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The Relationship Between Family Knowledge and Attitudes Toward the Prevention of Dengue Fever in Children

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ABSTRACT

Introduction: Dengue Hemorrhagic Fever (DHF) remains a major public health concern in tropical countries, including Indonesia, where recurring outbreaks continue to contribute significantly to morbidity and mortality rates. Despite various preventive programs, such as mosquito nest eradication (PSN) and public education, the increasing incidence of DHF—especially among children—indicates that community knowledge and attitudes toward prevention remain insufficient.
Objective: This study aims to determine the relationship between family knowledge and attitudes toward the prevention of DHF in children in the working area of Puskesmas Mentok in 2025.
Method: This study used a cross-sectional design with a correlational analytic approach. The sampling technique was purposive sampling, involving 100 respondents who were families with children in the working area of Puskesmas Mentok. Data were collected using a questionnaire that had been tested for validity and reliability. Data analysis was conducted through univariate and bivariate analysis using the Chi-Square test with a significance level of 0.05
Result: The results of this study showed a significant relationship between family knowledge and DHF prevention in children (p=0.001). There was also a significant relationship between family attitudes and DHF prevention in children (p=0.001). This indicates that family knowledge and attitudes positively influence preventive actions against DHF.
Conclusion: The conclusion of this study is that the higher the level of family knowledge and attitudes, the better the preventive actions for DHF in children. It is recommended that

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Puskesmas and related institutions continuously enhance health promotion and family health education programs through counseling, healthy environment campaigns, and family education to increase public awareness in DHF prevention.

Keywords: attitude, knowledge, prevention

Introduction

Dengue Hemorrhagic Fever (DHF) is an acute infectious disease caused by the dengue virus and transmitted through the bite of the Aedes aegypti and Aedes albopictus mosquitoes. This disease can lead to serious complications and even death if not promptly and appropriately treated. DHF is a crucial public health problem in several tropical countries, including Indonesia. It has become a global problem, with approximately 50 million cases reported annually. This disease can affect all age groups, but children are among the most vulnerable. In Indonesia, DHF often occurs during the rainy season. The Aedes aegypti mosquito prefers stagnant water, where it breeds. A comprehensive prevention approach, from vector control to public education, is crucial to reduce the impact of this disease (WHO, 2022).

The Indonesian Ministry of Health reports that DHF remains a major contributing factor to morbidity and mortality in Indonesia. Despite efforts to reduce the incidence, DHF cases tend to increase during the rainy season. The Indonesian Ministry of Health is promoting the implementation of mosquito nest eradication (PSN) and fogging programs, as well as providing public education on the importance of maintaining environmental cleanliness and preventing mosquito breeding around homes. Furthermore, the Ministry of Health also provides guidelines for early detection and treatment of dengue fever to reduce mortality from this disease (Indonesian Ministry of Health, 2022).

Globally, according to the World Health Organization (WHO), dengue fever cases in 2021 were recorded at 2 million to 3 million, with a more significant increase in tropical regions such as Southeast Asia and the Americas. Most cases were reported in Latin America and Asia. In 2022, the WHO recorded approximately 4.2 million dengue cases globally, a nearly twofold increase compared to the previous year. Most cases occurred in Southeast Asia, including countries such as Indonesia, Thailand, and Vietnam, as well as in Latin America, such as Brazil and Mexico. Dengue cases peaked in 2023, with more than 6.5 million cases reported in more than 80 countries. There were more than 7,300 dengue-related deaths, with the majority of cases originating in the Americas and Asia (WHO, 2023).

