

Conference Paper

Dengue Hemorrhagic Fever Cases by Gender in the North Buton Regency in the 2018-2020 Period

Harwiati¹, Ramadhan Tosepu^{2*}, Devi Savitri Effendy²¹Student of Postgraduate Program of Public Health, University of Halu Oleo, Indonesia²Faculty of Public Health, University of Halu Oleo, Southeast Sulawesi Province, Indonesia**Abstract.**

Dengue Hemorrhagic Fever (DHF) is a public health problem where the number of patients continues to increase year by year. DHF is also endemic and continues to spread in several districts/cities in Southeast Sulawesi Province, including the North Buton Regency. The objective of this study is to describe the cases of DHF based on gender in the North Buton Regency between 2018-2020. This is a survey research utilizing health report data from the North Buton District Health Office in the 2018-2020 period, which includes data on DHF cases based on gender. The type of research data is numerical. The research data is presented in the form of a graph with narration. The conclusion of the study is that the case of DHF in the North Buton Regency for the 2018-2020 periods in the male group was the highest. The highest cases was at Public Health Center Kulisusu with 7 cases of male and 9 cases of female. There was no significant difference between men and women suffering from DHF.

Keywords: Dengue Hemorrhagic Fever, Aedes Aegypti, Gender

Corresponding Author:

Ramadhan Tosepu; email:
ramadhan.tosepu@uho.ac.id**Published:** 13 September 2022Publishing services provided by
Knowledge E

© Harwiati et al. This article is distributed under the terms of the [Creative Commons Attribution License](#), which permits unrestricted use and redistribution provided that the original author and source are credited.

Selection and Peer-review under the responsibility of the ICASI Conference Committee.

1. introduction

Dengue Hemorrhagic Fever (DHF) or diseases caused by mosquito bites [1–3]. This disease is known for its very typical symptoms, namely high body temperature or heat as well as joint pain, headaches, muscle, bone and pain behind the eyes [4],[5]. This dengue virus attacks a person through the intermediary of the Aedes Aegypti and Aedes Albopictus mosquitoes. The characteristics of mosquitoes that spread dengue virus are black with white stripes on their bodies [6, 7]. These two types of insects are often found breeding in tropical climates, including Indonesia and African countries. It is known that there are many people with dengue fever every year [8, 9].

The World Health Organization (WHO) reported that dengue cases in the world continue to increase from 2.2 million in 2010 to more than 3.34 million in 2016. The extraordinary events occur in various regions of the world, especially in tropical countries. The Americas region reported more than 2.38 million cases in 2016, Brazil with fewer than 1.5 million cases, about 3 times higher than in 2014 and about 1032 deaths

OPEN ACCESS

from dengue were also reported in the region. The Western Pacific Region reported more than 375,000 suspected cases of dengue fever in 2016, of which the Philippines reported 176,411 and Malaysia 100,028 cases, representing the same burden as the previous year for both countries. Solomon Islands announced an outbreak with more than 7000 suspects. In the African Region, Burkina Faso reports a local dengue outbreak with a possible 1061 cases. In the year 2017, a significant reduction was reported in the number of dengue cases in America from 2,177,171 cases in 2016 to 584,263 cases in 2017 for a 73% reduction. Several countries such as Panama, Peru, and Aruba were the countries that recorded an increase in cases during 2017. Similarly, a 53% decrease in dengue cases was also recorded during 2017 [10].

The Republic of Indonesia Ministry of Health (Kemenkes RI) reports that dengue cases in Indonesia fluctuated where in 2016 there were 204,171 and Incident Rate (IR) of 78.85 per 100,000 and deaths of 1598 cases or CFR of 0.78%. In the year 2017 the number of cases of DHF nationally fell to 68,407 cases with an Incidence Rate (IR) of 26.12 per 100,000 population and deaths of 493 cases or a CFR of 0.72%. Meanwhile, the number of dengue cases in 2018 was reported to be 65,602 cases with an Incidence Rate of 25.11 per 100,000 with a death toll of 467 people or a CFR of 0.71% [11].

In the North Buton Regency, In year 2017 the number of sufferers was 73 cases (Incidence Rate = 117.6 per 100,000 population). In the year 2016 the number of patients reported was 86 cases (Incidence Rate = 140.7 per 100,000 population). In 2015 as many as 47 (Incidence Rate = 78.60 per 100,000 population). The case of death of DHF patients in 2017 was 3 people with a CFR of 4.1%. Cases of DHF patients who died were found in the working area of the Waode Buri Health Center [12].

By considering the astronomical location, the North Buton Regency is located at 4.60 South Latitude – 5.150 South Latitude and stretches from West to East between 122.590 East Longitude – 123.150 East Longitude, with the largest livelihood of the people being farmers [12]. This greatly increases the potential for the spread of the *Aedes Eegypti* mosquito. In general, the most important role in transmission is *Ae. aegypti*, because it lives in and around the house, while *Ae. albopictus* in the garden, so it has less contact with humans [5].

