

Conference Paper

Leprosy Epidemiology in the Kolaka Regency, Indonesia, 2017-2021

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Abstract.

Leprosy is an old disease that can cause paralysis. It has become endemic in most parts of Indonesia. Leprosy patients usually suffer from stigma and decreased self-esteem. This study used data for 2017 – 2021 from the Kolaka District Health Office. It was found that the majority of people with leprosy in Kolaka over the study period had multibacillary leprosy. The case distribution fluctuated over this time period. Most leprosy patients in the Kolaka Regency were in the working area of the Tosiba Health Center.

Keywords: leprosy, Kolaka Regency, Indonesia

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1. INTRODUCTION

Leprosy is an old public disease which caused by Mycobacterium Leprae virus that causes paralyzes to people who exposed. [1][2][3] Mycobacterium leprae grows slowly for incubation period of 2-12 years, meanwhile the exact mode of transmission is not known yet. However, it is believed the transmission through nasal droplets is the main route.[4]

Leprosy treatment with multidrug therapy has been introduced. The global prevalence decreased in 1985 by more than 90 percent from 5.3 million cases at the end of 2017 to around 192,713 cases.[3][5] However, leprosy still cannot be eradicated despite multidrug therapy.[6] This is evidenced by the increasing number of new cases worldwide, in 2015 there were 210,758 cases to 214,783 cases. On the year 2016 and in 2017 around 210,000 cases from 150 countries.[3][7]

Leprosy is a neglected disease which brings problems for public.[7][8] It is caused damage to the patients. On the other hand, leprosy has bad stigma to the one who exposed.[9] Nearby the future, it is need the next step of solving problems, especially in Kolaka Regency. There are leprosy cases in 14 public health center. Kolaka Regency Health Office has been doing some works to solve this problem. Unfortunately, the result is still need improvement. It is proved by the last five years the number of leprosy

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is fluctuated. There are 25 patients in 2016, 43 patients in 2017, and get decrease in 2018 only 25 patients. However, it is increase 26 patients in 2019 and 2020.

There are 27 cases in July 2021. On previous year, in 2019 and 2020 leprosy were 26 patients. This improvement cases possibly caused of transmission. This review aims to determine the distribution of leprosy, predict leprosy transmission in Kolaka Regency. By this, it can provide recommendations for the next leprosy prevention and it is hoped the cases can be eliminated.

2. METHODOLOGY

Kolaka Regency is the capital city of Kolaka located in the southeastern part of Sulawesi which covers by land and islands. The land area is 3,283.64 km² and estimated by water/sea area of ±15,000 km². Astronomically, it is between 02°00' and 05°00' south latitude and 120°45' and 124°06' on east longitude. The Indonesian government agencies data is used in this review. Leprosy cases data obtained in 2017–2021 were taken in the Kolaka Regency Health Office and findings are presented on the images as follow.

3. RESULT

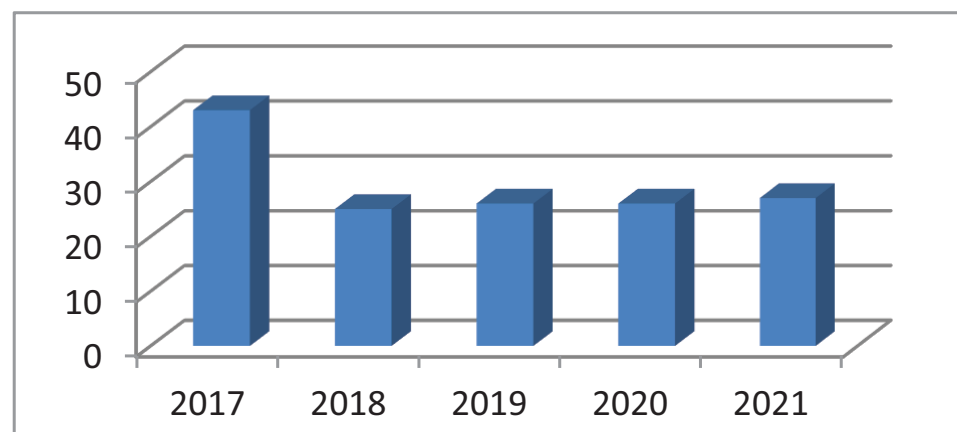


Figure 1: Numbers of Leprosy cases in Kolaka Regency.

The study showed the highest case was 2017. Decreases cases happened in 2018 and increase in 2019-2021. There are 147 cases in the last five years (Figure 1)

By the year 2017 to 2021, the study showed transmission of leprosy dominantly by multibasiler. Paucibacillary leprosy was zero and multibasiler was decrease in 2018 and 2019 compared to the previous year. The cases decrease in 2020 and increase in 2021.

