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STATISTICAL ANALYSIS OF LEPROSY CASES IN THE SPECIAL REGION OF YOGYAKARTA IN 2020–2022 AND 2024

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Abstract

This study aims to analyze the trends and distribution of new leprosy cases in the Special Region of Yogyakarta (DIY) from 2020 to 2024 using descriptive statistical analysis based on data from the Yogyakarta Special Region Health Office. The analysis was conducted by comparing the case detection rate per 100,000 population, the average, and the range across districts/cities. The results show a fluctuating pattern with an upward trend in 2024, as well as significant variations in case distribution across regions. The shift in regions with the highest rates occurred from Bantul and Gunung Kidul (2020) to Sleman and Yogyakarta City (2021), a significant surge in Yogyakarta City (2022), and a nearly uniform increase by 2024. In addition to quantitative analysis, this study integrates an artistic approach through the design of a batik motif in the form of rising and falling waves, representing the fluctuations in leprosy cases over time. The interconnected lines symbolize the interrelationship of social, environmental, and healthcare access factors, while the empty space in the center reflects the hope for a decline in cases and the elimination of stigma. This integration of science and culture is expected to serve as a communicative and reflective educational medium in supporting leprosy control efforts at the regional level.

Keywords: Mycobacterium Leprae (Leprosy); DIY Province; Philosophical Meaning.

1. INTRODUCTION

The incidence of leprosy, particularly in the Special Region of Yogyakarta, has recently shown a trend that warrants serious attention, especially since cases are still being identified in certain districts with specific concentrations. Although the absolute number of cases is not as high as that of other infectious diseases, the uneven distribution indicates the presence of social and environmental risk factors that continue to influence transmission. Nationally, Indonesia is among the countries with the highest leprosy burden in the world and ranks third after India and Brazil in terms of annual new cases. This situation indicates that efforts to eliminate leprosy still require strengthening early detection, complete treatment, and reducing stigma in the community.

Leprosy is a chronic, contagious, and long-term disease caused by the leprosy bacillus (Mycobacterium leprae), which initially affects the peripheral nerves and subsequently affects the skin, oral mucosa, upper respiratory tract, musculoskeletal and reticuloendothelial systems, eyes, muscles, bones, testicles, and other organs—except for the central nervous system. If not diagnosed and treated early, it can lead to permanent disabilities that generally result in patients being shunned, ostracized, and neglected by their families, and facing difficulty finding employment (1). Untreated leprosy patients are the source of leprosy transmission (2). Leprosy arises from close physical contact with an infected patient, and this risk is significantly higher

when contact occurs with a patient with lepromatous leprosy, who serves as the primary source of infection in the community (3). The detection of specific antibodies against M. leprae in contacts of leprosy patients indicates that transmission frequently occurs, even though only a small proportion of them exhibit clinical symptoms of leprosy (4) (Efrizal et al., 2016).

Leprosy is a chronic infectious disease caused by Mycobacterium leprae and remains a public health issue in many developing countries. The disease not only has clinical consequences, such as skin and peripheral nerve damage, but also leads to social consequences, including prolonged stigma and discrimination (World Health Organization [WHO], 2021). Globally, efforts to eliminate leprosy have shown significant progress; however, new cases continue to be identified each year, indicating that transmission persists within communities (WHO, 2020).

In Indonesia, leprosy remains on the list of neglected tropical diseases that are a national control priority (Ministry of Health of the Republic of Indonesia, 2021). Although the number of newly diagnosed cases has declined relatively at the national level, the distribution of cases varies across regions. These variations underscore the importance of region-based statistical analysis to understand the patterns of spread and risk factors that may contribute to the emergence of new cases (Putri & Wahyuni, 2022).

The Special Region of Yogyakarta (DIY) is one of the regions with a relatively high population density and dynamic social mobility. According to 2020 data, the number of new leprosy cases per 100.000 residents at the provincial level was recorded at 0.96. This figure is relatively low compared to several endemic provinces in Indonesia, yet it still indicates active transmission that warrants vigilance (DIY Health Department, 2021).

