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Overview of Dengue Hemorrhagic Fever (DHF) Prevention in The Community Health Center

Asishe[1], Ismarina[1*], Martha Ikhlasiah[1], Prihayati[1]

[1]Master of Public Health Program, Faletehan University, Indonesia; rinaismarina77@gmail.com (Corresponding Author)

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ABSTRACT

Dengue hemorrhagic fever is an infectious disease caused by the dengue virus and transmitted through the mosquito vector of the *Aedes aegypti* species. Dengue fever is an endemic disease in more than 100 countries. World Health Organization (WHO) data shows that the number of reported cases of dengue fever has increased more than 8-fold over the last 4 years, from 505,000 cases to 4.2 million in 2019. Based on the Indonesian Health Profile, dengue cases were reported in 2020, and 108,303 cases were recorded in Indonesia. In line with the number of cases, deaths due to dengue fever in 2020 were 747 deaths. In Banten Province, in the last 3 years, there have been dengue fever cases: in 2020, there were 3,132 cases, in 2021, there were 3,125 cases, and in 2022 it fell to 2,798 cases. In January 2024, it reached 1,619 cases; in February 2024, it increased again to 1,933 cases. The method of preventing dengue fever is considered very effective and relatively cheaper compared to previous methods. This method is recommended to the public, namely by carrying out 3M plus activities, namely closing water reservoirs, draining water reservoirs, and burying used items that can collect rainwater. Another way to repel or avoid mosquito bites is by using anti-mosquito medication or spraying with insecticide. This research aims to analyze the effect of health interventions on dengue prevention. The design of this research is cross-sectional. The population in this study was the community in the working area of the Waringinkurung Community Health Center, Serang Regency. The sampling method used in the research is the total sampling technique. The Chi-Square test results show a relationship between knowledge, attitudes, perceptions, availability of health infrastructure, cadre support, and 3M behavior toward preventing dengue fever.

Keywords: prevention of dengue fever; dengue disease; health interventions

INTRODUCTION

Dengue Hemorrhagic fever (DHF) is an infectious disease caused by the virus Dengue and is transmitted via mosquito vectors of the *Aedes aegypti* or *Aedes albopictus*. The role of vectors in the spread of disease is often discovered during the rainy season when many puddles of water become breeding places for mosquitoes. Some research shows that dengue fever is related to mobility, population density, and community behavior, not only climate and environmental conditions. These influencing factors are the basis for efforts to prevent and control dengue fever (Kusumaningsih, 2022; Aisyiah, 2021).

World Health Organization (WHO) said the number of reported dengue fever cases increased more than 8-fold over the last 4 years, from 505,000 cases to 4.2 million in 2019. The number of reported deaths also increased from 960 to 4032 throughout 2015. Not only did the number of cases increase as the disease spread to new regions, including Asia, but explosive outbreaks also occurred. The threat of a possible dengue fever outbreak is present in Asia. The Americas region reported 3.1 million cases, with over 25,000 classified as severe (WHO, 2020). The long-term effects of this disease can reduce the quality of life and the body's immunity (Putri & Afandi., 2022; Aliyah et al., 2019).

Dengue Hemorrhagic Fever (DHF) is an endemic disease in more than 100 countries. Dengue fever has spread widely worldwide, often appearing as an outbreak (extraordinary event). High morbidity and mortality rates are an illustration of this disease becoming a significant health problem. Dengue hemorrhagic fever is often found in tropical and subtropical areas. Currently, there is not only an increase in the number of cases but also spread outside tropical and subtropical areas, for example in Europe, the World Health Organization (WHO) recorded Indonesia as the country with the highest dengue fever cases in Southeast Asia (Ratnawulan, 2019).