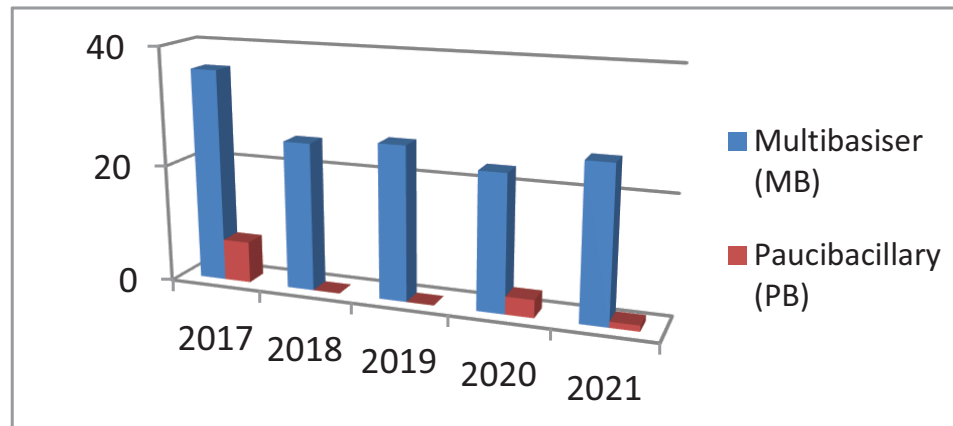


Figure 2: Number of cases by the type in Kolaka Regency.

By those data, we can see that the case is fluctuated. The prevention strategy needs to be done. This may cause by some influence factors (Figure 2).

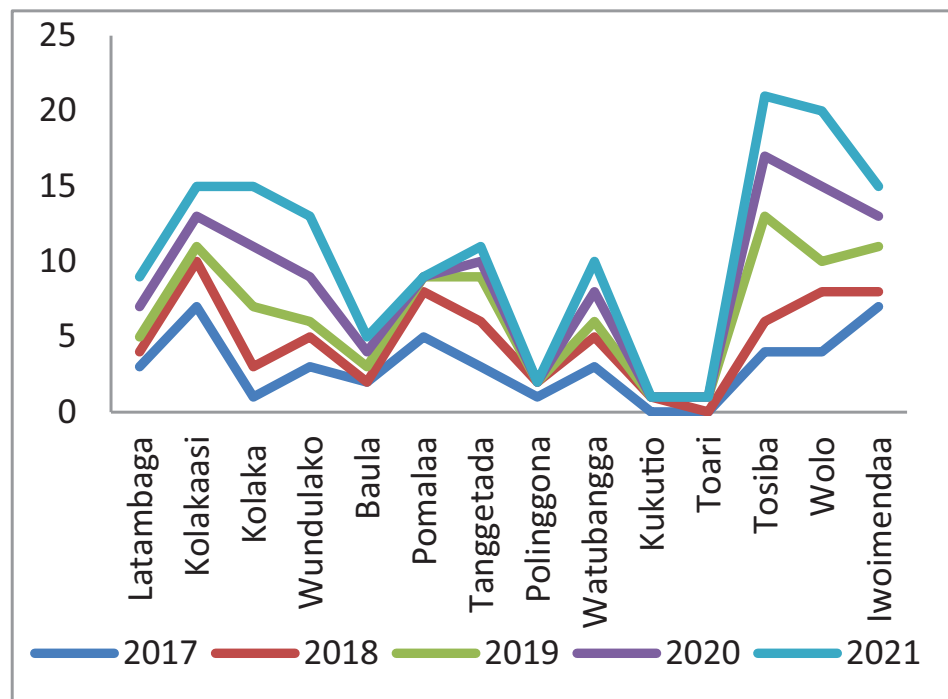


Figure 3: Leprosy cases based on Public health center in Kolaka Regency .

Tosiba Public health center is the most cases found in 2017-2021. Meanwhile, the lowest located in Kukutio and Toari Public health center (Figure 3).

4. DISCUSSION

The objective of this study is to measure the epidemiology and possibility leprosy cases in Kolaka regency by analyzing the 2017-2021 data in Kolaka Public Health Office.

The leprosy cases are fluctuated from 2017 to 2021 with 147 cases such as multibacilar 92.5% and paucibacillary 7.5%. According to WHO, there are 466 multibacilar leprosy and 55 paucibacillary. The newest cases is 89.4% and 10.6%. multibacilar ratio towards PB is fluctuated between 53:1 (Sichuan) and 1.3:1 (Tibet) and the average is 8.5:1.[10][11] The data in the last 40 years showed paucibacillary type dropped from 80% to 40%. Multibacilar type has higher probability[9] happening because of easy to detect compare to paucibacillary cases which only can be detect by inconspicuous skin.[12] The highest leprosy cases in 2017-2021 mostly found in Tosiba Public health center and the lowest in Kukutio and Toari. The current transmission information in one place will give information of the mediation impact and empower the checking process towards transmission disturbance. The checking process of transmission by using infections concludes the cancellation of transmission displayed. It is mainly on leprosy cases because the incubation process happens regularly in 3 to 10 years.[13]