Geographically, there are differences in the number of new cases among districts and cities in DIY. Bantul District recorded the highest rate at 1.77 per 100.000 residents, followed by Gunung Kidul at 1.35. Both of these areas are above the provincial average and can therefore be identified as priority areas for intervention. In contrast, Sleman (0.49) and Kulon Progo (0.46) are below the provincial average, while Yogyakarta City recorded the lowest rate at 0.23 per 100,000 residents. These differences indicate disparities in case distribution that may be influenced by population density, socioeconomic conditions, access to health services, and the effectiveness of the surveillance system (Sari et al., 2023).

From a descriptive statistical perspective, the range between the highest and lowest values is 1.54 (1.77–0.23), indicating fairly significant variation across regions. The average for the five districts/cities of 0.86 per 100,000 residents is slightly lower than the provincial figure (0.96), suggesting a concentration of cases in specific regions. Statistical analysis of this data is crucial for identifying distribution patterns, central tendencies, and potential underlying determinants of such variations (Sugiyono, 2022).

Thus, this study aims to conduct a statistical analysis of new leprosy cases in 2020 in the Special Region of Yogyakarta to describe their spatial distribution, inter-regional variations, and implications for public health policy. A data-driven approach is expected to provide a scientific basis for planning more targeted interventions, particularly in areas with case rates above the provincial average, such as Bantul and Gunung Kidul.

Leprosy is a chronic infectious disease caused by Mycobacterium leprae that affects the skin and peripheral nerves and can lead to permanent disability if not treated early. In addition to its clinical impact, leprosy also leads to social consequences such as stigma and discrimination that affect the quality of life of those affected (World Health Organization, 2021). Therefore, leprosy control requires not only medical interventions but also data-driven epidemiological approaches to continuously monitor case trends.

Globally, epidemiological reports indicate that although leprosy prevalence rates have declined, new cases are still identified each year in various developing countries (Smith & Lee, 2022). Indonesia is among the countries where the number of cases still requires monitoring

through the strengthening of surveillance systems, early detection, and standardized multidrug therapy (MDT) (Ministry of Health of the Republic of Indonesia, 2021). Variations in case distribution across regions underscore the importance of regional statistical analysis to identify disease transmission patterns and areas with higher risk (Rahman & Putri, 2023).

The Special Region of Yogyakarta (DIY) is one of the regions with relatively high population density and social mobility. In 2020, the incidence rate of new leprosy cases was recorded at 0.96 per 100.000 population. Case distribution varies across districts and cities, with Bantul having the highest rate (1.77) and Yogyakarta City having the lowest (0.23). A range of 1.54 indicates regional disparities in case distribution (DIY Health Office, 2021).

As of 2021, the provincial rate rose to 1.09 per 100.000 residents. This increase indicates a shift in trend compared to the previous year, likely due to both increased transmission and improvements in the reporting system. There was also a shift in the regions with the highest rates, with Sleman recording the highest rate (1.48), followed by Yogyakarta City (1.16). Meanwhile, Kulon Progo remained the region with the lowest rate (0.23) (DIY Health Office, 2022). The 2021 rate of 1.25 indicates that variations between regions still exist, although they are more evenly distributed compared to the previous year.

A comparison of data from 2020 and 2021 reveals spatial and temporal dynamics in the distribution of leprosy cases in the Special Region of Yogyakarta. Comparative statistical analysis is needed to identify central trends, variations, and shifts in high-risk areas to support evidence-based and sustainable control policies (Sugiyono, 2022).

The epidemiological trends of leprosy in the Special Region of Yogyakarta (DIY) in 2022 showed a different pattern compared to the previous two years. While the provincial rate was recorded at 0.96 per 100.000 population in 2020 and increased to 1.09 in 2021, there was a slight decrease to 0.99 per 100.000 population in 2022 (DIY Health Office, 2023). This decrease can be interpreted as an indication of improved disease control or a decline in the overall number of new cases, although transmission is still ongoing in certain areas.

The distribution of cases in 2022 showed a fairly contrasting pattern across districts and cities. The city of Yogyakarta recorded the highest rate at 2.41 per 100.000 residents, far exceeding the provincial average. This surge contrasts with the situation in 2020, when the city of Yogyakarta had the lowest rate, and represents a significant increase compared to 2021. The high rate in this urban area may be influenced by population density, high social mobility, and the intensification of screening and case tracing activities (Rahman & Putri, 2023).

