



## The Effect of G1R1J PSN Education on Improving Knowledge and Preventive Actions Against Dengue Hemorrhagic Fever (DHF) Among Housewives in the Working Area of Wagir Public Health Center

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### Article Information

### ABSTRACT

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Dengue Hemorrhagic Fever (DHF) is a major public health problem in tropical countries, including Indonesia. In early 2024, 60,296 DHF cases and 455 deaths were reported nationwide. The high prevalence of DHF is linked to limited knowledge and prevention practices, especially among housewives. This study aimed to examine the effect of Mosquito Nest Eradication (PSN) education using the One House One Mosquito Larvae Monitor (G1R1J) approach in improving knowledge and preventive actions related to DHF. A pre-experimental one-group pre-test and post-test design was used with 79 housewives selected through consecutive sampling. The intervention involved educational materials (leaflets and videos) accessed four times over four weeks. Data were collected using questionnaires and observation sheets and analyzed using the Wilcoxon test. Results showed significant improvements in knowledge (from 55.7% to 97.5%) and preventive actions (from 54.4% to 67.1%) in the "good" category. The Wilcoxon test indicated a significant effect of PSN G1R1J education on both knowledge ( $p$ -value =  $0.000 < 0,05$ ) and preventive actions ( $p$ -value =  $0.001 < 0,05$ ). It is recommended that housewives continue to apply 5M-Plus practices independently. Further studies are suggested to explore other influencing factors such as attitudes, media exposure, and health worker support in DHF prevention.

## Introduction

Dengue Hemorrhagic Fever (DHF) is caused by the dengue virus, which is transmitted through the bite of *Aedes aegypti* and *Aedes albopictus* mosquitoes, and can cause symptoms ranging from shock to death. When a person is infected with a different dengue virus serotype, the likelihood of developing severe dengue increases (WHO, 2023).

In 2024, Indonesia reported 60,296 cases of DHF with 455 deaths (Kemenkes, 2024). East Java recorded 9,150 cases with 77 deaths, and Wagir District in Malang Regency had the second-highest number of cases at 905 (Dinkes, 2024).

The high incidence of DHF is due to low public awareness, especially in maintaining environmental cleanliness and prevention. Housewives play an important role as family health managers, but their knowledge about DHF prevention is still low (Masluhiya & Devi, 2024). The government's recommended prevention strategy is PSN 5M-Plus, which includes draining, covering, replacing, burying, and sprinkling larvicide, as well as community empowerment through the G1R1J (One House One Larvae Monitor) program (Kemenkes, 2023).

Research shows that education through media such as leaflets and videos is effective in increasing knowledge and preventive actions against DHF (Salsabila et al., 2024). However, most previous studies have focused only on students and used a single medium. This study combines leaflet and video media for housewives, as a strategic group within the household, to see its effectiveness in increasing knowledge and preventive actions against DHF in the working area of the Wagir Public Health Center.

**Method**

The research method used was pre-experimental with a one-group pre-test and post-test design. The research location was in RT 14 and 15 of Petungsewu Village, Wagir District, Malang Regency. The study population consisted of 108 housewives, with a sample of 79 selected using consecutive sampling. The educational intervention was delivered using leaflets and videos, with participants reading the leaflet and watching the video four times over a four-week period. Data were collected using questionnaires and observation sheets and analyzed using the Wilcoxon test.

**Results and Discussion**

**Tabel 1.** Frequency Distribution of General Respondent Data Based on Characteristics of age, last education, experience of getting information about PSN G1R1J DHF prevention, source of information, experience of DHF illness in family members, and owning a cell phone among.

Housewives in Petungsewu Village RT 14 and 15, Wagir District, Malang Regency.

