Hasanuddin University 90245, Makassar, Indonesia
[5] Department of Health Administration and Policy, Faculty of Public Health, Hasanuddin University 90245, Makassar, Indonesia

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ABSTRACT

The research indicates significant differences in knowledge, attitudes, and behaviors regarding dengue fever prevention and control between groups before and after they received information. For knowledge, both the main intervention group and the comparison group showed substantial changes (p=0.000 for both). In terms of attitudes, the main intervention group also saw significant changes (p=0.000), while the comparison group showed a lesser but still notable change (p=0.013). Behavior differences in dengue prevention were also observed between the groups. Specifically, knowledge-related behaviors changed before (p=0.102) and after (p=0.002) the intervention, attitudes showed shifts before (p=0.034) and after (p=0.000), and actions changed from pre-intervention (p=0.735) to post-intervention (p=0.028). In comparison to disseminating information by digital flyers at SMAN 1 Pangkep, training at SMAN 11 Pangkep had a greater impact on dengue control preventative behavior. Thus, it is envisaged that in an attempt to prevent dengue control, training will be improved and conducted on a regular basis.

***Corresponding Author:**

hiejrahrahmatanas@gmail.com

INTRODUCTION

Dengue Hemorrhagic Fever (DHF), which is usually called Dengue Haemorrhagic Fever (DHF), is one of several infectious diseases that is a health problem in the world, especially in developing countries. DHF infection has broad implications for material and moral losses in the form of hospital costs and patient treatment, loss of work productivity for sufferers, loss of tourists due to bad news about the incident area and the most fatal is loss of life. The disease is caused by a virus from the Flaviridae family which is transmitted by insects (arthropod borne virus = arbovirus)[1]. The high incidence of dengue fever can be an indicator of the high population of Ae mosquitoes. aegypti in the region. Transmission of dengue fever will continue to increase if eradication efforts are less effective and due to high contact with dengue vector mosquitoes. Apart from that, dengue fever cases are closely related to poor environmental sanitation in the area where the incident occurred. To anticipate this problem, comprehensive tactics and strategies are needed by searching for information about the bioecology of Ae. aegypti which concerns its morphological, biological characters and ability to adapt to the environment[2].

The World Health Organization (WHO) states that Dengue Hemorrhagic Fever (DHF) is spread in more than 100 countries in the world and forty percent of the world's population, around 3 billion

people live in areas at risk of contracting dengue fever and every year, up to 400 million people infected with dengue, around 100 million people get sick from the infection and 22,000 die from Dengue Hemorrhagic Fever (DHF). Southeast Asia, especially Indonesia, dengue fever incidents are reported to occur frequently (WHO, 2024). Data from WHO international shows that Asia is ranked first in IR DF every year, where Indonesia is indexed as the country with the highest prevalence of DF in Southeast Asia from 1968 to 2009. Indonesia has the largest caseload of dengue fever, with an estimated 10 million scientific cases and 3000 deaths every year. The annual prevalence is estimated at 36-44 symptomatic cases per thousand population. In Yogyakarta, many cities in Indonesia experience endemic dengue fever, which peaks seasonally between November and May.

Dengue Hemorrhagic Fever (DHF) is a disease caused by a virus that is transmitted through mosquitoes which has spread to almost all parts of the world. Dengue fever was first known in the 1950s. The dengue virus is transmitted by female mosquitoes mainly of the species Aedes aegypti and to a lesser extent, Ae. Albopictus. This mosquito is also a vector of chikungunya, yellow fever and Zika virus. Dengue fever is widespread in all regions, especially areas with tropical and warm climates. With local risk variations influenced by rainfall, temperature, relative humidity and unplanned urbanization[4]. Dengue fever is the most widespread arboviral disease worldwide and its burden continued to increase globally from 1990 to 2019. The Americas and Southeast Asia accounted for 58% of global cases. Singapore, a tropical city with a high level of urbanization, is vulnerable to dengue fever outbreaks due to various risk factors, including conducive conditions throughout the year[5].