Meanwhile, Gunung Kidul (0.94) and Sleman (0.93) showed relatively stable figures, slightly below the provincial average. Bantul saw a decline to 0.86 compared to 2021, which may reflect the effectiveness of control programs in the region. Kulon Progo, meanwhile, once again had the lowest rate at 0.22 per 100.000 residents, maintaining the low trend of the past few years (DIY Health Office, 2023).

From a descriptive statistical perspective, the range for 2022 of 2.19 (2.41–0.22) indicates a wider variation across regions compared to 2020 (1.54) and 2021 (1.25). This indicates a relatively high concentration of cases in a specific region, thereby affecting the overall distribution. Although provincial figures have decreased compared to the previous year, the presence of extreme values in Yogyakarta City suggests that leprosy control efforts are not yet evenly distributed across all districts and cities.

Thus, a comparative analysis of the 2020–2022 period reveals fluctuations in case numbers as well as shifts in the regions with the highest incidence rates. This underscores the importance of ongoing data-driven evaluations to support more targeted and adaptive control strategies in each region (Sugiyono, 2022; World Health Organization, 2021).

The trend in leprosy cases in the Special Region of Yogyakarta (DIY) in 2024 shows an upward trend compared to the previous period. The provincial rate stands at 1.44 per 100.000 population, an increase from 0.99 in 2022. This increase may reflect both a rise in the number

of new cases and improved effectiveness of the case detection and reporting system at the regional level (DIY Health Office, 2024).

The distribution of cases in 2024 shows the highest concentration in the city of Yogyakarta at 2.40 per 100.000 residents and in Gunung Kidul at 2.39. Both regions are well above the provincial average, making them priority areas for control efforts. The high rates in urban areas can be attributed to population density, social mobility, and the intensification of public health screening (Prasetyo & Lestari, 2023).

Meanwhile, Sleman (1.11) and Bantul (1.08) are slightly below the provincial average, but still show relatively high figures compared to previous years. Kulon Progo recorded the lowest rate at 0.67 per 100.000 residents, although this figure also increased compared to the previous period. This indicates that an increase in cases occurred in nearly all regencies and cities in DIY (Ministry of Health of the Republic of Indonesia, 2023).

In terms of descriptive statistics, the difference between the highest and lowest figures reached 1.73 (2.40–0.67), indicating considerable variation across regions. The average for the five districts/cities was slightly higher than the provincial figure, suggesting that the increase in cases was relatively widespread across several areas. Fluctuations in the figures from 2020 to 2024 confirm the presence of spatial and temporal dynamics that need to be analyzed continuously to support evidence-based policies (Handayani et al., 2022).

Overall, the 2024 data depict an upward trend in new leprosy cases in DIY following a decline in 2022. This situation calls for strengthening strategies for early detection, multidrug therapy (MDT), and public education to prevent transmission and disability caused by leprosy (World Health Organization, 2023).

2. MATERIALS AND METHODS

2.1. Study Area

This study was conducted in the Special Region of Yogyakarta (DIY), Indonesia, which consists of five administrative areas: Kulon Progo, Bantul, Gunung Kidul, Sleman, and Yogyakarta City. The region was selected because it has relatively complete and accessible health data published by official institutions such as the Regional Health Office. The focus of this study is the number of new leprosy cases recorded in the Special Region of Yogyakarta during the period 2020–2024. The data are used to observe trends, patterns, and regional variations in leprosy cases as part of public health analysis.

2.2. Procedures

The research procedures were carried out through several stages. First, a literature review was conducted to collect relevant information related to leprosy cases. Second, data were obtained from credible sources, including official reports from the Yogyakarta Special Region Health Office and related publications. Third, the collected data were selected and verified based on several criteria, such as relevance to the study area (DIY Province), the time period (2020–2024), and data completeness. Finally, the validated data were compiled and organized into tables to facilitate further analysis.