Characteristic	F	(%)
<b>Age</b>		
20-44 years old	46	58,2
45-59 years old	21	26,7
60-75 years old	12	15,1
<b>Educational Background</b>		
No Schooling	4	5,1
Elementary School	47	59,5
Junior High School	21	26,6
Senior High School	7	8,9
<b>Experience in obtaining information</b>		
Yes	53	67,1
No	26	32,9
<b>Sources of information</b>		
TV	3	3,8
Media Social	5	6,3
Internet	2	2,5
Health Workers	38	48,1
Others: Students	7	6,3
None	26	32,9
<b>Experience of dengue fever illness in family members</b>		
Yes	17	21,5
No	62	78,5
<b>Owens a mobile phone</b>		
Yes	55	69,6
No	24	30,4
<b>Total</b>	<b>79</b>	<b>100</b>

Based on Table 1, more than half of the housewives (IRT) in the 20-44 age group are 46 housewives (58.2%). In terms of education, more than half of the housewives (IRT) with an elementary school (SD) background represent the largest number, at 47 housewives (59.5%). More than half of the housewives (IRT) have received information about PSN G1R1J DHF prevention, with a total of 53 housewives (67.1%). Less than half of them received information from health workers, totaling 38 housewives (48.1%). The majority of family members have never suffered from DHF, with 62 family members of housewives (78.5%). More than half of the housewives (IRT) own a cell phone, with a total of 55 housewives (69.6%).

**Tabel 2.** Knowledge of Dengue Hemorrhagic Fever among Housewives in the Working Area of Wagir Community Health Center

Prevention knowledge of Dengue Hemorrhagic Fever	<u>Pre-Test</u>		<u>Post-Test</u>	
	<i>f</i>	<i>%</i>	<i>f</i>	<i>%</i>
Good	44	55,7	77	97,5
Adequate	32	40,4	2	2,5
Poor	3	3,8	0	0,0
<b>Total</b>	<b>79</b>	<b>100</b>	<b>79</b>	<b>100</b>

**Tabel 3.** Dengue Hemorrhagic Fever Prevention Practices among Housewives in the Working Area of Wagir Community Health Center

Prevention Practices Dengue Hemorrhagic Fever	Pre-Test		Post-Test	
	f	%	f	%
Good	43	54,4	53	67,1
Adequate	22	27,8	25	31,6
Poor	14	17,7	1	1,3
<b>Total</b>	<b>79</b>	<b>100</b>	<b>79</b>	<b>100</b>

**Tabel 4.** The Effect of PSN G1R1J Education on Improving Dengue Hemorrhagic Fever Knowledge among Housewives in the Working Area of Wagir Community Health Center.

Variabel	N Pre-Post	Z	P-value
Knowledge	Negatif Ranks	14	5,950
	Positif Ranks	56	
	Ties	9	
	<b>Total</b>	<b>79</b>	

Based on Table 4, the results of the Wilcoxon test show that there is an effect of PSN G1R1J education in improving dengue hemorrhagic fever knowledge among housewives in the working area of Wagir Community Health Center, with a standardized test statistic value ( $Z = 5.950$ ) and a  $p\text{-value} = 0.000 < 0.05$ .

**Tabel 5.** The Effect of PSN G1R1J Education on Improving Dengue Hemorrhagic Fever Prevention Practices among Housewives in the Working Area of Wagir Community Health Center

Variabel	N Pre-Post	Z	P-value
Prevention Practices	Negatif Ranks	24	-3,182
	Positif Ranks	8	
	Ties	47	
	<b>Total</b>	<b>79</b>	

Based on Table 5.6, the results of the Wilcoxon test show that PSN G1R1J education has an effect on improving dengue hemorrhagic fever prevention practices among housewives in the working area of Wagir Community Health Center, with a standardized test statistic value ( $Z = -3.182$ ) and a  $p\text{-value} = 0.001 < 0.05$ .

**Knowledge and Dengue Hemorrhagic Fever (DHF) Prevention Practices before Receiving PSN G1R1J Education**

Before receiving PSN G1R1J education, more than half of the housewives already had good knowledge and prevention practices related to DHF. Most of them were aware of the causes of DHF, PSN activities, and the meaning of “jumantik” (Salsabila et al., 2024). They had also implemented the 5M-Plus behaviors well, such as covering, draining, and burying unused items (Febri et al., 2023).

Knowledge and prevention practices are influenced by several factors. Adult age supports more mature thinking abilities, which has a positive impact on preventive behavior (Firmansyah et al., 2023). Although most housewives had low educational backgrounds, they were still able to engage in healthy practices due to easy access to information (Septiyani et al., 2021). In addition, experiences, such as attending counseling sessions or having experienced DHF, also increased awareness and preventive practices (Tuba et al., 2023).