Mobility of Kolaka Regency population potentially caused the Leprosy outbreak. Besides, the cure habits of the society by believing to the witch probably cause the transmission. It leads to the cases, late diagnosis

This leads to a higher incidence of leprosy, a more common late diagnosis and a higher risk of multibacilar.[14][15] As a result, the population that becomes focus to be directed could not get early diagnosis. It needs systematic treatment during and after the chronic illness by considering high comorbidities, leprosy reactions, drug interactions and developmental functional limitations. However, it needs specific strategy such as active cases around residence, and avoiding steps for diagnosis at the health center. Family health care is important to be understand in this case. We need to use comprehensive health care guidelines especially for the one who potentially exposed by Leprosy Virus.

5. CONCLUSION

Leprosy cases in Kolaka regency in the last five years are fluctuated. The most patients are multibacilar and the distribution is increase year by year. The higher cases happened in 2017.

References

- [1] Reibel F, Cambau E, Aubry A. Update on the epidemiology, diagnosis, and treatment of leprosy. *Med Mal Infect.* 2015 Sep;45(9):383–93.

- [2] Dorilêo GB, Cavalcante LRS, Lopes JC, Damazo AS. Report of two cases of lepromatous leprosy at an early age. *International Journal of Infectious Diseases*. 2017;101:46-48.
- [3] Riccò M, Vezzosi L, Balzarini F, Mezzoiuso AG, Ranzieri S, Vaccaro FG, et al. Epidemiology of leprosy in Italy (1920 - 2019): A comprehensive review on existing data. *Acta Biomed*. 2019;90:7-14.
- [4] Dharmawan Y, Fuady A, Korfage I, Richardus JH. Individual and community factors determining delayed leprosy case detection: A systematic review. *PLoS Negl Trop Dis*. 2021;15(8):0009651.
- [5] Matos AM, Coelho AC, Araújo LP, Alves MJ, Baquero OS, Duthie MS, et al. Assessing epidemiology of leprosy and socio-economic distribution of cases. *Epidemiol Infect*. 2018;146(14):1750-5.
- [6] Penna MLF, Penna GO. Leprosy frequency in the world, 1999-2010. *Memorias do Instituto Oswaldo Cruz*. 2012;107(1):3-12. <https://doi.org/10.1590/S0074-02762012000900002>
- [7] Das M, Diana D, Wedderburn A, Rajan L, Rao S, Horo I, et al. Molecular epidemiology and transmission dynamics of leprosy among multicase families and case-contact pairs. *Int J Infect Dis*. 2020;96:172-9.
- [8] Khunafa A, Prasetyo A, Wiyono TH, Asyary A. Knowledge and actions of leprosy patients on the incidence of leprosy in Brengkok Village, Brondong Public Health Care of Lamongan Regency, Indonesia. *Public Health of Indonesia*. 2019;5(4):99-104.
- [9] Tosepu R, Gunawan J, Effendy DS, Fadmi FR. Stigma and increase of leprosy cases in South East Sulawesi Province, Indonesia. *Afr Health Sci*. 2018;18(1):29-31.
- [10] Wang L, Sun PW, Yu MW, Gu H, Wang HS, Chen XS. Epidemiological characteristics of leprosy in China, 2018. *Int J Dermatol Venereol*. 2021;27-30.
- [11] Nobre ML, Illarramendi X, Dupnik KM, Hacker MA, Nery JA, Jerônimo SM et al. Multibacillary leprosy by population groups in Brazil: Lessons from an observational study. *PLoS Negl Trop Dis*. 2017 Feb;11(2):0005364.
- [12] Butlin CR, Lockwood DN. Changing proportions of paucibacillary leprosy cases in global leprosy case notification. *Lepr Rev*. 2020;91(3):255-61.
- [13] Pierneef L, van Hooij A, Taal A, Rumbaut R, Nobre ML, van Brakel W, et al. Detection of anti-M. leprae antibodies in children in leprosy-endemic areas: A systematic review. *PLoS Negl Trop Dis*. 2021;15(8):0009667.

-
- [14] Tosepu R, Effendy DS, Ode L, Imran A, Asfian P. Epidemiology study of leprosy patients in the district of Bombana Southeast Sulawesi Province. Indonesia. 2015;3(5):1262–5.
- [15] de Souza EA, Ferreira AF, Heukelbach J, Boigny RN, Alencar CH, Ramos AN. Epidemiology and spatiotemporal patterns of leprosy detection in the state of Bahia, Brazilian Northeast Region, 2001–2014. *Trop Med Infect Dis.* 2018;3(3):1–16.