2.3. Data Analysis

The data were analyzed using descriptive statistical methods. The analysis included calculating the case detection rate per 100,000 population, determining the average and range of cases across regions, and examining trends and fluctuations over time. Comparative analysis was also conducted to identify shifts in the distribution of leprosy cases between districts/cities from 2020 to 2024. The results of the analysis were presented in the form of tables and graphs to provide a clearer understanding of the patterns and dynamics of leprosy cases in the Special Region of Yogyakarta.

3. DISCUSSION

Leprosy remains a critical public health issue that requires attention, as it can have physical, social, and psychological impacts on those affected. This disease is not merely a health issue; several factors influence it, such as environmental conditions, socioeconomic status, and access to healthcare services. Therefore, monitoring and analyzing how leprosy cases are distributed across different regions is crucial for developing more effective prevention and control programs.

Data published by the Central Statistics Agency of the Special Region of Yogyakarta regarding the number of disease cases by district/city and disease type in the Special Region of Yogyakarta, accessed on February 12, 2026, shows that the number of new leprosy cases in 2020, 2021, 2022, and 2024 varied from year to year. These fluctuations reflect changes in public health conditions and the impact of the monitoring, reporting, and control programs in place during each respective period.

In 2020, the number of leprosy cases reported in each province remained relatively low, and the differences between regions were not yet particularly significant. Districts such as Bantul and Gunung Kidul typically had higher rates than other areas, while the City of Yogyakarta and Kulon Progo fell into the category of lower rates. These differences indicate that cases are not evenly distributed across the region and may be influenced by factors such as socioeconomic conditions, the age of the population, and access to healthcare services in each area.

In 2021, the numbers increased at the provincial level compared to the previous year. The regions with the highest numbers have shifted, with Sleman and the City of Yogyakarta showing a significant increase. This situation suggests that efforts to identify leprosy cases have become more intensive, or that there has been a change in how the disease spreads. Overall, the distribution of cases this year appears more even compared to previous periods.

In 2022, provincial figures saw a slight decline, but there was a significant surge in the City of Yogyakarta. Regional disparities became more pronounced as the gap between the highest and lowest figures widened. While some regencies showed relatively stable conditions, one region experienced a sharp increase.

The year 2024 showed another rise in figures at the provincial level, with Gunung Kidul and the City of Yogyakarta becoming the areas with the highest figures. Most regencies and cities experienced an increase compared to 2022. This indicates an overall pattern of rising new cases, driven both by factors causing the outbreak and by detection and reporting systems that have become more effective.

In general, the development of leprosy cases in the Special Region of Yogyakarta during the 2020–2024 period has been inconsistent, with significant variations in case numbers across regions, thereby affecting the province's overall picture.

This situation highlights the importance of control strategies tailored to the specific characteristics of each district and city. Improving early detection, providing timely treatment, and conducting public education are key steps in efforts to reduce the spread of leprosy and support the achievement of elimination targets at the local level. The following table presents leprosy data across various provinces for the years 2020, 2021, 2022, and 2024

Table 1. Number of New Leprosy Cases in 2020

County/City	Number of New Leprosy Cases per 100,000 People
Kulon Progo	0.46
Bantul	1.77
Gunung Kidul	1.35
Sleman	0.49
Kota Yogyakarta	0.23
DI Yogyakarta	0.96

Table 1 shows the number of new leprosy cases per 100.000 residents in each regency and city in the Special Region of Yogyakarta in 2020. The data in this table illustrates the distribution of leprosy cases across the regions of Kulon Progo, Bantul, Gunung Kidul, Sleman, and the City of Yogyakarta. This table reveals differences in the number of cases occurring in each area. This information helps identify regions with higher or lower numbers of leprosy cases in 2020.

Based on the 2020 table, the number of new leprosy cases per 100.000 residents in the Special Region of Yogyakarta in 2020 showed significant variation among regencies and cities. Overall, the provincial rate was 0.96 per 100.000 residents. This figure indicates that the average incidence of leprosy in the Special Region of Yogyakarta is relatively low; however, the disease still warrants vigilance, as leprosy is a contagious disease that can have long-term adverse effects on an individual's health and social well-being.