Dengue Hemorrhagic Fever (DHF) is an infectious disease caused by a virus and spread by vectors. The virus that causes this disease is Dengue. The first case of dengue fever in Indonesia was reported in Surabaya in 1968. Since it was first discovered, this case has continued to increase every year[6]. Dengue fever was first recognized in Myanmar in the 1960s. Specifically, the first outbreak of dengue fever occurred in Yangon in 1974. In 2015, the prevalence rate of dengue fever in all regions was reported to be high, while the regions with the highest death rates from dengue fever were Yangon, Sagaing and Ayawaddy. Yangon is the largest city in Myanmar and held the highest incidence rate of dengue fever from 2009 to 2018. Dengue surveillance was introduced in 1964, and since then, the National Dengue Fever Control Committee and the National Dengue Aedes Mosquito Control Unit were established[7]. In addition, the current national dengue control strategy is adopted in line with the Asia Pacific Regional Dengue Fever Strategic Plan. The main goal of this strategy is to reduce the incidence of dengue fever. Integrated vector control is the cornerstone of efforts to prevent and control dengue fever. At the local level, commonly used strategies are community and school-based dengue prevention and control programs[8].

Dengue prevention currently still relies on vector control which requires active community involvement. Various national movements have been started since the 1980s, from larvicide, focused fogging, mosquito nets and 3M (covering, draining and recycling used goods), larva monitoring (JUMANTIK), eradicating mosquito nests (PSN), Communication for Behavioral Impact (COMBI) up to the 1 House 1 Jumantik Movement or what is known as G1R1J[9]. Despite the vector control efforts that have been promoted, dengue numbers in Indonesia continue to increase with the impact increasing over time[10]. One way to prevent dengue fever is to eradicate the main vector of dengue fever, namely the Aedes aegypti mosquito, which can be done using various methods, including mechanical, chemical and biological, on adult and pre-adult mosquitoes[11].

The increase in dengue fever cases occurs in schools. Until now, efforts to prevent dengue fever that can be carried out by schools are through School Health Business (UKS) activities, but not all schools have activated UKS activities[12]. Meanwhile, based on the Decree of the Minister of Health (Kepmenkes) No. 1457 of 2003 concerning Minimum Service Standards (SPM) in the health sector in districts/cities, every school has the obligation to provide health in the school environment through UKS, namely all efforts made to improve the health of school-age children in every pathway, type and level of education starting from Kindergarten to high school. This is because student concern is very necessary to maintain public health[13]. So that education and health training activities to improve knowledge, attitudes and skills to always behave in a healthy lifestyle, including PSN activities, are programs that must be implemented in the school environment. Study [14], states that the higher a person's knowledge, the better the prevention of disease will be.

Based on the results of a survey conducted in Pangkep Regency, there are two high school level schools located in the Pangkajene District area, namely SMAN 11 Pangkep and SMAN 1 Pangkep. SMAN 11 Pangkep and SMAN 1 Pangkep are schools whose UKS activities are not yet active enough, especially regarding the PSN program at these schools. In April 2024, to be precise, there was a case of dengue hemorrhagic fever at SMAN 11 Pangkep which affected one of the students at the school and died and until now students at the school have never received information about preventing dengue hemorrhagic fever control. So there is a need for activities that can increase knowledge for positive changes in attitudes and behavior in students, so information is provided through training. Meanwhile, at SMAN 1 Pangkep, it is also necessary to provide information about preventing control of dengue hemorrhagic fever which can increase knowledge for positive changes in attitudes and behavior in students, so information is provided via digital flyers. Therefore, researchers want to examine the effect of training and digital flyers to prevent dengue hemorrhagic fever control on the level of knowledge, attitudes and actions of students at SMAN 11 Pangkep and SMAN 1 Pangkep.

MATERIALS AND METHODS

This research is a Quasi Experimental study with a randomized Pre-test and Post-test Control Group Design which aims to compare the results of health program interventions[15]. This research involved two groups being given the same questions first and then taking action after being given the same questions. The aim is to determine the effect of training on the prevention behavior of controlling dengue hemorrhagic fever of students at SMAN 11 Pangkep and SMAN 1 Pangkep in 2024. This research was conducted in August 2024 with the population in this study being 671 class XI (eleven) students from both schools. Meanwhile, the sample size was 56 students in each group, the main intervention group at SMAN 11 Pangkep and the comparison intervention group at SMAN 1 Pangkep, so based on the research there were 2 groups, the total number of samples needed was 112 people. This research was carried out by giving a pre-test questionnaire before being given information regarding the prevention of controlling dengue fever in the form of training in the main intervention group and digital flyers in the comparison intervention group. Then a questionnaire was given in the form of a post-test on the 7th day after the intervention was carried out to see the level of changes in students' knowledge, attitudes and actions.

