International Journal Of Health, Engineering And Technology (IJHET) E-ISSN 2829 - 8683
Volume 5, Number 1, May 2026, *Page. 150 - 155*
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Analysis Of Students' Knowledge Of Dengue Hemorrhagic Fever (Dhf) Prevention At The Faculty Of Medicine And Health Sciences, Universitas Jambi

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Abstract

Dengue Hemorrhagic Fever (DHF) remains an important public health problem in Indonesia, particularly in tropical regions where Aedes mosquitoes can breed easily. Knowledge is one of the key factors that supports preventive behavior, especially among university students who are expected to become future health promoters. This study aimed to analyze the level of knowledge of Public Health students regarding DHF prevention at the Faculty of Medicine and Health Sciences, Universitas Jambi.This quantitative study used a descriptive cross-sectional design and was conducted from February to March 2026. The sample consisted of 98 students selected using purposive sampling. Data were collected using a closed-ended questionnaire consisting of 20 true-false items. All questionnaire items were valid (r count > 0.361), and the instrument showed good reliability (Cronbach's Alpha = 0.823). Data were processed through editing, coding, scoring, entry, and cleaning, then analyzed descriptively using frequency distributions and percentages.The results showed that 92 students (93.9%) had good knowledge and 6 students (6.1%) had poor knowledge. The highest indicator scores were found in knowledge of DHF symptoms and the role of individuals and the environment in prevention (99.0%), while the lowest indicator score was found in preventive efforts (93.4%). At the item level, the lowest correct response was found in the statement that fogging is the only method of preventing DHF, with 69.4% correct responses.In conclusion, most students had good knowledge of DHF prevention. However, strengthening specific understanding of integrated prevention strategies, particularly the limited role of fogging, is still needed.

Keywords: Dengue Hemorrhagic Fever; Knowledge; Prevention; Students; Public Health.

INTRODUCTION

Dengue Hemorrhagic Fever (DHF) is a communicable disease that remains a global public health problem, particularly in tropical and subtropical regions. The World Health Organization has reported a significant increase in dengue cases over recent decades, with millions of infections occurring annually and a broad risk to the world's population. In Indonesia, geographical conditions and the tropical climate support the breeding of the Aedes aegypti and Aedes albopictus mosquito vectors, thereby increasing the potential for DHF transmission (WHO, 2012).

Nationally, DHF cases show a fluctuating but generally high trend. Data from the Ministry of Health of the Republic of Indonesia records tens of thousands of cases every year with a significant mortality rate. In Jambi Province, the incidence of DHF even exceeds national targets, indicating that this disease remains a serious threat to public health. This condition is exacerbated by environmental factors, population mobility, and low public awareness regarding prevention efforts.

DHF is an environment-based disease that is heavily influenced by sanitation conditions and community behavior. The existence of stagnant water as mosquito breeding grounds and the lack of clean and healthy living practices are the main factors increasing the risk of transmission. Therefore, effective prevention efforts depend not only on government intervention but also on the active participation of the community in maintaining environmental cleanliness (Ministry of Health RI, 2022).

One important factor influencing disease prevention behavior is the individual's level of knowledge. Good knowledge regarding the causes, modes of transmission, symptoms, and prevention

efforts of DHF can encourage someone to take optimal preventive actions. Conversely, a lack of knowledge can increase the risk of disease spread (Notoatmodjo, 2012).

Students, as an educated group, have a strategic role as agents of change in society. With a relatively high level of education, students are expected to have a good understanding of health issues, including DHF prevention. Additionally, students have the potential to disseminate health information to the wider community and support health programs initiated by the government.

However, the level of knowledge among students regarding DHF prevention is not always uniform. Some studies indicate that although most students have good knowledge, there are still gaps in understanding specific aspects, such as the mode of transmission and appropriate preventive measures. This indicates a need to further examine student knowledge levels as a basis for developing health education programs.

Based on the description above, the problem formulation in this study is: what is the level of knowledge among students about the prevention of Dengue Hemorrhagic Fever (DHF) at the Faculty of Medicine and Health Sciences, Jambi University? It is important to answer this question to obtain an empirical overview of the state of student knowledge within an academic environment.

This study aims to identify and analyze the level of student knowledge regarding DHF prevention, including understanding the disease, its transmission methods, and the preventive measures that can be taken. This objective is expected to provide comprehensive information regarding student readiness in facing environment-based health problems.

Scientifically, this research has relevance in the field of public health, specifically in studies of health behavior and health promotion. This study fills the knowledge gap regarding the level of student understanding at the local level, specifically at Jambi University, which has been limited in previous literature. Furthermore, the results of this research are expected to serve as a basis for formulating more effective health education strategies and supporting sustainable DHF prevention efforts in both the campus environment and the community.