Previous studies have shown that the incidence of DHF is related to behavioral and environmental factors. Climatic factors can affect the pattern of infectious diseases because disease agents, whether viruses, bacteria or parasites, and vectors are sensitive to air temperature, humidity, and other ambient environmental conditions [13]. Climate and disease cases have a very close relationship, especially the occurrence of various infectious diseases [14, 15].

A study on the incidence of DHF has been reported by Yusnia [16], stating that 107 cases of DHF were found in men (52.2%) than women (47.8%), as well as research by Rizza Umaya et al. that women are more positive than men [6]. Based on these empirical data, this study aims to describe the incidence of dengue fever by gender in North Buton Regency for the 2018-2020 periods.

2. METODOLOGY OF THE STUDY

The type of research is a survey research by utilizing the health report data of the North Buton Regency Health Office for the 2018-2020 period involving data on the incidence of DHF based on gender. The type of research data is numerical. The research data is presented in the form of graphs along with narration.

3. result of the study

The research results can be presented using a bar chart with explanation that can be presented as follows:

Figure 1 showed that the DHF cases in the North Buton Regency for the 2018-2020 periods in the male gender is the highest at the Kulisusu Health Center at 1 case and the lowest or no incidence of DHF occurs in almost all Public Health Center. In the 2019 the highest was at the Kulisusu Health Center with 7 cases and the lowest was in 5 other health centers. In the year 2020 the highest was at the Lambale Health Center and at other health centers there were no cases.

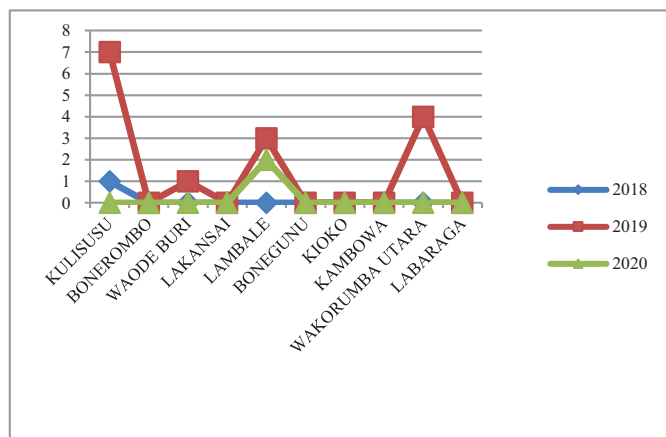


Figure 1: DHF Incidence Rate in the North Buton Regency by Male for the 2018-2020 Periods.

Figure 2 shows that the DHF cases in the North Buton Regency for the 2018-2020 period in the female gender is the highest at the Boneguru Health Center at 1 case and

there is no DHF cases in all other Public Health Center. In the year 2019 the highest was at the Kulisusu Health Center with 9 cases and the lowest there were no cases in 7 other health centers. Then, in the year 2020 the highest was at the Lambale Health Center with 2 cases and at the other health centers there were no cases.

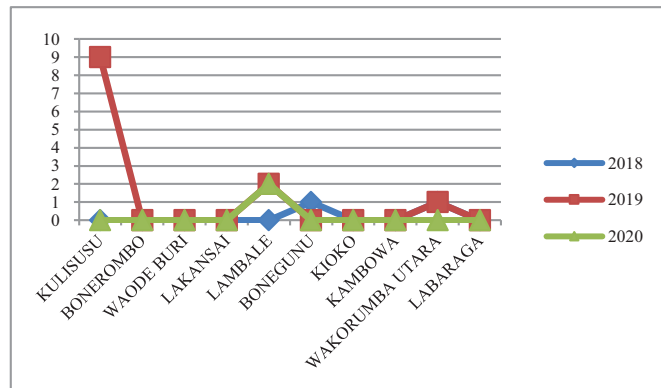


Figure 2: The DHF cases in the North Buton Regency by Female for the 2018-2020 period.

4. DISCUSSION

The DHF cases in each Public Health Center in the North Buton Regency during the 2018-2020 periods were almost no longer found. Although there are still 1-2 Public Health Center that report the presence of DHF sufferers every year, but it is very clear that there is a decrease when compared to the previous years. This is inseparable from the hard work of the government. The Health Office and Public Health Centers are always promoting the prevention of dengue, both through promotion and prevention of dengue fever, such as fogging and distribution of Abate powder as well as the implementation of the PSN movement, (Eradication of Mosquito Nests) carried out with 3M plus activities (draining, closing and burying). The DHF cases in the North Buton Regency for the 2018-2020 period based on gender can be said that there is almost no difference in the number of cases that stands out between the male and female. In the year 2019, the highest was at the Kulisusu Health Center with 7 male cases and 9 female cases. The results of this study are in line with research by Rizza Umay a et al [6] which stated that gender was not associated with the incidence of DHF (p-value = 0.996, PR = 1.002).