According to the WHO, Indonesia is one of the five countries with the highest dengue burden in Southeast Asia. In 2021, Indonesia experienced a decline in cases compared to previous years, largely due to activity restrictions during the COVID-19 pandemic that reduced human interaction with mosquito vectors. In 2022, dengue cases in Indonesia increased significantly, with more than 131,000 cases reported, including 1,183 deaths. This increase coincided with the reopening of public activities after the pandemic and the rainy season, which exacerbated the spread of mosquito vectors. In 2023, Indonesia continued to be among the countries with a high dengue burden. Within Southeast Asia, this region, along with Thailand, Vietnam, and the Philippines, recorded a significant spike in dengue incidence, with Asia accounting for approximately 70% of the total dengue cases worldwide. (WHO, 2023)

The Bangka Belitung Islands Provincial Health Office recorded 631 dengue fever cases in 2021, increasing to 975 in 2022. The highest number of cases occurred in West Bangka

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Regency. In 2023, 821 cases were recorded, with an increase in cases in December. This year, the highest number of cases occurred in Belitung Regency, while the lowest number of cases occurred in East Belitung Regency (Bangka Belitung Islands Provincial Health Office, 2023).

The Mentok Community Health Center recorded 143 cases of dengue fever in children in 2021. In 2022, there was an increase of 184 cases, occurring in children aged 2 months to 18 years. In 2023, cases decreased to only 11 cases, but in 2024, cases increased again to a total of 76 cases (Mentok Community Health Center Report, 2024).

Dengue fever is a public health issue that significantly impacts children, especially in tropical regions like Indonesia. This disease not only causes acute symptoms such as high fever, bleeding, and muscle pain, but also increases the risk of serious complications such as potentially fatal dengue shock syndrome (Zhang et al., 2023).

Furthermore, a study conducted in Indonesia by Lidvina et al. (2023) at the Bola Community Health Center in Kupang demonstrated that community knowledge and attitudes toward dengue fever significantly influence prevention efforts. Their survey of 97 families surveyed showed that 73.2% had good knowledge of dengue fever, while 26.8% had poor knowledge. Good knowledge relates to an understanding of the symptoms, causes, and prevention of dengue fever. Furthermore, 77.32% of respondents demonstrated a positive attitude toward dengue fever prevention, while 22.68% had a negative attitude. A positive attitude reflects a family's willingness to take preventive measures, such as draining water reservoirs and using larvicide. A significant relationship was found between community knowledge and dengue fever prevention (p=0.011). Communities with good knowledge were more likely to take preventive measures. Furthermore, there was a significant relationship between community attitudes and dengue fever prevention (p=0.040). Respondents with positive attitudes were more active in prevention. In a preliminary survey conducted at the Mentok Community Health Center on Thursday, November 28, 2024, seven mothers with children receiving treatment at the center were interviewed. The survey was conducted to identify families' knowledge and attitudes regarding dengue fever prevention. Four mothers demonstrated a lack of understanding and positive attitudes toward dengue fever prevention. They did not fully understand the early symptoms of dengue fever, the transmission methods of the Aedes aegypti mosquito, and preventive measures such as the 5M Plus. The other three mothers had a fairly good understanding of prevention, such as maintaining environmental cleanliness and using personal protective equipment such as mosquito nets and mosquito repellent. This survey indicated that the majority of families still need health education about dengue fever to improve their knowledge and attitudes. Based on this phenomenon, researchers are interested in conducting further research to identify the relationship between family knowledge and attitudes toward dengue fever prevention in the Mentok Community Health Center work area in 2025.

Objective

The relationship between the level of knowledge and family attitudes towards preventing Dengue Hemorrhagic Fever (DHF) in children in the Mentok Community Health Center work area in 2025 is known.

Method

This study used a cross-sectional design with a correlational analytical approach. The sampling technique used purposive sampling, involving 100 respondents who were families with children in the Mentok Community Health Center working area. The sampling method

used in this study was purposive sampling. Data were collected using a questionnaire that had been tested for validity and reliability. The study was conducted from April 28, 2025, to May 6, 2025, in the Mentok Community Health Center working area, West Bangka Regency. Data analysis was carried out through univariate and bivariate analysis using the Chi-Square test with a significance level of 0.05.