RESULTS

General characteristics of respondents

Table 1: Frequency distribution of general characteristics of respondents in the main intervention group and comparative intervention group at SMAN 11 Pangkep and SMAN 1 Pangkep in 2024

General Characteristics of Respondents	Primary Intervention		Comparative Intervention	
	n	%	n	%
Gender				
Man	19	33,9	8	14,3
Woman	37	66,1	48	85,7
Age				
15 Year	10	17,9	7	12,5
16 Year	44	78,6	49	87,5
17 Year	2	3,6		
Have you heard about dengue fever				
Yes	56	100	56	100
No				
Where did the information come from				
Friend			9	16,1
Health workers	22	39,3	12	21,4
Internet	26	46,4	29	51,8
School	5	8,9	3	5,4
family	3	5,5	3	5,4
Total	**56**	**100**	**56**	**100**

Source: Primary data, 2024

The gender of respondents in the main intervention group and the comparison intervention group was mostly female with the proportion in the main intervention group being 37 respondents (66.1%) and in the comparison intervention group being 48 respondents (85.7%).

The majority of the age group of respondents in this study were in the 16 year age group with a proportion between the main intervention group of 44 respondents (78.6%) and the comparison intervention group of 49 respondents (87.5%).

All respondents between the main intervention group and the comparison intervention group had heard about Dengue Hemorrhagic Fever with the proportion between the 2 groups being 56 respondents (100%).

Most of the information obtained by respondents about Dengue Hemorrhagic Fever in the main intervention and comparison intervention groups was via the internet with the proportion in the main intervention group being 26 respondents (46.4%) and in the comparison intervention group being 29 respondents (51.8%).

Differences in dengue hemorrhagic fever prevention knowledge before and after treatment in the main intervention group and the comparison intervention group

Table 2: differences in dengue hemorrhagic fever prevention knowledge before and after treatment in the main intervention group and comparative intervention group at SMAN 11 Pangkep and SMAN 1 Pangkep in 2024

Group	Variabel	Mean	SD	Δ Difference	*p-value*	
Primary intervention	Before	10,50	2,15	5,21	0,000	
	After	15,71	3,25			
Comparative Intervention	Before	9,77	2,52	4,05	0,000	
	After	13,82	2,92			

Description: Paired t-test

Source: Primary data: 2024

The mean value in the main intervention group before training on dengue hemorrhagic fever prevention was 10.50 and after treatment it increased to 15.71 with a difference value of 5.21 and a p-value of 0.000 <0.05, which means there is a difference in knowledge of dengue fever prevention. dengue before and after training on preventing dengue hemorrhagic fever.

The mean value in the comparison intervention group before providing material via digital flyers in the form of leaflets, pocket books and modules on preventing dengue fever was 9.77 and after treatment it increased to 13.82 with a difference value of 4.05 and a p-value of 0.000 < 0.05, which means there is a difference in knowledge of preventing dengue fever after providing material through digital flyers in the form of leaflets, pocket books and modules on preventing dengue fever.

Differences in attitudes to prevent dengue hemorrhagic fever before and after treatment in the main intervention group and the comparison intervention group

Table 3: Differences in attitudes to prevent dengue hemorrhagic fever before and after treatment in the main intervention group and comparative intervention group at SMAN 11 Pangkep and SMAN 1 Pangkep in 2024

Group	Variabel	Mean	SD	Δ Difference	*p-value*	
Primary intervention	Before	22,36	3,12	2,71	0,000	
	After	25,07	3,85			
Comparative Intervention	Before	21,07	3,21	1,29	0,013	
	After	22,36	3,01			

Description: Paired t-test

Source: Primary data: 2024

The mean value in the main intervention group before training on dengue hemorrhagic fever prevention was 22.36 and after treatment it increased to 25.07 with a difference value of 2.71 and a

p-value of 0.000 <0.05, which means there is a difference in knowledge of dengue fever prevention. dengue before and after training on preventing dengue hemorrhagic fever.

The mean value in the comparison intervention group before providing material via digital flyers in the form of leaflets, pocket books and modules on preventing dengue fever was 21.07 and after treatment it increased to 22.36 with a difference value of 1.29 and a p-value of 0.013 < 0.05, which means there is a difference in knowledge of preventing dengue fever after providing material through digital flyers in the form of leaflets, pocket books and modules on preventing dengue fever.