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The first case of dengue fever in Indonesia was reported in Surabaya in 1968. The number of cases has continued to increase every year since it was first discovered. The vector that transmits this disease comes from *Aedes aegypti* and *Aedes albopictus*. The characteristics of the transmission vector determine the spread and timing of infection. *Aedes aegypti* prefers shelters such as gutters, pot flowers, and other standing water such as water tanks, pet drinking places, swimming pools, and trash cans (Yuliani, 2021). The Ministry of Health of Indonesia reports that 2023 there will be 35,694 dengue hemorrhagic fever (DBD) cases in Indonesia. Meanwhile, in 2024, nearly 16,000 cases of Dengue Hemorrhagic Fever (DHF) in 213 Regencies/Cities in Indonesia with 124 deaths. The most cases of dengue fever were recorded in Tangerang, West Bandung, Kendari City, Subang, and Lebak (Ministry of Health, 2024).

Based on the 2020 Indonesian Health Profile, 108,303 dengue fever cases were reported in 2020 in Indonesia. In line with the number of cases, deaths due to dengue fever in 2020 were 747 deaths. Pain and death can be described using indicator incidence rate (IR) per 100,000 population and case fatality rate (CFR) in percentage form. The provinces with the highest dengue IR are Bali (273.1), East Nusa Tenggara (107.7), and DI Yogyakarta (93.2). Meanwhile, the provinces with the lowest DHF IR are Aceh (0.0), Maluku (4.2), and Papua (5.0). For Dengue Hemorrhagic Fever (DHF) 2 (two) indicators are used, namely indicator Incidence Rate from (IR). Case Fatality Rate (CFR) dengue fever (Kusumaningsih, 2022).

In Banten Province, over the last three years, dengue cases have fluctuated quite a lot; in 2020 dengue cases were 3,132 cases (CFR: 1.1%); in 2021, it fell to 3,125 cases (CFR: 0.9%), and in 2022 it fell to 2798 cases (CFR: 0.8) (source profile of Banten Provincial Health Service 2022). As for dengue fever cases in Banten Province, in January 2024, it reached 1,619 cases. Meanwhile, in February 2024, it increased again to reach 1,933 cases (Banten Health Service, 2024).

Data from the Serang District Health Service has seen an increase in dengue fever cases in the last 3 years, with the most cases in Serang District, namely Kramatwatu District with 115 cases, Cikande District with 63 cases and Ciruas District with 60 cases (Serang District Health Office Profile, 2022). One of the causes of the high number of dengue fever cases occurring in Kramatwatu District is that the larvae-free rate is still low. The larvae-free rate in Kramatwatu District is 85%, while the national ABJ target is 95% (Serang District Health Service 2022).

The health service has carried out various efforts to prevent dengue fever, such as first aid for dengue sufferers and subsequent referral to the hospital; continuous outreach to the community; Fogging or fumigation in the homes of dengue sufferers; sprinkling abate powder in water reservoirs; eradicating mosquito nests (PSN) by working together and involving the community. The efforts aim to build an active community role in carrying out dengue prevention efforts. However, until now, efforts have not changed endemic areas to non-endemic areas (Gunasta et al., 2021).

The method of preventing dengue fever is seen as very effective and relatively cheaper compared to previous methods. The method recommended to the public is to carry out 3 M plus activities, namely closing water reservoirs, draining water reservoirs, and burying used items that can hold water, rain, and other ways to repel or avoid mosquito bites by using anti-mosquito medication or spraying with insecticide (Panjaitan, 2021).

The factors influencing the increase and spread of dengue fever cases are very complex, including high population growth, unplanned and uncontrolled urbanization, ineffective mosquito control in endemic areas, and improved transportation facilities. This shows that most housewives do not understand dengue fever, especially regarding dengue transmission, first aid measures for dengue sufferers, causes, and countermeasures (Ratnawulan, 2019). Apart from that, clean and healthy living behavior must be implemented to prevent the spread of disease, including maintaining a healthy lifestyle (Nuzula et al., 2023; Afandi et al., 2022).

The community can play a role in efforts to eradicate the vector, which is the most important effort to break the chain of transmission to prevent and eradicate dengue fever that will emerge in the future. To eliminate these vectors, the community can actively monitor larvae and carry out simultaneous Mosquito Nest Eradication (*Pemberantasan Sarang Nyamuk/PSN*) movements. Thus, the PSN movement can be carried out with 3M Plus, namely draining water reservoirs at least once a week or sprinkling them with abate powder to kill mosquito larvae. *Aedes aegypti* tightly closes the water reservoir to keep mosquitoes away *Aedes aegypti* cannot lay eggs in that place and bury used items such as used tires and used cans that can collect rainwater, as mosquitoes know *Aedes aegypti* is a domestic mosquito that lives very close to residential areas (Windaningsih et al., 2019).

