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## Knowledge, Attitude and Dengue Preventive Behavior in Legok, Jambi City

Najmi Qalami Hadist<sup>1</sup>, M. Ridwan<sup>2</sup>, Budi Aswin<sup>3</sup>, Dwi Noerjoedianto<sup>4</sup>\*, Ashar Nuzulul Putra<sup>5</sup>  
<sup>1,2,3,4,5</sup> Department Of Public Health, Faculty Of Medicine And Health Science, Jambi University

\*Corresponding Author

Email : [dwi\\_noerjoedianto@unja.ac.id](mailto:dwi_noerjoedianto@unja.ac.id)

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### Abstract

Dengue Hemorrhagic Fever (DHF) is still a public health problem that requires household involvement in vector control. Legok Village in Jambi City has environmental characteristics and population density that have the potential to support dengue transmission. This study aims to analyze the relationship between knowledge and attitudes towards dengue prevention behavior in the community of Legok Village, Jambi City. Quantitative analytical research with a cross-sectional design was conducted in September 2025 on 235 respondents aged  $\geq 17$  years. Sampling was carried out in stages through random selection of RT clusters, then systematic random sampling at the household level. Data were collected using a structured questionnaire and analyzed univariate and bivariate with chi-square and Fisher exact tests. The results showed that 92.8% of respondents had poor dengue prevention behavior, 60.9% had poor knowledge, and 90.6% had a positive attitude. There was no meaningful relationship between knowledge and dengue prevention behavior ( $p=0.142$ ) or between attitudes and dengue prevention behaviors ( $p=0.380$ ). Relatively good knowledge and attitudes have not automatically encouraged specific, routine, and household-based prevention behavior. Interventions need to be directed at assisting household practices, community mobilization, and strengthening the supportive environment for dengue prevention.

**Keywords:** Attitudes, Community, Dengue Hemorrhagic Fever, Knowledge, Preventive Behaviors.

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## INTRODUCTION

Dengue Hemorrhagic Fever (DHF) is a disease caused by dengue virus infection which is transmitted mainly through the bite of *Aedes aegypti* and *Aedes albopictus* mosquitoes. Dengue remains a global health issue because its spread is increasing, influenced by climate change, urbanization, population mobility, and inequality in health system capacity. The World Health Organization (WHO) has reported a huge surge in dengue cases in recent years, including more than 14 million cases globally by 2024. In Indonesia, dengue also shows a fluctuating pattern with a surge in cases in 2024 and still high case reporting in 2025 (Kementerian Kesehatan RI, 2024; WHO, n.d., 2024).

At the regional level, Jambi Province and especially Jambi City are among the regions that still face a high burden of dengue. Jambi City reportedly has the most prominent incidence of cases and death rates among districts/cities in the province, while the national target of dengue control has not been fully achieved. This situation shows that the problem of dengue is not only related to vector biological factors, but is also closely related to the governance of the residential environment and the sustainability of preventive behavior at the household level (Dinas Kesehatan Provinsi Jambi, n.d.; Kementerian Kesehatan RI, 2021).

The national dengue control strategy in Indonesia emphasizes increased surveillance, vector control, improved health services, strengthening cross-sector coordination, and community involvement. In field practice, efforts such as the 3M Plus Mosquito Nest Eradication (PSN), One House One Larvae Monitor, periodic larval checks, the use of mosquito repellents, and the management of water reservoirs can only be effective if households are actively and repeatedly involved. Therefore, community preventive behavior is a core component of the success of dengue control (Kementerian Kesehatan RI, n.d., 2021, 2024).

Green's PRECEDE-PROCEED model places knowledge and attitudes as predisposing factors that can drive a person to assess the threat of disease, receive health messages, and decide on preventive measures. However, knowledge and attitudes do not always automatically turn into practice if they are not supported by adequate facilities, supervision, experience, and social norms. (Glanz et al., 2008; Notoatmodjo, 2012)

The results of previous studies on the relationship between knowledge, attitudes, and behaviors in dengue prevention have not been consistent. Some studies report a relationship between knowledge and attitudes and dengue prevention practices, but others show that good knowledge and attitudes are not necessarily followed by consistent preventive behaviors at the household level (Bhandari et al., 2024; Gregorio et al., 2024; Rakhmani & Zuhriyah, 2024; Sutriyawan et al., 2024).