The regency with the highest rate is Bantul, at 1.77 per 100.000 residents. This figure is significantly higher than the provincial average (0.96), indicating that new cases in Bantul contribute substantially to the total cases in DIY. This high rate may indicate the presence of certain risk factors, such as high population density, inadequate social and economic conditions, or better case-tracking and reporting capabilities compared to other regions.

The second-highest position is held by Gunung Kidul with a rate of 1.35 per 100.000 residents. This figure is also higher than the provincial average, though not as high as Bantul's. This indicates that these two regions—Bantul and Gunung Kidul—are priority areas in efforts to control and prevent leprosy in the Special Region of Yogyakarta in 2020.

Meanwhile, Sleman and Kulon Progo have lower rates, at 0.49 and 0.46 per 100.000 residents, respectively. Both districts are below the regency average, indicating that the number of new cases detected in those areas is more under control. However, a low rate does not necessarily mean there are no cases, as it can be influenced by several factors such as the ability to detect, report, or access healthcare services.

Yogyakarta City has the lowest rate, at 0.23 per 100.000 residents. As an urban area with more comprehensive healthcare facilities, this low rate indicates the success of disease prevention and control programs, or reflects a well-functioning public health surveillance system.

From a simple statistical perspective, the difference between the highest and lowest values in the data is 1.77 minus 0.23, resulting in 1.54. This range indicates variations in the distribution of cases across different regions. Additionally, the average across five regencies or cities is approximately 0.86 cases per 100.000 residents, which is slightly lower than the provincial rate of 0.96. This indicates that the distribution of cases is uneven, and certain areas have a higher number of cases.

Overall, this table shows that the number of leprosy cases in the Special Region of Yogyakarta in 2020 was relatively low, but there are still significant differences between districts and cities. Therefore, a more targeted intervention approach is needed in areas with

case rates above the provincial average, particularly in Bantul and Gunung Kidul, to reduce the spread of the disease and improve early detection of leprosy cases in the future.

Table 2. Number of New Leprosy Cases in 2021

County/City	Number of New Leprosy Cases per 100,000 People
Kulon Progo	0.23
Bantul	1.08
Gunung Kidul	0.94
Sleman	1.48
Kota Yogyakarta	1.16
DI Yogyakarta	1.09

Table 2 shows the number of new leprosy cases per 100.000 population in each regency/city in the Special Region of Yogyakarta in 2021. This table presents data on the distribution of leprosy cases across the five regencies and cities. The data provides an overview of the leprosy situation in 2021. Additionally, the information in this table can be used to compare case trends with the previous year.

Based on 2021 data regarding the incidence of new leprosy cases per 100,000 residents in DI Yogyakarta, a shift in case distribution is evident compared to the previous year. Overall, the provincial rate reached 1.09 per 100.000 population. This figure indicates an increase compared to 2020, suggesting either a rise in the number of new cases or an intensified effort to detect cases during 2021.

Sleman Regency recorded the highest rate, at 1.48 per 100.000 residents. This figure is above the provincial average, making Sleman the region with the highest case detection rate that year. This situation could indicate either an increase in the spread of the disease or an improvement in the case detection and reporting system in the region.

Yogyakarta City ranked next with a rate of 1.16 per 100.000 residents. This figure also exceeds the provincial average. Compared to the previous year, Yogyakarta City experienced a significant increase, as in 2020 this region had one of the lowest rates. This change indicates epidemiological dynamics that warrant further attention.

Bantul and Gunung Kidul recorded rates of 1.08 and 0.94 per 100.000 residents, respectively. Bantul is slightly below the provincial average, while Gunung Kidul is even lower, though both remain close to the provincial rate. This indicates that both regions still require attention in disease control programs.

Meanwhile, Kulon Progo has the lowest rate at 0.23 per 100.000 residents. This figure is far below the provincial average and demonstrates consistency as an area with relatively low rates. Nevertheless, even small figures require careful analysis as they may be influenced by reporting factors or community access to healthcare services.

Statistically, the difference between the highest and lowest rates in 2021 was 1.25. This gap indicates that variation between regions still exists, although it is not as significant as in the previous year. The average for the five districts/cities was slightly below the provincial figure, indicating a relatively more balanced distribution of cases. Overall, the 2021 data show an increase in case numbers at the provincial level as well as a shift in the regions with the highest rates, necessitating the evaluation and strengthening of sustainable leprosy control strategies in every district/city.

