

**HEAD OF HOUSEHOLD BEHAVIOR REGARDING THE
ERADICATION OF DENGUE FEVER MOSQUITO NESTS IN
LAMPAGEU VILLAGE, PEUKAN BADA SUBDISTRICT, ACEH
BESAR REGENCY**

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Abstract

The "3M Plus" mosquito nest eradication movement has proven highly effective in preventing dengue disease and promoting environmental hygiene and healthy living behaviors. This study aims to explore the relationship between household head behavior and the implementation of dengue fever mosquito nest eradication. Using a descriptive analytic approach with a cross-sectional study design and simple random sampling, the research involved 14 family heads as participants. Data were collected through interviews using a questionnaire and supplemented with observational data. Data processing encompassed editing, coding, and tabulating, followed by bivariate analysis (Chi-square test) and multivariate analysis (Binary Logistic Regression) at a 95% confidence interval. The results indicate a significant correlation between attitudes ($p=0.000$) and the role of community leaders ($p=0.039$) in the eradication of dengue mosquito nests. However, no relationship was observed between knowledge ($p=0.767$) and mosquito nest eradication. Attitude emerged as the dominant predictor ($Exp(B) = 7.2$) for its association with the implementation of eradication efforts. This research highlights the importance of positive attitudes and the role of community leaders in effectively eradicating dengue mosquito nests, ultimately contributing to the success of such efforts in Peukan District, Aceh Besar Regency.

Keywords: Dengue Hemorrhagic Fever, Role of Community Leaders, Mosquito Nest Eradication

1. INTRODUCTION

Dengue Hemorrhagic Fever (DHF) is a prominent public health issue in Indonesia, with increasing cases and widespread transmission due to the Dengue virus carried by *Aedes aegypti* and *Aedes albopictus* mosquitoes (Kumosani et al., 2020). Primarily affecting individuals under 15 years old, DHF can also impact adults (Rajagukguk & Sitorus, 2019). Gutu et al. (2021) noted that DHF can occur throughout the year, targeting all age groups. The disease is linked to environmental conditions and community behavior, with an Incidence Rate and Case Fatality Rate (IR and CFR) of 50.75 per 100,000 population and 0.83% respectively, based on 2015 data (Rajagukguk & Sitorus, 2019).

DHF was first identified in Surabaya in 1968 and has since spread to various regions (Yushananta et al., 2020). In 2019, Indonesia reported 204,171 DHF cases with 1,598 deaths. The figures decreased in 2020 to 95,839 cases and 661 deaths (Rokom, 2020). In Aceh province, based on the Disease Control and Prevention field reports for 2019, 2,386 DHF cases and 6 deaths with a CFR of 0.25% were recorded across 23 districts/cities. In

2020, cases further reduced to 891 with 1 death and a CFR of 0.11% (Aceh Health Department, 2021).

Aceh Besar Regency, situated within Aceh province, is not exempt from the issue of DHF. The region consistently reports DHF cases annually. In 2012, there were 30 confirmed DHF cases with 2 deaths. The following years saw a decline with 17 cases in 2013 and 12 cases in 2014. Aceh Besar Regency comprises 10 sub-districts, including Peukan. This sub-district faces high DHF case numbers, with 6 cases in 2019 and 11 cases, including 1 death, in 2020 (Aceh Besar Health Office, 2021). Factors contributing to the rise in DHF cases include vector density, growing population density tied to urbanization and development, increased transportation options, community behavior indifferent to environmental hygiene, and climate change (Kemenkes RI, 2016). According to Kurniawan & Agustini (2021), household heads have a pivotal role in changing behavior through the implementation of Dengue Fever Mosquito Nest Eradication (PSN DHF). With no available cure for dengue, controlling the *Aedes aegypti* vector remains the primary approach. Vector control involves executing the 3M Plus PSN (Kurniawati et al., 2020).

Empowering communities via 3M Plus PSN activities (draining, covering water containers, recycling discarded items), along with deploying larvicides, maintaining mosquito-eating fish, changing vase water, and more (Kemenkes RI, 2016), has proven effective. Rajagukguk & Sitorus (2019) conclude that significant associations exist between performing 3M practices, using mosquito repellent, finding mosquito larvae, and DHF incidence. Another study by Priesley et al. (2018) reports a meaningful correlation between 3M Plus PSN behavior and DHF incidence in Andalas Village. Moreover, Nurfitriani (2017) establishes significant connections between knowledge and DHF prevention, as well as between attitudes and family roles in DHF prevention. Given this context, the objective of this study is to measure the relationship between household head behavior and the implementation of Dengue Fever Mosquito Nest Eradication (PSN-DHF) in Aceh Besar Regency.