Differences in dengue hemorrhagic fever prevention measures before and after treatment in the main intervention group and the comparison intervention group

Table 4: Differences in preventive actions for dengue hemorrhagic fever before and after treatment in the main intervention group and comparative intervention group at SMAN 11 Pangkep and SMAN 1 Pangkep in 2024

Group	Variabel	Mean	SD	Δ Difference	*p-value*	
Primary intervention	Before	8,70	1,47	0,94	0,000	
	After	9,64	0,69			
Comparative Intervention	Before	8,59	1,84	0,66	0,004	
	After	9,25	1,11			

Description: Wilcoxon test

Source: Primary data: 2024

The mean value in the main intervention group before training on dengue hemorrhagic fever prevention was 8.70 and after treatment it increased to 9.64 with a difference value of 0.94 and a p-value of 0.000 <0.05, which means there is a difference in knowledge of dengue fever prevention. dengue before and after training on preventing dengue hemorrhagic fever.

The mean value in the comparison intervention group before providing material via digital flyers in the form of leaflets, pocket books and modules on preventing dengue fever was 8.59 and after treatment it increased to 9.25 with a difference value of 0.66 and a p-value of 0.004 < 0.05, which means there is a difference in knowledge of preventing dengue fever after providing material through digital flyers in the form of leaflets, pocket books and modules on preventing dengue fever.

Analysis of the average and difference in knowledge, attitudes and actions before and after treatment in the main intervention group and the comparison intervention.

Table 5: Analysis of averages and differences in knowledge before and after treatment in the main intervention group and comparison intervention group at SMAN 11 Pangkep and SMAN 1 Pangkep in 2024

Variable	Group	Min	Max	Mean ± SD	Δ Difference	*p-value*
Before	Primary Intervention	6	15	10,50 ± 2,15	0,73	0,102
	Comparative Intervention	3	16	9,77 ± 2,52		
After	Primary Intervention	10	20	15,71 ± 3,25	1,89	0,002
	Comparative Intervention	9	18	13,82 ± 2,92		

Description: Independent t-test

Source: Primary data, 2024

The average value of knowledge before the intervention in the main intervention group was 10.50 and the comparison intervention group was 9.77 with a difference value of 0.73, so a p-value of 0.102 > 0.05 was obtained, so there was no significant difference in knowledge before the intervention was carried out in the main intervention group and the comparison intervention group.

The average value of knowledge after the intervention in the main intervention group was 15.71 and the comparison intervention group was 13.82 with a difference value of 1.89, so a p-value of 0.002 <0.05 was obtained, so there was a significant difference in knowledge after intervention was carried out in the main intervention group and the comparison intervention group.

Table 6: Analysis of averages and differences in attitudes before and after treatment in the main intervention group and the comparison intervention group at SMAN 11 Pangkep and SMAN 1 Pangkep in 2024

Variable	Group	Min	Max	Mean ± SD	Δ Difference	*p-value*
Before	Primary Intervention	12	28	22,36 ± 3,12	1,29	0,034
	Comparative Intervention	15	28	21,07 ± 3,21		
After	Primary Intervention	17	33	25,07 ± 3,85	2,71	0,000
	Comparative Intervention	15	29	22,36 ± 3,01		

Description: Independent t-test

Source: Primary data, 2024

The average attitude value before the intervention in the main intervention group was 22.36 and the comparison intervention group was 21.07 with a difference value of 1.29, so a p-value of 0.034 <0.05 was obtained, so there was a difference in attitudes before the intervention. in the main intervention and comparison intervention groups.

The average attitude value after the intervention in the main intervention group was 25.07 and the comparison intervention group was 22.36 with a difference value of 2.71, so a p-value of 0.000 <0.05 was obtained, so there was a more significant difference in attitude. after the intervention was carried out in the main intervention group and the comparison intervention group.

Table 7: Analysis of averages and differences in actions before and after treatment in the main intervention group and the comparison intervention group at SMAN 11 Pangkep and SMAN 1 Pangkep in 2024

Variable	Group	Min	Max	Mean ± SD	Δ Difference	*p-value*
Before	Primary Intervention	4	10	8,70 ± 1,47	0,11	0,735
	Comparative Intervention	4	10	8,59 ± 1,84		
After	Primary Intervention	7	10	9,64 ± 0,69	0,39	0,028
	Comparative Intervention	6	10	9,25 ± 1,11		

Description: Independent t-test

Source: Primary data, 2024

The average value of the actions before the intervention in the main intervention group was 8.70 and the comparison intervention group was 8.59 with a difference value of 0.11, so a p-value of 0.735 > 0.05 was obtained, so there was no significant difference in the actions. before the intervention was carried out in the main intervention group and the comparison intervention group.