Data from the Serang District Health Service. As of May 2024, there have been 349 cases of dengue fever in Serang District, and six people have even died. The number of dengue fever cases in Serang Regency in 2024 will increase compared to 2023 in the same period. Based on data from the Serang Regency Health Service (Dinkes), the highest cases occurred in Cikande, with 38 cases, with 30, Ciomas 28 cases, Tirtayasa 22, Padarincang 21, Kibin 21, Kramatwatu 21, Tanara 20, the rest were spread across several other sub-districts. Meanwhile, the death cases occurred in the districts of

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Kramatwatu 2, Waringinkurung 1, Kibin 1, Padarincang 1, and Cinangka 1. Most of the cases occurred in April: 93 sufferers, 1 died, March 88 sufferers, 4 died, February 70 sufferers, 1 died, January 61 sufferers, May 37 sufferers.

The health service has carried out various efforts to prevent dengue fever, such as first aid for dengue sufferers, and subsequent referral to hospital; continuous outreach to the community; Fogging or fumigation in the homes of dengue sufferers; sprinkling abate powder in water reservoirs; eradicating mosquito nests (PSN) by working together and involving the community. The efforts aim to build the community's active role in dengue prevention efforts (Bahar & Ismail, 2017).

Griya Bukit Intan Serang Housing is a subsidized housing complex in the Waringinkurung area, Serang Regency, Banten. The subsidized housing complex in Serang Banten has a minimalist and modern house design. The location of Griya Bukit Intan is quite strategic, with easy and close access to various locations nearby. The Griya Bukit Intan housing complex is in Sukaberes, Waringinkurung, Serang, Banten. At the Griya Bukit Intan housing complex, there were 23 cases of dengue fever. Therefore, the Waringinkurung Community Health Center provides education about dengue prevention to residents and carries out fogging of residents' home environments to kill mosquito nests around residents' homes. Several activities to prevent and control dengue fever in the Waringinkurung Community Health Center Work Area are conducting outreach about efforts to prevent dengue fever and carrying out fogging activities in the Griya Bukit Intan residential area.

Based on the explanation above, researchers are interested in researching the analysis of the influence of health interventions on the prevention of dengue fever in the Waringinkurung Community Health Center work area in 2024.

METHOD

This research is analytical research with a cross-sectional study design. This study aims to analyze the effect of health interventions on preventing dengue fever in 2024. Data collection was carried out using a questionnaire through interviews with respondents. This research was carried out in June – July 2024 in the Waringinkurung Community Health Center Work Area.

The population is defined as a generalization area consisting of objects/subjects with certain qualities and characteristics determined by the researcher for the study, and conclusions are drawn. The population in this study was the community in the Waringinkurung Community Health Center Work Area, Serang Regency, Banten Province, with 80 residents of Perumahan Griya Bukit Intan RW 03.

The sample is a portion of the entire object under study, which will be considered representative of the entire population. A sample is a certain part or number of samples that can be taken from a population and studied in detail. The sample in this research was determined by using total sampling techniques.

RESULT

Table 1. Frequency Distribution of the Effect of Interventions on DHF Prevention

Variable		Frequency	Percentage
Prevention of dengue fever	Not success	38	47.5
	Success	42	52.5
Knowledge	Not Good	25	31.3
	Good	55	68.7
Attitude	Disagree	28	35.0
	Agree	52	65.0
Perception	Disagree	30	37.5
	Agree	50	62.5
Availability of health infrastructure	Not available	17	21.3
	Available	63	78.7
Cadre Support	Does not support	21	26.3
	Support	59	73.7
3M Behavior	Does not support	34	42.5
	Support	46	57.5

Based on the table above, it is known that from 80 respondents, which suggests that Respondents who had successful prevention were 42 (52.5%) and 38 (47.5%) were unsuccessful. Respondents who had good knowledge were 55 (68.7%), and 25 (31.3%) had poor knowledge. Respondents who agreed were 52 (65.2%) and 28 (35.0%) disagreed.