2. RESEARCH METHODS

This research employs a descriptive analytic approach with a cross-sectional study design and was conducted in the Peukan Sub-district of Aceh Besar Regency. The sample collection utilized the simple random sampling technique, a basic form of probability sampling involving the random selection of samples. The precision of data collection is crucial to ensure valid and reliable results.

Data were collected through structured interviews using questionnaires to obtain information regarding the correlation between the behavior of household heads and the implementation of Dengue Fever Mosquito Nest Eradication (PSN-DHF) efforts. Additionally, observations were carried out to understand the conditions during the execution of PSN-DHF activities and factors related to these endeavors. Documentary analysis was also employed as a complementary tool to source relevant data and information pertaining to the research.

3. RESULTS AND DISCUSSION

The research findings reveal that several factors are related to the implementation of Dengue Fever Mosquito Nest Eradication (PSN-DHF), although one variable was also found to have no correlation with its execution. Based on Table 1, it is evident that individuals with high knowledge, comprising 64.3%, engaged in the PSN-DHF. However, statistically, this does not demonstrate a significant relationship ($p > 0.05$), it can be seen in the table below:

Table 1. Result according to Gender

		GENDER			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	9	64.3	64.3	64.3
	Female	5	35.7	35.7	100.0
	Total	14	100.0	100.0	

Table 2. Result according to Age

		AGE			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	20 Years Age	4	28.6	28.6	28.6
	30 Years Age	4	28.6	28.6	57.1
	40 Years Age	3	21.4	21.4	78.6
	50 Years Age	2	14.3	14.3	92.9
	60 Years Age	1	7.1	7.1	100.0
	Total	14	100.0	100.0	

Table 3. Relationship according to Behavior

		BEHAVIOR			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Good	9	64.3	64.3	64.3
	Less Good	5	35.7	35.7	100.0
	Total	14	100.0	100.0	

The research results have indicated that there is no correlation between the knowledge of household heads and the implementation of PSN-DHF in Peukan Sub-district of Aceh Besar Regency in 2021. According to the researchers, the high knowledge regarding PSN-DHF implementation is attributed to the involvement of health officers, especially those stationed at the UPTD Puskesmas Jeuram in Peukan Sub-district, who collaborate with village authorities and volunteers in conveying information to the community about the understanding of vector transmission, signs and symptoms, mode of transmission of DHF, and breeding sites of dengue mosquitoes through various activities such as health promotion, monthly posyandu (integrated health service) sessions, and women's religious gatherings in Kuta Baroe village. An interesting aspect of this study is that even though 15 household heads possessed high knowledge, they did not carry out PSN-DHF measures. The researchers suggest that this phenomenon might be attributed to these individuals being in the cognitive stages of remembering and understanding, yet not applying the received information or knowledge regarding PSN-DHF implementation (Kurniawan & Agustini, 2021). They are aware and understand, but lack the application of PSN-DHF. This is evident from the presence of discarded items such as used cans, old water containers, and discarded tires left around homes and the local environment, as well as trash accumulating in drains, leading to water stagnation and mosquito breeding sites (Hakiki, 2016).

As suggested by Yushananta et al. (2020), efforts to address the situation of household heads not adhering to PSN-DHF activities include establishing initiatives like "1 House 1 Jumantik" (where each family has a mosquito larvae monitor), involving all household heads in regular clean-up campaigns within their vicinity, forming an Operational Dengue Fever Eradication Working Group (Pokjanal DHF) comprising the village head (Geuchik), village officials, community and religious leaders, youth representatives, and women's groups or study groups. All these endeavors are aimed at optimizing the execution through Pokjanal DHF of Kuta Baroe village by offering rewards or incentives to compliant household heads (such as souvenirs, among others) and imposing sanctions on those who do not participate in PSN-DHF (in the form of fines, which are then used for PSN-DHF activities as well). In a study conducted by Nurfitriani (2017), the statistical analysis revealed a significant relationship between knowledge and DHF prevention with a p-value of $0.000 < 0.05$. Respondents with moderate knowledge will exhibit adequate actions, whereas respondents with lower knowledge levels will correspondingly demonstrate fewer actions.

According to Siregar (Baitanu et al., 2022), this indicates that knowledge or cognitive aspects related to DHF eradication are crucial domains in shaping an individual's overt behavior. Without knowledge, individuals lack the basis for making decisions and taking actions to address the challenges they face. Knowledge or cognition results from knowing, which occurs after an individual perceives a specific object. Without knowledge, individuals lack the basis for making decisions and taking actions to address the challenges they face (Irwan, 2017). Factors influencing knowledge encompass age, intelligence, environment, socio-cultural aspects, education, information, and experience (Waris & Suryatinah, 2012).