Result

Table 1. The Relationship of Family Knowledge to Dengue Fever Prevention

Knowledge	Dengue Fever Prevention						p (value)	POR (95% CI)
	Good		Poor		Total			
	n	%	n	%	n	%		
Good	39	69.6	17	30.4	56	100	0.007	3.314 (1.448-7.584)
Poor	18	40.9	26	59.1	44	100		

Table above shows that 39 respondents (69.6%) had good dengue fever prevention behaviors and families with good knowledge compared to those with poor knowledge. Meanwhile, 26 respondents (59.1%) had poor dengue fever prevention behaviors and families with poor knowledge compared to those with good knowledge. The results of data analysis using the Chi-Square test obtained a ρ-value (0.007) < α (0.005), which means there is a relationship between family knowledge and dengue fever prevention in children in the Mentok Community Health Center work area in 2025. Further analysis obtained the results of POR = 3.314 (95% CI = 1.448–7.584), which indicates that families with good knowledge have a tendency of about 3.3 times to carry out good dengue fever prevention compared to families with less knowledge.

Table 2. The Relationship between Family Attitudes Toward Dengue Fever Prevention

Attitude	Dengue Fever Prevention						p (value)	POR (95% CI)
	Good		Poor		Total			
	n	%	n	%	n	%		
Good	43	78.2	12	21.8	55	100	0.000	7.935 (3.230-19.492)
Poor	14	31.1	31	68.9	45	100		

Table above shows that 43 respondents (78.2%) had good dengue fever prevention behaviors, outnumbering those with negative family attitudes. Meanwhile, 31 respondents (68.9%) had poor dengue fever prevention behaviors and negative family attitudes, outnumbering those with positive attitudes. The results of data analysis using the Chi-Square test obtained a ρ-value (0.000) < α (0.005), indicating a relationship between family attitudes and dengue fever prevention in children in the Mentok Community Health Center work area in 2025.

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Further analysis yielded a POR of 7.935 (95% CI = 3.230–19.492), indicating that families with positive attitudes were approximately 7.9 times more likely to implement effective dengue fever prevention compared to families with negative attitudes.

Discussion

According to Notoatmodjo's theory (2018), knowledge is a crucial domain in shaping behavior. The greater a person's knowledge, the greater the likelihood of positive behavior, including in the context of disease prevention. Good knowledge enables families to understand the importance of recognizing early symptoms of dengue fever and their role in prevention efforts.

Based on the results of this study, the majority of families (56 people) had good knowledge, while 44 (44 people) had poor knowledge. Bivariate analysis revealed a significant relationship between family knowledge and dengue prevention in children. The chi-square test showed a p-value of 0.007 < α (0.05), with a prevalence odds ratio (POR) of 3.314 (95% CI = 1.448–7.584). This means that families with poor knowledge were 3.3 times less likely to take dengue prevention measures compared to families with good knowledge.

This study aligns with previous research conducted by Lidvina et al. (2023) examined the relationship between community knowledge, attitudes, and characteristics regarding dengue fever prevention in the Bola Community Health Center (Puskesmas) area. This study demonstrated a significant relationship between community knowledge and dengue fever prevention measures, with a p-value of 0.011 < α (0.05). These results confirm that knowledge is a critical factor in the success of dengue prevention programs.

This finding is further supported by a study by Mbani et al. (2021) entitled "Relationship of Knowledge, Attitudes, and Social Status of Family Heads Against Dengue Prevention Measures in the Oesapa Public Health Center in 2020." This study found a significant relationship between household head knowledge and dengue fever prevention measures, with a p-value of 0.002 < α (0.05).

Furthermore, a study by Syahrul et al. (2024) in the Pariaman City Community Health Center area also showed similar results. The study found a significant relationship between public knowledge and dengue fever prevention, with a p-value of 0.000 < α (0.05). The higher the respondents' knowledge, the higher their tendency to optimally implement dengue fever prevention measures.