Legok Village in Danau Sipin District was chosen as the research location because it is the village with the largest area and the largest population, the need for dengue prevention education that still needs to be strengthened, and the vulnerability of the post-flood environment make this area relevant to be studied in the context of household-based dengue prevention (Badan Pusat Statistik Kota Jambi, n.d.; Hidayat et al., 2024; Kadri, 2024). This study aims to analyze the relationship between knowledge and attitudes with dengue prevention behavior in the community of Legok Village, Jambi City.

## RESEARCH METHODS

This study is a quantitative analytical study with a cross-sectional design. The research was carried out in Legok Village, Danau Sipin District, Jambi City in September 2025. The research population is residents of Legok Village aged  $\geq 17$  years who have lived in the study area for at least one year. Respondents were selected gradually through random RT cluster selection, followed by systematic random sampling at the household level. During the data collection, 235 respondents were obtained who met the inclusion criteria and were willing to participate.

Data were collected using a structured questionnaire that contained respondent characteristics, knowledge, attitudes, and dengue prevention behaviors. There were 28 knowledge questions, 20 attitude questions, and 19 preventive behavior questions. In the knowledge and preventive behavior questions, respondents scored 1 if they answered yes and 0 if they answered no. In attitude questions, a Likert scale was used with an interval of 1 (strongly disagree) to 5 (strongly agree), while for negative questions, an interval of 5 (strongly disagree) to 1 (strongly agree) was used. Furthermore, answers with intervals of 1-3 are considered to have a negative attitude with a score of 0 and answers with an interval of 4-5 are considered to have a positive attitude with a score of 1. In this study, a cut-off point of 70% was used so that respondents with a score of  $\geq 70\%$  were categorized as having good knowledge, positive attitudes, and good dengue prevention behavior. Meanwhile, respondents with a score of  $< 70\%$  are considered to have poor knowledge, negative attitudes, and poor preventive behavior (Samsudin et al., 2025).

Data processing was carried out using IBM SPSS Statistics 25 through the stages of coding, consistency checking, and grouping of variable categories. Univariate analysis was used to describe the frequency distribution and bivariate analysis used the chi-square test. In the analysis of the relationship between attitude and behavior, Fisher exact was used because there was a small frequency of expectations in one of the cells. The magnitude of the association is presented as the prevalence ratio (PR) to assist in the interpretation of the strength of the relationship. The research was conducted after respondents obtained an explanation of the research objectives and expressed their consent to participate. The confidentiality of respondents' identities is maintained during the process of data collection, processing, and reporting.

## RESULTS AND DISCUSSION

A total of 235 respondents were involved in this study. The majority of respondents were aged 30–44 years (39.1%), female (74.5%), primary to secondary education, working as housewives (48.1%), and having lived in the study area for more than 10 years (77.4%) (Table 1).

*Table 1. Characteristics of research respondents in Legok Village, Jambi City (n=235)*

Features	Category	n	%
<b>Age</b>	17–29 years old	27	11,5
	30–44 years old	92	39,1
	45–59 years old	77	32,8
	≥60 years old	39	16,6
<b>Gender</b>	Male	60	25,5
	Women	175	74,5
<b>Education</b>	Never went to school	4	1,7
	Not finished elementary school	10	4,3
	Elementary/equivalent	83	35,3
	Junior High School/Equivalent	47	20,0
	High School/equivalent	74	31,5
	Diploma	2	0,9
	Bachelor	14	6,0
	Postgraduate	1	0,4
<b>Jobs</b>	Not working	11	4,7
	Farmers/farm labourers	23	9,8
	Trader/Self-Employed	47	20,0
	Civil Servant/TNI/POLRI	4	1,7
	Private employees	1	0,4
	Housewives	113	48,1
	Student/Student	1	0,4
	Others	35	14,9
<b>Length of stay</b>	1–5 years	28	11,9
	6–10 years	25	10,6
	>10 years	182	77,4

The distribution of the main variables showed that most respondents had poor dengue prevention behavior (92.8%) and poor knowledge (60.9%), while attitudes towards dengue prevention were dominated by positive categories (90.6%) (Table 2).