Table 3. Number of New Leprosy Cases. 2022

County/City	Number of New Leprosy Cases per 100,000 People
Kulon Progo	0.22
Bantul	0.86
Gununug Kidul	0.94
Sleman	0.93
Kota Yogyakarta	2.41
DI Yogyakarta	0.99

Table 3 shows the number of new leprosy cases per 100,000 residents in each regency/city in the Special Region of Yogyakarta in 2022. This table illustrates the distribution of leprosy across various regions during that year. The data presented helps identify differences in case numbers among regencies and cities. This information can also be used to track changes in case numbers compared to the previous year.

Based on 2022 data regarding the incidence rate of new leprosy cases per 100.000 residents in DI Yogyakarta, a shift in the pattern is evident compared to the previous year. Overall, the provincial rate was recorded at 0.99 per 100.000 population. This figure indicates a slight decrease compared to 2021, which reached 1.09, suggesting that, overall, there has been an improvement in control efforts and a reduction in the number of new cases at the provincial level.

The city of Yogyakarta recorded the highest rate, at 2.41 per 100.000 residents. This figure far exceeds the provincial average and is also higher than all other regencies. This sharp increase indicates a significant concentration of new cases in this urban area. This situation may be influenced by high population mobility, population density, or increased screening and contact tracing activities.

Gunung Kidul and Sleman have nearly identical rates, at 0.94 and 0.93 per 100.000 residents, respectively. Both regions are slightly below the provincial average, indicating that case detection rates are relatively stable and have not experienced a drastic increase. This may reflect a more controlled epidemiological situation compared to the city of Yogyakarta.

Bantul recorded a rate of 0.86 per 100.000 residents, which is also below the provincial average. Compared to 2021, the rate in Bantul has decreased. This may indicate improvements in disease prevention and control programs in the region.

Kulon Progo remains the region with the lowest rate, at 0.22 per 100.000 residents. This figure demonstrates consistency as a region with a relatively low case detection rate over the past few years. Nevertheless, interpreting low rates must still take into account factors such as access to healthcare services and the case reporting system.

From a descriptive statistical perspective, the difference between the highest and lowest figures in 2022 was 2.19. This value indicates that the variation across regions is quite significant and even wider than in the previous year. The average for the five districts/cities was slightly above the provincial figure, suggesting that the extreme values in Yogyakarta City significantly influenced the overall distribution. In general, the 2022 data show a decline at the provincial level, but there was a significant spike in one region, necessitating further attention and evaluation in leprosy control efforts.

Table 4. Number of New Leprosy Cases in 2024

County/City	Number of New Leprosy Cases per 100,000 People
Kulon Progo	0.67
Bantul	1.08
Gunung Kidul	2.39
Sleman	1.11
Kota Yogyakarta	2.40
DI Yogyakarta	1.44

Table 4 shows the number of new leprosy cases per 100.000 population in each regency/city in the Special Region of Yogyakarta in 2022. This table illustrates the distribution of leprosy across various regions during that year. The data presented helps identify differences in case numbers among districts/cities. This information can also be used to track changes in case numbers compared to the previous year.

Yogyakarta City recorded the highest rate at 2.40 per 100.000 population. This figure is nearly identical to that of Gunung Kidul, which reached 2.39 per 100.000 residents. Both regions are far above the provincial average, making them the areas with the highest case detection rates in 2024. This situation indicates a significant concentration of cases and requires special attention in control efforts.

Gunung Kidul has seen a fairly sharp increase compared to the previous period, resulting in a shift in the distribution of cases across regions. Meanwhile, Sleman and Bantul recorded rates of 1.11 and 1.08 per 100.000 residents, respectively. Both of these districts are slightly below the provincial average, but still show fairly high rates and remain a focus of prevention efforts.

Kulon Progo has the lowest rate, at 0.67 per 100.000 residents. Although the lowest, this figure represents an increase compared to previous years. This indicates that nearly all regencies and cities in the Special Region of Yogyakarta have seen an increase in the number of new cases in 2024.