The average value of actions after the intervention in the main intervention group was 9.64 and the comparison intervention group was 9.25 with a difference value of 0.39, so a p-value of 0.028 <0.05 was obtained, so there was a significant difference in the actions after intervention was carried out in the main intervention group and the comparison intervention group.

DISCUSSION

Differences in knowledge of prevention and control of dengue hemorrhagic fever before and after treatment in the main intervention group and the comparative intervention group

Education plays an important role in increasing individual knowledge. One method to expand one's knowledge is through the educational process. This form of education can take the form of counseling, training, distributing posters, showing videos, or providing leaflets and booklets. Knowledge itself is the result of a learning process that a person obtains, either through what they hear or see[16].

The mean value in the main intervention group before training on dengue control prevention was 10.50 and after treatment it increased to 15.71 with a p-value of 0.000 < 0.05, which means there is

an influence on knowledge of dengue control prevention before and after training on prevention. controlling dengue fever. Meanwhile, the mean value in the comparison intervention group before providing information via digital flyers in the form of leaflets, pocket books and modules on preventing dengue control was 9.77 and after treatment it increased to 13.82 with a p-value of 0.000 < 0.05, which means there is The influence of knowledge on preventing dengue fever control after providing information via digital flyers about preventing dengue fever control. This research shows that health training at SMAN 11 Pangkep has more impact than providing information via digital flyers at SMAN 1 Pangkep on knowledge of preventing dengue control because health training has an interactive approach allowing respondents to remember it more easily. The involvement of respondents in the discussion and question and answer process encourages them to share their experiences, opinions and knowledge so that students are more interested than just reading material information distributed in the form of digital flyers[17].

This research is in line with research[14] which shows that the knowledge variable obtained a p-value of 0.000 (0.000 < 0.05) which means that there is an influence of dengue prevention training on the level of knowledge of students at SDN Wirogunan I. The results of the statistical test of the knowledge variable also show an increase in the average value of the level of knowledge students which was quite significant, namely from 5.49 at the pretest to 7.89 at the posttest from a maximum score of 9; This means that there was an increase in the quality of respondents' knowledge by 2.4 after the dengue prevention training.

Another research was conducted by[18] which shows that the pretest and post-test results show a significant level of p-value = 0.000 < 0.05, which means that there is a difference between respondents' knowledge about CTPS before counseling and respondents' knowledge about CTPS after counseling through the lecture method. Also in line with research[19] which shows that there is a difference in the average value of teenagers' knowledge before and after the intervention about HIV/AIDS, namely from 9.55 to 11.58 after the intervention group. The results of the paired-t test obtained a p-value = 0.001 (< 0.05), meaning that statistically it shows that there is a difference in knowledge before and after the intervention via the lecture method.

This research is in line with research[20] which shows that of the 48 respondents before being given education through leaflet media, most of them had less knowledge, 36 people (75%), 12 people had sufficient knowledge (25.0%) and there were no good people (0%). And after being given education through leaflet media, the majority had good knowledge as many as 28 people (58.3%), those with sufficient knowledge were 20 people (41.7) and those with poor knowledge were not found (0%) with an average level of knowledge before given education through leaflet media was 45.31 with a standard deviation of 15.892 and the average level of knowledge after being given education through leaflet media was 80.63 with a standard deviation of 10.499. The results of statistical tests obtained a p-value of 0.000 (0.000 < 0.05), so it can be concluded that there is an influence of providing education through leaflet media on the level of knowledge of young women about the risks of early marriage in Saga Village, Balaraja, Tangerang in 2022.

The results of this research can be interpreted that health training is very necessary to be given to students, because with this health training, it can change students' knowledge for the better. In line with the school, seeing the low level of knowledge about preventing disease control among school children, the school feels that it is very necessary to provide health training about preventing disease control. This is also in accordance with the explanation by[21] namely the importance of health education given to teenagers, in fact it must be conveyed as early as possible. This is conveyed by providing good and correct information through health education which can reduce disease problems in adolescents. Increasing the provision of information in the form of health education to adolescents regarding preventive behavior and controlling disease can reduce the risk of disease in adolescents.

Differences in attitudes on prevention and control of dengue hemorrhagic fever before and after treatment in the main intervention group and the comparative intervention group

A person's still closed reaction to a stimulus is called attitude. Attitude is not yet a real action, but is still a person's perception and readiness to react to stimuli around them. Attitude can be measured

directly and indirectly. Attitude measurement is the opinion expressed by respondents towards an object[16].