*Table 2. Distribution of knowledge, attitudes, and behaviors to prevent dengue*

Variabel	Category	n (%)
<b>Dengue prevention behavior</b>	Poor preventive behavior	218 (92,8)
	Good preventive behavior	17 (7,2)
<b>Knowledge</b>	Poor knowledge	143 (60,9)
	Good knowledge	92 (39,1)
<b>Attitude</b>	Negatives attitude	22 (9,4)
	Positive attitude	213 (90,6)

In preventive behavior variables, respondents tended to do more frequent actions that were easy and related to daily comfort, such as using a fan while sleeping, cleaning garbage, and covering the body when in risky places. In contrast, actions that require greater coordination, cost, or habit change such as participation in anti-dengue activities, the use of larvae-eating fish, the installation of gauze, and the use of mosquito nets during naps are still low (Table 3).

**Table 3. The most frequent and least frequently performed indicators of dengue prevention behaviors**

Indicator groups	Behavior	n	%
<b>Most often</b>	Using a fan while sleeping to reduce mosquito bites	204	86,8
	Cleaning up garbage and useless items	198	84,3
	Covering the body with clothing while in a risky place	196	83,4
	Cleaning bathtubs/water reservoirs weekly	173	73,6
	Regularly clean water reservoirs at home	171	72,8
<b>Rarely</b>	Participate in anti-dengue campaigns or dengue-related programs	18	7,7
	Using larvae-eating fish to reduce mosquitoes	24	10,2
	Using mosquito nets while napping	42	17,9
	Installing mosquito nets/wire mesh on windows	49	20,9
	Using fogging to repel mosquitoes	58	24,7

Findings on knowledge and attitude variables show a gap between general understanding and more specific understanding. Many respondents were not yet able to recognize Aedes mosquitoes, did not know the biting hour of Aedes, and did not recognize certain danger signs. In addition, some respondents still consider fogging alone to eradicate dengue mosquitoes and feel that they are not too at risk of dengue infection (Table 4).

**Table 4. Indicators of knowledge and attitudes that still need to be strengthened**

Domain	Findings that need to be strengthened	n	%
<b>Knowledge</b>	Not yet able to recognize Aedes mosquitoes from other types of mosquitoes	154	65,5
	Not yet know the biting hour of Aedes mosquito in the morning	150	63,8
	Still consider dengue fever to only occur during the rainy season	155	66,0
	Not yet recognizing pain behind the eyeball as a symptom of dengue	162	68,9
	Not yet recognizing bleeding gums as a relevant sign	194	82,6
<b>Attitude</b>	Not feeling that they are at risk of dengue infection	90	38,3
	Still considering fogging alone to eradicate dengue mosquitoes	86	36,6
	Still assess that the bathtub does not need to be cleaned regularly if it is not dirty	97	41,3

The results of bivariate analysis showed that there was no meaningful relationship between knowledge and dengue prevention behavior ( $p=0.142$ ). All respondents with negative attitudes did have poor behavior, but the relationship between attitude and behavior was also statistically non-significant based on the Fisher exact test ( $p=0.380$ ) (Table 5).

**Table 5. The relationship between knowledge and attitudes and dengue prevention behaviors**

Variabel	Category	Poor behavior (%)	Good behavior (%)	Total	PR (95% CI)	p
<b>Knowledge</b>	Poor	136 (95,1)	7 (4,9)	143	1,07 (0,98–1,16)	0,142
	Good	82 (89,1)	10 (10,9)	92		
<b>Attitude</b>	Negative	22 (100,0)	0 (0,0)	22	1,09 (1,045-1,31)	0,380 *
	Positive	196 (92,0)	17 (8,0)	213		

\*The Fisher exact test is used in attitude analysis because there are cells with small frequencies.