There is no relationship between gender and the incidence of DHF is because both women and men have the same potential to get dengue disease, both men and women on average have almost the same place of activity as at home when they are not working. Although there are family members who work, their workplace environment is also

almost the same as at home, for example in the fields, besides the *Aedes* mosquito as a vector of dengue fever does not have a subjective character/tendency to bite women or men more often. Women and men have the same potential to be bitten by the *Aedes aegypti* mosquito.

5. CONCLUSION

The DHF cases in the North Buton Regency for the year 2018-2020 for male was highest at the Public Health Center. In the year 2019 the highest was at the Kulisusu Health Center at 7 cases. The highest case for female was in the year 2019 at at the Kulisusu Health Center at 9 cases. There was no significant difference between men and women on suffering DHF.

6. AUTHOR' CONTIBUTION

The authors have contributed to the preparation of this article.

7. ACKNOWLEDGMENTS

The author would like to thank all those who have contributed to the implementation of this research, especially the Head of the North Buton Regency Health Office.

References

- [1] N.I. Ishak and K. Kasman, "The effect of climate factors for dengue hemorrhagic fever in Banjarmasin City, South Kalimantan Province, Indonesia, 2012-2016.," *Public Health of Indonesia*. vol. 4, no. 3, pp. 121–128, 2018.
- [2] S. Alhamda, "Relationships Of The Implementation Of A 3m Plus Program And The Existence Of *Aedes Aegypti* Larvae Towards The Number Of Dengue Fever Cases In The Public Health Center Of Tigo Baleh Bukittinggi, West Sumatera, Indonesia.," *Public Health of Indonesia Alhamda S. Public Health of Indonesia*. vol. 3, no. 3, pp. 131–137, 2017.
- [3] M. Mistawati, Y. Yasnani, and H. Lestari, "Forecasting prevalence of dengue hemorrhagic fever using ARIMA model in Sulawesi Tenggara Province, Indonesia.," *Public Health of Indonesia*. vol. 7, no. 2, pp. 75–86, 2021.

- [4] R. Tosepu, K. Tantrakarnapa, K. Nakhapakorn, and S. Worakhunpiset, "Climate variability and dengue hemorrhagic fever in Southeast Sulawesi Province, Indonesia.," *Environmental Science and Pollution Research*. vol. 25, no. 15, pp. 14944–14952, 2018.
- [5] I.W. Supartha, "Pengendalian terpadu vektor virus demam berdarah dengue, *Aedes aegypti* (Linn.) dan *Aedes albopictus* (Skuse)(Diptera: Culicidae).," *Penelitian Ilmiah*. pp. 3–6, 2008.
- [6] R. Umayana, A.F. Faisya, and E. Sunarsih, "Hubungan Karakteristik Pejamu, Lingkungan Fisik Dan Pelayanan Kesehatan Dengan Kejadian Demam Berdarah Dengue (DBD) Di Wilayah Kerja Puskesmas Talang Ubi Pendopo Tahun 2012.," *Jurnal Ilmu Kesehatan Masyarakat*. vol. 4, no. 3, p. 2013.
- [7] R. Tosepu, "Dengue hemorrhagic fever in Konawe District, Southeast Sulawesi, Indonesia.," *Ethiopian Journal of Health Development*. vol. 33, no. 3, p. 2019.
- [8] M.A. Tolle, "Mosquito-borne diseases.," *Current problems in pediatric and adolescent health care*. vol. 39, no. 4, pp. 97–140, 2009.
- [9] R. Tosepu, "Trends of dengue hemorrhagic fever in bau bau district, Southeast Sulawesi province, indonesia, 2009-2014.," *Public Health of Indonesia*. vol. 3, no. 4, pp. 147–151, 2017.
- [10] W.H. Organization, *Dengue and severe dengue*. World Health Organization. Regional Office for the Eastern Mediterranean, 2014.
- [11] Kemenkes RI, *Hasil utama RISKESDAS 2018*. , Jakarta, 2018.
- [12] Dinkes Kabupaten Butur, *Profil Kesehatan Kabupaten Buton Utara 2017.*, 2017.
- [13] A. Anwar and J. Ariati, "Model Prediksi Kejadian Demam Berdarah Dengue (DBD) Berdasarkan Faktor Iklim di Kota Bogor, Jawa Barat.," *Indonesian Bulletin of Health Research*. vol. 42, no. 4, p. 20092, 2014.
- [14] R. Amiruddin, *Kebijakan dan Respons Epidemik Penyakit Menular*. PT Penerbit IPB Press, 2019.
- [15] F. Fathi, S. Keman, and C.U. Wahyuni, "Peran faktor lingkungan dan perilaku terhadap penularan demam berdarah dengue di Kota Mataram.," *Jurnal kesehatan lingkungan*. vol. 2, no. 1, p. 2005.
- [16] S. YUSNIA WN, "Analisis Spasiotemporal Kasus DBD Di Kecamatan Tembalang Bulan Januari-Juni 2009," (2010).