The mean value in the main intervention group before training on dengue control prevention was 22.36 and after treatment it increased to 25.07 with a p-value of 0.000 < 0.05, which means there was an influence on attitude towards preventing dengue control before and after training on prevention. controlling dengue fever. Meanwhile, the mean value in the comparison intervention group before providing information via digital flyers in the form of leaflets, pocket books and modules on preventing dengue control was 21.07 and after treatment it increased to 22.36 with a p-value of 0.013 < 0.05, which means there is The influence of the attitude towards preventing dengue fever control after providing information via digital flyers about preventing dengue fever control. This research shows that health training at SMAN 11 Pangkep has more impact than providing information via digital flyers at SMAN 1 Pangkep on knowledge of preventing dengue control because health training has an interactive approach allowing respondents to remember it more easily. The involvement of respondents in the discussion and question and answer process encourages them to share their experiences and understanding so that students are more interested than just reading material information distributed in the form of digital flyers[17].

This research is in line with research[14] the initial attitude level of the majority of respondents was in the poor category, namely 35 students (66%); then changed to a majority in the good category after being given training, namely 37 students (69.8%). This increase in the quality of positive attitudes shows that the trainer has been successful in communicating with the training participants. Remembering that attitude is a person's closed response to certain stimuli or objects that involve the relevant opinion and emotional factors. So, improving attitudes must be preceded by good knowledge and understanding of the object. Therefore, improving attitudes in this research was preceded by providing material regarding the definition, virus causes, vectors and efforts to control dengue fever using the lecture method. This is in accordance with Azwar's (2011) theory, which states that attitudes can be improved through training by paying attention to the effectiveness of the training. Based on Minister of Health Decree no. 1457 of 2003 concerning SPM in the health sector in districts/cities, every school has the obligation to organize health in the school environment through UKS[22].

Another research was conducted by[23] which shows that the attitude regarding waste management before health promotion was carried out using the lecture method was 22.17 and after health promotion was given using the lecture method, the results obtained were that the average attitude value regarding waste management was 26.55 with a sig (2-tailed) value of 0.000 , because sig (2-tailed) (0.000) < alpha (0.05) there is an influence on students' attitudes before and after being given health promotion using the lecture method.

This research is in line with research[24] which shows that there is an educational influence using leaflet media on the attitude of young women in consuming Blood Additive Tablets in the Tana Lili Puskesmas working area, North Luwu. The results of research on the frequency distribution of respondents on the attitude variable of young women in consuming Blood Addition Tablets in the work area of the Tana Lili Public Health Center, North Luwu Regency in this study found that the majority of respondents had a negative attitude towards consuming Blood Addition Tablets during the pretest with a total of 5 (7, 9%) young women, while respondents who had a positive attitude were 58 (92.1%) young women. Meanwhile, during the posttest, there was a change in attitude to a positive attitude with a total of 61 (96.8%) young women, while the remaining respondents who had a negative attitude were 2 (3.2%) young women. Based on the use of media, in the research/education process carried out, the health promotion media used was leaflet media, where the results of the research analysis also saw that leaflet media tended to have an impact on changes in respondents' attitudes because the material presented in leaflets was easy to understand because the language used tended to be short and it is clear and the leaflet is easy to carry anywhere so that it always reminds respondents of the material in the leaflet.

Basic education is a process of changing attitudes that is implemented as early as possible through teaching and training. Attitude is a reaction or response that is still hidden from a person to a stimulus or object. So that students who are given health education about preventing disease control can

experience changes in attitude due to stimuli that influence their previous attitudes. The stimulus that has been given is health education which is packaged with various media, starting from powerpoint, video, teaching aids to leaflets so that the information is easily received by school children[21].

Differences in preventive actions to control dengue hemorrhagic fever before and after treatment in the main intervention group and the comparative intervention group

Practice is the real action of a response. Attitudes can be realized in real action if facilities or infrastructure are available. Without facilities, an attitude cannot be realized in real action[16].

The mean value in the main intervention group before training on dengue control prevention was 8.70 and after treatment it increased to 9.64 with a p-value of 0.000 < 0.05, which means there is an effect of preventive measures on dengue control before and after training on prevention. controlling dengue fever. Meanwhile, the mean value in the comparison intervention group before providing information via digital flyers in the form of leaflets, pocket books and modules on preventing dengue fever control was 8.59 and after treatment it increased to 9.25 with a p-value of 0.004 < 0.05, which means there is The effect of preventive measures to control dengue fever after providing information via digital flyers about preventing dengue control. This research shows that health training at SMAN 11 Pangkep has more impact than providing information via digital flyers at SMAN 1 Pangkep on knowledge of preventing dengue control because health training has an interactive approach allowing respondents to remember it more easily. The involvement of respondents in the discussion and question and answer process encourages them to share their experiences and understanding so that students are more interested than just reading material information distributed in the form of digital flyers[17].