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Respondents who believed they agreed were 50 (62.5%) and 30 (37.5%) disagreed. Respondents who had health facilities and infrastructure available were 63 (78.8%), and 17 (21.3%) were not available. Respondents with cadre support supported as many as 59 (73.8%) and did not support as many as 21 (26.3%). Respondents who supported 3M behavior were 46 (57.5%), and 34 (42.5%) did not support it.

DISCUSSION

The research results show that of those who had successful prevention, 42 (52.5%) and 38 (47.5%) were unsuccessful. Respondents who had good knowledge were 55 (68.7%), and 25 (31.3%) had poor knowledge. Respondents who agreed were 52 (65.2%) and 28 (35.0%) disagreed. Respondents who believed they agreed were 50 (62.5%) and 30 (37.5%) disagreed. Respondents who had health facilities and infrastructure available were 63 (78.8%) and 17 (21.3%) were not available. Respondents with cadre support supported as many as 59 (73.8%) and did not support as many as 21 (26.3%). Respondents who supported 3M behavior were 46 (57.5%) and 34 (42.5%) did not support it.

This research's results align with Kolondam's (2020) that attitudes and actions influence efforts to prevent dengue fever dengue. Knowledge, attitudes, and perceptions of the community regarding efforts to prevent dengue fever are quite good; this is implemented in actions that are realized by carrying out house cleaning activities (cleaning bathrooms, draining bathtubs, and cleaning other water reservoirs) and the home environment (cleaning rubbish and cleaning ditches), they also use mosquito nets or anti-mosquito nets to protect themselves from mosquito bites (Gusnata, 2021).

Lack of facilities and infrastructure, availability of abates, lack of optimal counseling, funds, and periodic larval inspections are factors in the increase in dengue hemorrhagic fever in the Bengkalis Community Health Center UPT Work Area in 2020 (Ayudiasari, 2022). Cadres play a very important role in changing people's behavior. The role of cadres is to provide education to the community. The results of Hidayati's research (2019) show that there is an impact of strengthening the prevention of dengue fever by the community. The counselor explained the signs and symptoms of dengue fever, how to prevent it, and the use of abate, and provided socialization on filling out a *juru pemantau jentik* or *jumantik* or flick monitors card for each family. The distribution of abates and the PJB program are carried out simultaneously for 3 environments: West Turida, East Turida, and Lendang Lekong. The results of Ranteallo's (2020) research obtained regarding efforts to prevent dengue fever before being given health education (pretest) with efforts to prevent dengue fever being poor at 75 (86.2%) and efforts to prevent dengue fever being good at 12 (13.8%). After being given health education (posttest) efforts to prevent dengue fever were poor at 7 (8%), and efforts to prevent dengue fever were good at 80 (92%).

The health service has carried out various efforts to prevent dengue fever, such as first aid for dengue sufferers and subsequent referral to the hospital; continuous outreach to the community; Fogging or fumigation in the homes of dengue sufferers; sprinkling abate powder in water reservoirs; eradicating mosquito nests (PSN) by working together and involving the community. The efforts aim to build an active community role in carrying out dengue prevention efforts. However, until now, efforts have not succeeded in changing endemic areas to non-endemic areas (Gunasta et al., 2021). Mardhatillah et al. (2020) showed Health education, 3M community service, home visits, activities fogging, Periodic larva monitoring, and PSN are efforts by the Dempo Health Center in Palembang City to eradicate dengue fever in its working area.

CONCLUSION

The results showed that most respondents had successful dengue prevention as many as 42 (52.5%), good knowledge of as many as 55 (68.7%), attitudes of agreement as many as 52 (65.0%), perceptions of agreement as many as 50 (62.5%). %), health infrastructure was available for 63 (78.8%), cadre support was available for 63 (73.8%), and 3M behavior was available for 46 (57.5%).

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