RESEARCH METHODS

This study employs a quantitative approach with a descriptive research design, aiming to illustrate the level of student knowledge regarding the prevention of Dengue Hemorrhagic Fever (DHF). The research utilizes a cross-sectional design, in which data collection is conducted at a single point in time to obtain an actual snapshot of the respondents' conditions.

The method used in this study is a survey using a structured questionnaire instrument. The questionnaire was developed to measure respondents' knowledge related to DHF, covering aspects of definition, causes, modes of transmission, symptoms, and disease prevention efforts.

The research subjects are students of the Public Health Study Program, Faculty of Medicine and Health Sciences, Jambi University. The sample consists of 98 respondents selected using a purposive sampling technique, with criteria including being an active student, willing to participate as a respondent, and completing the questionnaire in full.

Data collection was carried out directly through the distribution of a questionnaire that had undergone validity and reliability testing. This instrument was used to ensure that the data obtained were accurate and could precisely reflect the respondents' level of knowledge.

The collected data were then analyzed using univariate analysis to describe the distribution of the respondents' knowledge levels. The results of the analysis are presented in a descriptive narrative to provide a clear overview of the students' knowledge regarding DHF prevention.

RESULTS AND DISCUSSION

A total of 98 students participated in this study. Most respondents were female (87 students; 88.8%), while 11 students (11.2%) were male. The majority were 19 years old (61 students; 62.2%), followed by 20 years old (32 students; 32.7%), 18 years old (4 students; 4.1%), and 21 years old (1 student; 1.0%).

Table 1. Characteristics of Respondents and Overall Knowledge Level

Variable	Frequency (n)	Percentage (%)
Sex: Male	11	11.2
Sex: Female	87	88.8
Age: 18 years	4	4.1
Age: 19 years	61	62.2
Age: 20 years	32	32.7
Age: 21 years	1	1.0
Knowledge: Poor	6	6.1
Knowledge: Good	92	93.9

Table 1 shows that female students dominated the sample and that the large majority of respondents had good overall knowledge of DHF prevention.

Table 2. Distribution of Knowledge by Indicator

Indicator	Item Numbers	Correct Answers	Percentage (%)
Causes and transmission of DHF	1, 2, 3	280	95.2
Symptoms of DHF	4, 5	194	99.0
Preventive measures	6, 7, 8, 9, 10, 11, 12	641	93.4
Role of individuals and environment	13–20	776	99.0

The highest indicator scores were found in knowledge of DHF symptoms and the role of individuals and the environment in prevention (99.0%). The lowest indicator score was found in preventive measures (93.4%).

Table 3. Selected Item-Level Findings

Item	Correct (%)	Interpretation
Q1. DHF is caused by the dengue virus	100.0	Very high understanding
Q2. Dengue is transmitted by Aedes aegypti bites	100.0	Very high understanding
Q4. Main symptoms include high fever, joint pain, and red spots	100.0	Very high understanding
Q10. Fogging is the only way to prevent DHF	69.4	Lowest item score / misconception remains
Q20. DHF prevention is only the government's responsibility	95.9	Most students recognized shared responsibility

At the item level, the strongest understanding appeared in basic knowledge about the cause, transmission, and symptoms of DHF. The lowest score appeared in the fogging item, indicating that some students still considered fogging to be the primary or only prevention strategy.

The research results indicate that the majority of students at the Faculty of Medicine and Health Sciences, Jambi University, possess a good level of knowledge regarding the prevention of Dengue Hemorrhagic Fever (DHF), with a proportion of 93.9%, while only 6.1% fall into the category of insufficient knowledge. Furthermore, the score distribution analysis shows a mean of 17.8 out of a maximum score of 20, with a median of 18 and a standard deviation of 1.9. The relatively narrow score range (12–20) and the low standard deviation indicate that the respondents' knowledge levels tend to be homogeneous and concentrated in the high category.

These findings suggest that the students have a strong understanding of the fundamental concepts of DHF, including causes, modes of transmission, symptoms, and prevention efforts. This high level of knowledge is inseparable from the respondents' backgrounds as health students who are academically exposed to materials regarding infectious diseases and environmental health. Thus, these results reflect the effectiveness of the formal education process in enhancing student health literacy.

However, the presence of a small number of respondents with insufficient knowledge indicates that the distribution of knowledge is not entirely even. This serves as an indicator that despite the generally high level of knowledge, there are still gaps in understanding that warrant attention, particularly in the context of equalizing information access and the quality of learning.

Further analysis of knowledge indicators shows that the majority of students have a good understanding of all measured aspects: causes, transmission, symptoms, and prevention of DHF. The indicators for causes and transmission show the highest levels of understanding, while the indicator for symptoms has a relatively higher proportion of errors compared to the others.