This research is in line with research[25] which shows that there is an increase in the average score of actions before 9.67 ± 2.30 to 15.75 ± 1.35. There is an effect of intervention on the actions of food handlers with the result of a p value = 0.000 which indicates a p value < 0.05. Also in line with research[26] You can see that the highest average pre-test value is in the experimental group, namely 27.9 and the highest average post-test value is in experimental group A with a value of 29.5 with each pvalue for experimental group A, namely 0.005, experimental group b, namely 0.017 and control group, namely 0.052.

This research is in line with research[27] which shows that health education using leaflet media can improve the behavior of traders who sell on car free days. An increase in behavior was found in statistical tests with a mean value of 21.7 to 19.57. Of the 48 respondents' behavior before being given health education using leaflets, 17 people (35%) were in the poor category, 19 people (40%) were in the sufficient category and 12 people (25%) were in the good category, whereas after the intervention the behavior of traders who sold car free increased. day, 11 people (23%) were in the poor category, 17 people (35.3%) were in the sufficient category and 20 people were in the good category.

A person's actions after knowing a stimulus or object, then making an assessment or opinion regarding what he knows, the next process is the hope that he will be able to do or practice what he knows. By providing experience that comes from knowledge, it is hoped that the practices/actions that have been adopted will be maintained. The action in this research is the application of preventive measures to control dengue hemorrhagic fever[21].

Differences in dengue hemorrhagic fever control prevention behavior before and after treatment between the main intervention group and the comparative intervention group

The difference between the main intervention group and the comparison intervention group before treatment was the level of knowledge, attitudes and actions of respondents with a p-value (0.05). The significance of knowledge before treatment p-value = 0.102 > 0.05, attitude p-value = 0.034 < 0.05 and action p-value = 0.735 > 0.05, which means there is no influence of the respondent's knowledge and actions, while there is an influence of attitude respondents before being given treatment. Both groups have the same basic knowledge before treatment so that the main intervention group and the comparison intervention group start from the same initial conditions so that if different interventions

are given then there are differences in results which are caused by different interventions/treatments.

Respondents' knowledge after treatment about preventing dengue control in the main intervention group with a mean score of 15.71 and in the comparison intervention group with a mean score of 13.82 with p-value = 0.002 < 0.05, which means there is a difference in knowledge about preventing dengue control in the two groups with a mean score difference of 1.89. This is because health training is more influential than providing information via digital flyers on dengue control prevention behavior because health training has an interactive approach allowing respondents to remember it more easily. The involvement of respondents in the discussion and question and answer process encourages them to share their experiences and understanding so that students are more interested[17].

The results of this research show that the difference in mean scores between the main intervention group and the comparison intervention group means that providing health training has a greater level of influence than providing health information via digital flyers in increasing respondents' knowledge about preventing dengue control. In line with the research conducted[28] which shows that there is a difference in the average knowledge of respondents before and after being given treatment. Based on previous research, health training is more effective than providing leaflets in increasing mothers' knowledge about stunting at the Pontianak Saigon Community Health Center, East Pontianak District. Meanwhile, other research also states that there are significant differences regarding cadres' knowledge before and after being given training on using the KIA Book using the Make A Match method[29].

Respondents' attitudes after treatment regarding prevention of dengue control in the main intervention group with a mean score of 25.07 and in the comparison intervention group with a mean score of 22.36 with p-value = 0.000 < 0.05, which means there are differences in attitudes regarding prevention of dengue control in the two groups with a mean score difference of 2.71. This is because health training is more influential than providing information via digital flyers on dengue control prevention behavior because health training has an interactive approach allowing respondents to remember it more easily. The involvement of respondents in the discussion and question and answer process encourages them to share their experiences and understanding so that students are more interested[17].

The results of this research show that the difference in mean scores between the main intervention group and the comparison intervention group means that providing health training has a greater level of influence than providing health information via digital flyers in improving respondents' attitudes about preventing dengue hemorrhagic fever control. In line with the research conducted[14] which shows that the initial attitude level of the majority of respondents was in the poor category, namely 35 students (66%); then changed to a majority in the good category after being given training, namely 37 students (69.8%). This increase in the quality of positive attitudes shows that the trainer has been successful in communicating with the training participants. Remembering that attitude is a person's closed response to certain stimuli or objects that involve the relevant opinion and emotional factors. So, improving attitudes must be preceded by good knowledge and understanding of the object. Therefore, improving attitudes in this research was preceded by providing material regarding the definition, virus causes, vectors and efforts to control Dengue Hemorrhagic Fever.