According to the researchers' assumptions, a good level of knowledge is significantly related to dengue fever prevention measures in children. The results showed that most families with good knowledge tended to implement appropriate preventive measures, such as the 5M Plus and maintaining environmental cleanliness. Conversely, families with less knowledge about dengue fever generally did not realize the importance of cleaning up stagnant water or using mosquito nets, due to their lack of understanding of mosquito breeding sites. Families with good knowledge, on the other hand, understood mosquito breeding sites and the early symptoms, such as sudden high fever in children. This awareness encouraged them to seek medical attention more quickly, thus preventing serious complications due to delayed treatment.

According to Syahabuddin et al. (2023), attitude is an individual's tendency to respond consistently to a particular object or situation, encompassing beliefs, feelings, and readiness to act. This attitude is formed through experience and social interactions and influences how a person evaluates and acts toward that object. Furthermore, Husna et al. (2022) in their study of attitudes toward the COVID-19 vaccine in Indonesia used the Theory of Planned

Behavior (TPB) to explain that an individual's attitude toward a behavior is influenced by perceived risk, belief in the action's effectiveness, and existing knowledge. This confirms that attitudes are not only related to thoughts and feelings but also play a crucial role in shaping and directing an individual's actual actions. Positive family attitudes toward dengue fever prevention include a willingness to take preventive measures such as cleaning the environment, supporting community programs, and using personal protective equipment (mosquito nets or repellent lotion) (Zhang et al., 2023).

The results of this study found that the majority of families (55 individuals) had positive attitudes, while 45 families (45%) had negative attitudes. The bivariate analysis concluded that there was a significant relationship between family attitudes and dengue fever prevention measures in children in the Mentok Community Health Center (Puskesmas) area. A p-value of 0.000 <α (0.05) and a POR of 7.935 indicated that respondents with negative attitudes were 7.9 times less likely to take preventive measures than those with positive attitudes. This suggests that positive family attitudes influence effective dengue fever prevention measures.

These results align with research by Mahmudah, Shifa Reininda, and Rizal (2024) in Landasan Ulin Selatan Village, which demonstrated a significant relationship between family attitudes and dengue fever prevention measures, with a p-value of 0.002. This study confirmed that families with positive attitudes were more consistent in taking preventive measures such as cleaning the environment, draining water reservoirs, and using personal protective equipment such as mosquito nets or mosquito repellent. Furthermore, Panungkelan et al. (2024) also found a significant relationship between family attitudes toward mosquito nest eradication and dengue fever incidence in Wanea District, Manado City, with a p-value of 0.045. This study confirms that positive family attitudes can encourage consistent action to prevent dengue fever. However, this result differs from the study by Nitbani & Siagian (2022), which found no significant relationship between attitudes and dengue fever prevention actions ($p = 0.736 > \alpha = 0.05$). This difference in results is likely due to variations in respondent characteristics, the educational approach used, and socio-cultural environmental factors at the study site. This discrepancy is important to highlight so that researchers and readers can understand that the relationship between attitudes and prevention is not always universal and can be influenced by various contextual factors.

Based on the research results and theory, the researchers argue that positive family attitudes toward dengue fever prevention significantly influence their behavior in maintaining environmental cleanliness. Families with positive attitudes are more aware and consistent in implementing preventive measures such as regularly draining bathtubs, covering water storage containers, and using mosquito nets while sleeping. Conversely, families with negative attitudes tend to be less concerned about prevention efforts and perceive dengue fever as a problem that can be solved solely by health workers. Therefore, fostering positive attitudes through intensive health education is essential so that families can become the frontline in dengue fever prevention.

Conclusion

There is a relationship between family knowledge and dengue fever prevention in children in the Mentok Community Health Center Work Area in 2025. Families with good knowledge are more likely to take preventive measures. There is a relationship between family attitudes and dengue fever prevention in children in the Mentok Community Health

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Center Work Area in 2025. Families with positive attitudes are more likely to actively take dengue fever prevention measures.

Conflict of Interest

No declare.

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