Descriptive statistics show a difference between the highest and lowest figures of 1.73. This value indicates a significant disparity among regions. The average for the five regencies/cities is slightly higher than the provincial figure, indicating that the increase in cases is occurring almost uniformly across several regions. Overall, the 2024 data illustrates an upward trend in new leprosy cases in DI Yogyakarta, necessitating the strengthening of strategies for early detection, treatment, and public education to curb the spread of the disease.

Table 5. Number of New Leprosy Cases in 2020–2022 and 2024

County/City	Number of New Leprosy Cases per 100.000 People			
	2020	2021	2022	2024
Kulon Progo	0.46	0.23	0.22	0.67
Bantul	1.77	1.08	0.86	1.08
Gunung Kidul	1.35	0.94	0.94	2.39
Sleman	0.49	1.48	0.93	1.11
Kota Yogyakarta	0.23	1.16	2.41	2.40
DI Yogyakarta	0.96	1.09	0.99	1.44
TOTAL	5.26	5.98	6.35	9.09

Table 5 presents a comparison of the number of new leprosy cases per 100.000 population in the Special Region of Yogyakarta in 2020, 2021, 2022, and 2024. This table illustrates the annual trends in leprosy cases across each regency and city. The data provides an overview of the patterns or trends in cases observed during the study period. Consequently, it is possible to determine whether there has been an increase or decrease in leprosy cases in each region.

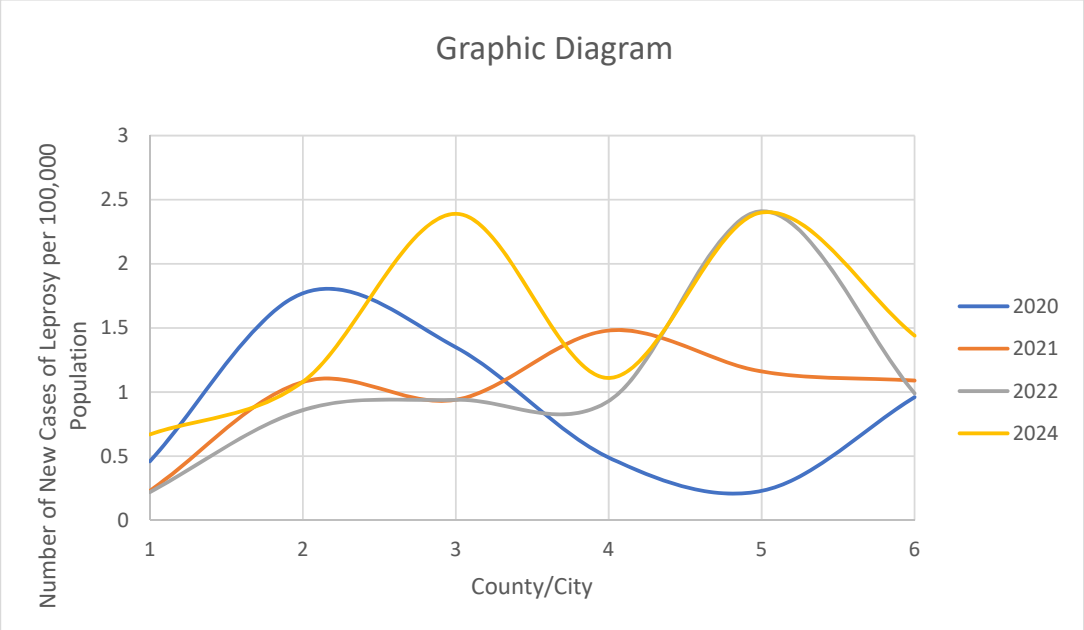

Figure 1. Number of New Leprosy Cases per 100,000 Population

Figure 1 is a graph showing the number of new leprosy cases per 100.000 population in several districts/cities. This graph illustrates a comparison of the number of leprosy cases in each region, allowing us to identify areas with higher or lower case counts. The differences in values on the graph indicate variations in the prevalence of leprosy across each district/city. Through this graph, trends in the increase or decrease of leprosy cases in each region can be analyzed.