**Knowledge and Dengue Hemorrhagic Fever (DHF) Prevention Practices after Receiving PSN G1R1J Education**

After receiving PSN G1R1J education, most housewives demonstrated good knowledge of DHF. All respondents were aware of the transmission vector, the causes of DHF, and PSN activities. These findings are consistent with the study of Nasiva et al. (2024), which showed an increase in knowledge following education.

Prevention practices also improved, as reflected in the habits of most housewives who regularly drained water containers, tightly closed water storage, and monitored larvae on a weekly basis. Ashari et al. (2025) similarly found that nearly half of housewives had already implemented the 5M-Plus behaviors effectively.

The success of education is influenced by the methods and media used. Information delivered in simple language and through engaging media makes it easier for respondents to recall the material (Ranteallo, 2019). In addition, information sources also play a role. More than half of the housewives obtained information from health workers, television, and other media. Good access to information supports the improvement of knowledge and preventive practices (David, 2022). **The Effect of PSN G1R1J Education Using Leaflet and Video Media on Improving DHF Knowledge among Housewives in the Working Area of Wagir Community Health Center**

The findings of this study indicate that PSN G1R1J education using leaflet and video media had a significant effect on improving dengue hemorrhagic fever (DHF) prevention knowledge among housewives in the Wagir Community Health Center area. After receiving the education, most respondents demonstrated good levels of knowledge. Engaging, easy-to-understand, and repeatable education delivered through leaflets and videos proved effective in conveying information.

This study is in line with the findings of Nasiva et al. (2024) and Nurramdhani et al. (2022), who reported that the use of educational media such as videos and leaflets improved DHF prevention knowledge. Similarly, Oktaviani et al. (2024) found that 5M-Plus education using leaflets had a significant impact on increasing students' knowledge. Leaflets help convey information concisely and clearly, while videos enable respondents to better retain the material. Good knowledge allows housewives to be more proactive in prevention practices, such as draining water containers, covering storage, and recycling unused items. According to Nurhayati et al. (2023), media that can be revisited, such as leaflets and videos, reinforce understanding.

Although a small number of respondents did not show an increase in knowledge, this was assumed to be due to internal factors such as lack of focus during the education sessions (Nanlohy et al., 2023).

Therefore, attractive health education and training of jumantik (larvae monitoring) cadres supported by audio-visual media should continue to be developed.

**The Effect of PSN G1R1J Education Using Leaflet and Video Media on Improving DHF Prevention Practices among Housewives in the Working Area of Wagir Community Health Center**

This study demonstrated that PSN G1R1J education using leaflet and video media was effective in improving dengue hemorrhagic fever (DHF) prevention practices among housewives in the working area of Wagir Community Health Center. After receiving the education, more than half of the respondents showed good preventive practices against DHF.

This improvement was influenced by adequate knowledge, which enabled housewives to understand and apply the 5M-Plus practices. Leaflets presented information in a concise and clear manner, while videos were engaging and easy to remember. Moreover, this educational approach allowed respondents to revisit the material independently (Nurhayati et al., 2023).

These findings are consistent with Nurramdhani et al. (2022) and Aryani et al. (2024), who reported that the use of videos and leaflets in education significantly enhanced knowledge and preventive practices against DHF. Similarly, Atira et al. (2021) and Archam (2018) also found that most respondents demonstrated good preventive behaviors after receiving health education.

Nevertheless, a small number of respondents did not show optimal improvement in practices, possibly due to lack of focus or barriers in understanding the information (Nanlohy et al., 2023). Family support also plays an important role. Oktaviani (2024) and Puluhulawa et al. (2023) emphasized that emotional and informational support from family members encourages preventive behaviors against DHF within households.

Health education using visual media is therefore essential in breaking the chain of DHF transmission. It is recommended that health workers continue to develop engaging and easy-to-understand educational methods and strengthen the training of jumentik (larvae monitoring) cadres to better deliver information to the community.

## Conclusions

The findings of this study indicate that before receiving PSN G1R1J education, more than half of the housewives already possessed good knowledge and prevention practices related to dengue hemorrhagic fever (DHF). After receiving education using leaflet and video media, the majority of housewives demonstrated good knowledge, and their prevention practices also fell into the good category.

The education provided proved to be effective, as the statistical test results showed a significant effect on improving knowledge ( $p\text{-value} = 0.000 < 0.05$ ) and DHF prevention practices ( $p\text{-value} = 0.001 < 0.05$ ) among housewives in the working area of Wagir Community Health Center.

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