This study showed that respondents with poor knowledge tended to have poor dengue prevention behaviors than respondents with good knowledge, but the relationship was not statistically significant. These findings are in line with several studies in Indonesia that have also reported that knowledge is not always related to dengue prevention practices (Anggaini et al., 2023; Hadiani & Indah Sri Wahyuningsih, 2025; Hermani & Ibadurrahmi, 2024). On the other hand, a number of other studies reported a meaningful relationship between dengue prevention knowledge and behavior

(Albari et al., 2025; Dewi et al., 2022; Ribka et al., 2024). This difference in results confirms that knowledge is not the only factor that shapes dengue prevention behavior.

In this study, respondents' knowledge seemed to be stronger in general aspects, for example about stagnant water as a breeding ground for mosquitoes or red rashes as symptoms of dengue. However, more specific knowledge such as the ability to distinguish *Aedes* mosquitoes, the biting hour of *Aedes*, and certain danger signs are still weak. This condition explains that the knowledge we have is not enough to encourage specific, routine, and repeated preventive measures at the household level.

Studies in Dhaka, qualitative research on urban communities in Malaysia, and systematic reviews of community participation show that knowledge enhancement does not automatically translate into action without adequate community mobilization, local organizing, and environmental support (Arfan et al., 2024; Hossain et al., 2024; Samsudin et al., 2024). Other research conducted in Legok also shows that dengue prevention education needs to be accompanied by practical assistance so that behavior change is more sustainable (Hidayat et al., 2024).

In the attitude section, most respondents had a positive attitude towards dengue prevention but were not significantly related to preventive behavior. These findings are in line with several studies that report that positive attitudes are not always followed by routine preventive practices (Anggainsi et al., 2023; Hermani & Ibadurrahmi, 2024; Munawarah et al., 2026; Sanggelorang et al., 2024). However, the results of this study are not in line with some other studies that have found that attitudes are related to dengue preventive behaviors (Albari et al., 2025; Dewi et al., 2022; Ghimire & Pangeni, 2024; Karupudayyan et al., 2025; Ribka et al., 2024). This indicates that a positive attitude will be effective in changing behavior if it is followed by other factors such as the availability of facilities, supervision, social reminders, and the support of local leaders.

In this study, there are still respondents who do not feel that they are at risk of dengue infection, consider fogging alone to eradicate mosquitoes, and consider that the bathtub does not need to be cleaned regularly if it does not look dirty. The findings suggest that cognitive acceptance of the importance of prevention has not completely transformed into personal threat perceptions and structured prevention habits.

The behavior change approach places knowledge and attitudes as predisposing factors that still require environmental and social support to become real action (Glanz et al., 2008). Correspondingly, studies on community engagement emphasize the importance of home visits, environmental monitoring, citizen-based campaigns, and multistakeholder collaboration to build sustainable dengue prevention practices (Allen et al., 2025; Arfan et al., 2024; Hossain et al., 2024; Samsudin et al., 2024).

## CONCLUSION

The main finding of this study is that there is a significant gap between relatively positive attitudes and dengue preventive behaviors that are still low. Most of the people of Legok Village have poor dengue preventive behavior, although the majority have a positive attitude and some respondents already have basic knowledge about dengue. There is no meaningful relationship between knowledge and attitudes with dengue preventive behavior. These findings suggest that dengue control interventions do not focus enough on improving knowledge and attitude formation, but need to be strengthened through domestic practice mentoring, citizen organizing, environmental monitoring, and cross-sectoral engagement on an ongoing basis. This study has several limitations, including the cross-sectional design only describes the relationship at one time so that it cannot explain the cause-effect relationship, behavioral data obtained through questionnaires so that it has the potential to cause information bias or socially expected answers and the very unbalanced distribution of behavior

between good and bad categories can reduce the sensitivity of statistical tests in detecting relationships.

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