The trend in new leprosy cases in the Special Region of Yogyakarta from 2020 to 2024 shows considerable variation, both in terms of absolute numbers and the rate per 100.000 population in 2020; the indicator used has shifted to the number of new cases detected per 100.000 population. At the provincial level, the rate stands at 0.96. Bantul remains the region with the highest rate at 1.77 per 100,000 population, followed by Gunung Kidul at 1.35. Sleman and Kulon Progo are in the range of 0.49 and 0.46, respectively, while the City of Yogyakarta has the lowest rate at 0.23. The range between the highest and lowest figures is 1.54, which still indicates a disparity between regions. This pattern shows that although the provincial figure is relatively low, the concentration of cases remains dominant in certain areas.

In 2021, the provincial rate rose to 1.09 per 100.000 residents. There was a shift in the distribution of the highest rates, with Sleman recording 1.48 and Yogyakarta City 1.16. Bantul and Gunung Kidul, however, saw decreases compared to 2020, dropping to 1.08 and 0.94, respectively. Kulon Progo remained the region with the lowest rate at 0.23. This year's range was 1.25, slightly smaller than the previous year, indicating a relatively more even distribution of cases despite the increase in the provincial average.

In 2022, the provincial rate was 0.99, a slight decrease from 2021. However, Yogyakarta City saw a surge to 2.41 per 100.000 residents, marking the highest value during that period. Meanwhile, Gunung Kidul and Sleman were at nearly the same levels, at 0.94 and 0.93,

respectively, and Bantul at 0.86. Kulon Progo remained the lowest at 0.22. The range increased drastically to 2.19, meaning that regional disparities grew larger due to the significant surge in Yogyakarta City.

In 2024, the provincial rate rose again to 1.44 per 100.000 residents, the highest figure compared to previous years. The City of Yogyakarta (2.40) and Gunung Kidul (2.39) were the two regions with the highest rates, which were nearly identical. Sleman and Bantul were in the middle range, at 1.11 and 1.08, respectively, while Kulon Progo, although the lowest, still saw an increase to 0.67. The 2024 range of 1.73 indicates a still significant variation, though not as high as in 2022.

4. BATIK PATTERNS AND THEIR PHILOSOPHICAL MEANINGS

Figure 2 shows a batik motif drawn on tracing paper as the initial step in the batik design process. The motif features repeating, symmetrical patterns that form an orderly arrangement. The interconnected lines demonstrate aesthetic elements and balance in the batik design. This image serves as a preliminary sketch before the motif is transferred to fabric during the batik-making process. The Philosophical Meaning of Batik from the Leprosy Trend in the Special Region of Yogyakarta:

a. The motif featuring rising and falling waves along a line symbolizes the fluctuating nature of leprosy cases—a pattern of rising and falling numbers over time, reflecting the dynamics of public health.
b. The interconnected lines illustrate that the spread of leprosy does not occur in isolation but is linked to various factors such as the environment, access to healthcare services, education, and social conditions. Each intersection of the lines serves as a symbol of an intervention point, where efforts in early detection, treatment, and education can be implemented to reduce case numbers.
c. The empty center represents shared hope and a common goal: the reduction of leprosy cases and the elimination of stigma against those affected. This space symbolizes that behind the complexity of data and graphs, there are human values that must be upheld.

Figure 2. Batik Patterns on Tracing Paper

5. CONCLUSION

Overall, leprosy cases from 2020 to 2024 showed a fluctuating pattern. Initially, cases were concentrated in Bantul and Gunung Kidul (2020), then shifted to Sleman and Yogyakarta City (2021), surged sharply in Yogyakarta City (2022), and by 2024 had increased across nearly all regions, with Gunung Kidul and Yogyakarta City being the most affected. The rise in the provincial rate from 0.96 (2020) to 1.44 (2024) indicates an upward trend in recent years. The use of graphs based on case data integrates art, culture, and science, resulting in a batik motif of rising and falling waves that carries philosophical significance related to the numbers and factors influencing leprosy cases in the DIY Province. The significant annual variation across regions indicates that the distribution of leprosy cases remains unstable and requires more specific control strategies tailored to the characteristics of each regency/city, particularly in areas with consistently high rates or experiencing significant spikes, to support leprosy control efforts at the local level.

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