This research has reported a correlation between the attitudes of household heads and the implementation of PSN-DHF in Peukan Sub-district of Aceh Besar Regency in 2021. Household heads with negative attitudes have a 35,750 times greater likelihood of executing PSN-DHF. According to the researchers, the attitudes of household heads

towards PSN-DHF execution play a pivotal role in the success of these efforts. To encourage improved attitudes among household heads, various educational campaigns are being intensively and continuously carried out through diverse health promotion media and avenues. Household heads can actively participate in PSN-DHF implementation. For instance, household heads can contribute to disease surveillance efforts by promptly recognizing signs of DHF affecting family members or neighbors and swiftly referring them to the nearest healthcare facility for early diagnosis and timely treatment.

An intriguing aspect of this study is that there are still 2 household heads with positive attitudes who do not execute PSN-DHF. Similar to knowledge, attitudes consist of various levels, such as receiving, responding, valuing, and taking responsibility. The researchers assume that the two household heads mentioned might be at the receiving level of attitude, indicating that they are willing to pay attention to the provided stimuli (objects), yet they have not progressed to the responding level, which entails answering questions or completing tasks, both of which serve as indications of attitude (Nurfitriani, 2017). This is also evident from the environment around their homes, where discarded items that can hold water remain unburied, thus potentially leading to the outbreak of dengue fever, and no efforts are made to drain or clean water storage containers (Kurniawan & Agustini, 2021).

Overcoming these aspects with household heads, the researchers propose several activities related to DHF, such as providing waste disposal facilities and daily collection of waste by sanitation crews, establishing the initiative "1 House 1 Jumantik" (households monitoring mosquito larvae), conducting home visits by community and religious leaders to provide correct understanding and belief about PSN-DHF for household heads not practicing it, organizing regular communal clean-up campaigns around residential areas once a week, forming an Operational Dengue Fever Eradication Working Group (Pokjandal DHF) comprising the village head (Geuchik), village officials, community and religious leaders, youth representatives, women's groups or study groups, and the village's military and police personnel (*babinsa/babintamtibmas*). All these efforts are aimed at optimizing implementation through Pokjandal DHF in Kuta Baroe village by offering rewards or incentives to compliant household heads (such as souvenirs, among others) and imposing sanctions on those who do not participate in PSN-DHF (in the form of fines, which are then used for PSN-DHF activities as well). In a study conducted by Ramadan et al. (2020), the findings indicated that 82.3% of respondents had good knowledge, 80.6% strongly agreed with positive attitudes, and 93.5% of respondents did not suffer from DHF.

Based on the Spearman's rho analysis for the knowledge variable and DHF incidence ($p= 0.015 < 0.05$), a relationship exists, similarly for the attitude variable and DHF incidence ($p= 0.024 < 0.05$). Regression analysis ($p= 0.00 < 0.05$) revealed a relationship between knowledge and attitude variables with the DHF incidence variable. Attitude is a person's closed response to a stimulus or object, whether internal or external, the manifestation of which is not immediately observable but inferred from concealed behavior. In reality, attitude demonstrates the alignment of responses. Attitude measurement can be direct or indirect, through opinions or respondent queries about an object, which is indirectly done through a hypothesis, followed by the expression of respondent opinions (Irwan, 2017). Attitude is a latent reaction or response from an individual to a stimulus or object. It represents willingness or readiness to act and also

reflects the execution of specific motives. Attitude cannot form without information, personal observation, or experience with an object.

4. CONCLUSION

This study has revealed a significant correlation between attitudes and the role of community leaders in the eradication of dengue mosquito nests, underscoring their vital contribution to the fight against Dengue Fever. However, knowledge did not exhibit a discernible correlation with the eradication efforts. The triumph of dengue mosquito nest eradication predominantly hinges on the positive attitudes exhibited by the local community. As a recommendation, these findings can serve as a foundation for formulating comprehensive prevention and control strategies for Dengue Fever, particularly in endemic regions of Aceh Besar Regency. It is advised to advocate for the establishment of Local Regulations regarding PSN-DBD within Aceh Besar Regency, liaising with relevant governmental bodies at both district and sub-district levels. Furthermore, fostering collaboration with the Department of Community Empowerment, Villages, Population Control, and Women Empowerment (BPMG4) of Aceh Besar Regency is recommended, aiming to ensure the appropriate allocation of funds.

In light of these findings, the proactive engagement of community leaders and their positive attitudes can significantly enhance the success of dengue mosquito nest eradication initiatives. While knowledge might not directly influence these efforts, a holistic approach that encompasses education and awareness can further bolster the community's commitment to the cause. By aligning efforts at both the local and district levels, including advocacy for necessary regulations and strategic allocation of resources, Aceh Besar Regency can take strides towards curbing the prevalence of Dengue Fever. Ultimately, the collaborative efforts of various stakeholders, along with the continued commitment of the community, are pivotal in achieving sustainable results in the fight against Dengue Fever and its associated health risks.

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