Respondents' actions after treatment regarding prevention of dengue control in the main intervention group with a mean score of 9.64 and in the comparison intervention group with a mean score of 9.25 with p-value = 0.028 < 0.05, which means there are differences in actions regarding prevention of dengue control in the two groups with a mean score difference of 0.39. This is because health training is more influential than providing information via digital flyers on dengue control prevention behavior because health training has an interactive approach allowing respondents to remember it more easily. The involvement of respondents in the discussion and question and answer process encourages them to share their experiences and understanding so that students are more interested[17].

The results of this research show that the difference in mean scores between the main intervention group and the comparison intervention group means that providing health training has a greater

level of influence than providing health information via digital flyers in increasing respondents' actions regarding preventing control of dengue hemorrhagic fever. In line with the research conducted[28] which shows that there is a difference in the average skills of Posyandu cadres in anthropometric measurements of toddlers before and after being given training. This shows that the average value after treatment is greater than the average value before treatment. So it can be concluded that providing training is effective in improving early stunting detection skills in toddlers. Meanwhile, other research also states that there is an increase in the ability of cadres to detect stunting in children 6-24 months through training in the use of stunting risk detection meters so that there is a difference in the skills of Posyandu cadres in anthropometric measurements before and after training[30].

Skills get better because respondents have gained good knowledge. If the respondent has good knowledge at the application level, it will make the respondent have the ability to use the material that has been studied in the media provided during the training. All information obtained from counseling and the inclusion of materials will make respondents even better at carrying out early detection of stunting. Providing information during training was able to increase cadres' knowledge which had a positive impact on the skills they formed. Changes in skills are influenced by knowledge factors obtained from sensing results, one of which is obtained in education and the learning proces[31].

Health education is a series of processes aimed at changing and influencing human behavior which includes knowledge, attitudes and actions for a healthy life for individuals, groups and society. The health education process in order to change people's behavior is active, this behavior change includes knowledge, attitudes and actions to achieve optimal levels of health. This research shows that health education plays an important role in influencing human behavior, namely knowledge, attitudes and actions, because health education is a learning process carried out both individually and in groups. Based on the opinion expressed by Effendy (2012) in[21] where the provision of health education aims to change the behavior of individuals, families and communities in order to create a society that is able to maintain and maintain a healthy life, as well as a healthy environment, and actively takes part in realizing an optimal level of health. Where providing information through health education to school children who previously did not know about the prevention of controlling dengue hemorrhagic fever, they will understand and go from being unable to becoming capable. It is hoped that improving the behavior of school children in preventing dengue hemorrhagic fever will reduce the occurrence of various health problems in the community.

The results of this study are in line with[21] that a new attitude, especially in adolescents, begins in the cognitive domain or in the sense that the subject knows in advance about the stimulus given in the form of material so that it causes an inner response in the form of an attitude, the stimulus, namely the known object, is fully realized so that it will give rise to a response in the form of action towards the stimulus. or object. Knowledge is the first step for someone to determine their attitudes and actions. So the level of knowledge will greatly influence the acceptance of a program or intervention provided. So that these three things, namely knowledge, attitudes and actions, are related to each other, thus giving birth to positive behavior.

The results of observations from researchers show that the health training method applied in this research is very effective in increasing students' knowledge, attitudes and actions compared to the method of providing information via digital flyers[32]. An interactive approach allows respondents to be remembered more easily. Respondents' involvement in the discussion and question and answer process encouraged them to share their experiences, opinions and knowledge[17]. In addition, by utilizing technology and interactive media such as PowerPoint presentations, videos, images, or teaching aids to support the delivery of material, it can enrich presentations and help visualize the concepts being taught[33].

CONCLUSION

Providing information about dengue hemorrhagic fever through training interventions has more influence on digital flyer interventions on students' knowledge, attitudes, actions and behavior in preventing and controlling dengue hemorrhagic fever. So it is also necessary to maximize the effectiveness of providing information about dengue hemorrhagic fever, training interventions can be integrated with other interactive methods, such as group discussions or simulations, so that

students are more actively involved and able to apply the knowledge and attitudes acquired in real action. Regular evaluations are also needed to ensure understanding and long-term behavior change.

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