The high understanding of causes and transmission suggests that students grasp the basic epidemiological concepts of DHF, including the roles of the Aedes aegypti and Aedes albopictus mosquito vectors. This understanding is crucial as it forms the basis for determining effective prevention strategies. Meanwhile, variations in the understanding of symptoms indicate that the clinical aspects of DHF still require reinforcement, especially in recognizing early warning signs that could potentially develop into severe conditions.

From an analytical perspective, these differences in comprehension levels between indicators suggest that the learning process does not always provide balanced emphasis on all aspects of knowledge. This could be caused by differences in the intensity of material exposure, teaching methods, or students' practical experiences. Therefore, a more integrative learning approach is needed so that all aspects of knowledge can be understood comprehensively.

The findings of this study can be explained through the health behavior theory proposed by Notoatmodjo, which states that knowledge is a primary predisposing factor in the formation of health behavior. Individuals with good knowledge tend to have a higher awareness of disease risks and are better able to make appropriate decisions in prevention efforts.

Within Lawrence Green’s theoretical framework, knowledge is categorized as a predisposing factor influencing the formation of health behavior. The high level of student knowledge in this study indicates that the predisposing factor has been well-met; thus, theoretically, students have the potential to develop optimal preventive behaviors.

However, the theory also emphasizes that knowledge alone is insufficient to produce behavioral change. Enabling factors (such as facility availability) and reinforcing factors (such as social support and environmental policies) are also required. Therefore, even though student knowledge is high, it does not guarantee that all students apply preventive behaviors consistently.

The results of this study are in line with various previous studies showing that students, especially those in health fields, tend to have good knowledge regarding DHF prevention. Research by Kasenda et al. (2020) showed that the majority of respondents had good knowledge, contributing to positive preventive behavior. Similarly, research by Apriani and Triana (2023) found a significant relationship between knowledge levels and DHF prevention actions.

However, some studies also reveal a "knowledge-behavior gap," where good knowledge is not always followed by good practice. This finding is relevant to this study; while knowledge levels are high, it cannot be confirmed that all students have implemented preventive measures optimally. Thus, this research reinforces the argument that increasing knowledge must be followed by interventions that encourage real behavioral change.

Conceptually, these findings suggest that the higher education environment plays a strategic role in shaping students' health knowledge. The relatively homogeneous high scores indicate that the education system has succeeded in transferring information effectively.

Academically, this research contributes to the literature regarding student knowledge levels on DHF prevention, specifically in the local context of Jambi University. It also provides empirical evidence that health students have good capacity as agents of change in society. Furthermore, these results reinforce the importance of campus-based educational approaches in health promotion, where students act as both subjects of education and disseminators of health information to the wider community.

The high level of knowledge serves as a vital asset in DHF prevention. Students with good understanding are expected to apply clean and healthy living behaviors and participate actively in prevention activities, such as the 3M Plus program.

To ensure optimal implementation, comprehensive interventions are required, such as increasing counseling activities, integrating environmental health materials into the curriculum, and involving students in community service programs. A behavior-change-centered approach—rather than just knowledge enhancement—is essential to bridge the gap between knowledge and practice.

Overall, this study shows that students have a high and relatively even level of knowledge regarding DHF prevention. This supports the theory that knowledge is a vital factor in health behavior while affirming that education plays a strategic role in increasing health literacy.

However, the study also reveals that high knowledge does not guarantee optimal preventive behavior. Therefore, an integrative approach considering other behavioral factors is necessary. The primary contribution of this research lies in providing empirical evidence of student knowledge and its implications for DHF prevention, serving as a basis for more effective and sustainable health education policies.

CONCLUSION

This study indicates that the majority of students at the Faculty of Medicine and Health Sciences, Jambi University, possess a good level of knowledge regarding the prevention of Dengue Hemorrhagic Fever (DHF), with a proportion of 93.9%. These findings address the research problem and objectives, confirming that the students' level of knowledge generally falls within the "good" category, covering an understanding of the causes, transmission, symptoms, and prevention efforts of DHF. These results suggest that students, as an educated group, have significant potential to support DHF prevention efforts in both campus and community environments, reinforcing the role of knowledge as a vital factor in shaping health behavior.

However, this study has limitations as it only utilizes a descriptive design with univariate analysis, meaning it cannot yet explain the relationship between knowledge and other factors or preventive behaviors in greater depth. Additionally, the research is localized to a single site, which limits the generalizability of the results. Therefore, future research is encouraged to employ an analytical design with a broader sample size and to examine the correlations between knowledge, attitudes, and practices to obtain a more comprehensive overview of DHF prevention efforts.

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