

Prevalence And Distribution Of Stroke Cases: A Descriptive Study In Kudus Regency 2022-2025

Anita Dyah Listyarini, Nia Nor Permatasari*, Putri Sri Wahyuni
Rizky Amelia Putri, Ryan Ardiyanto, Shafa Cahya Kamila, Saiful Rahman

Institut Teknologi Kesehatan Cendekia Utama Kudus, Indonesia

* Corresponding Author: nianor.321@gmail.com

Abstract. Stroke is a medical emergency that occurs due to impaired blood flow to the brain, either due to blockage or bleeding. This can lead to brain cell death, permanent disability, and death if not treated quickly and appropriately. The prevalence of stroke in the world and in Indonesia continues to increase annually, making it a leading cause of disability and death. A similar situation also occurs in Central Java Province, where the incidence of stroke remains relatively high and poses a burden on public health. Kudus Regency is one of the areas that has experienced an increase in the number of stroke cases in recent years; therefore, monitoring and data analysis efforts are necessary to determine the distribution of cases and support the planning of prevention programs. This study aims to determine the distribution of stroke cases in Kudus Regency as a basis for planning promotive and preventive efforts in the field of public health. This study uses a descriptive method with a secondary data analysis approach obtained from regional health reports and official publications of the Kudus Regency government regarding stroke cases. Data analysis was conducted by examining the number of stroke cases based on annual reports and the increasing trend in the number of health service visits. The conclusion of this study shows that stroke is still an important public health problem in Kudus Regency with a tendency for an increasing number of cases every year, so that promotive and preventive efforts are needed through health education, risk factor control, and early detection to reduce the incidence of stroke in the future.

Keywords: Stroke, Prevalence, Health Service Burden, Secondary Data Analysis, Kudus Regency

INTRODUCTION

Stroke is a medical emergency that occurs when blood flow to the brain is interrupted, either due to a blockage or bleeding. This lack of blood supply can cause damage and even death of brain cells and lead to serious complications. Therefore, stroke can be fatal and requires immediate treatment (World Health Organization, 2025). *World Health Organization* By 2025, the global prevalence of stroke will be very high and will continue to rise. In 2021, stroke became the third leading cause of death and disability globally, with approximately 93.8 million cases. Furthermore, there were approximately 11.9 million new cases of stroke in the same year. In the past two decades, the lifetime risk of stroke has also increased by 50%, with an estimated one in four adults experiencing a stroke during their lifetime. In Indonesia, stroke is the leading cause of disability and death, accounting for 11.2% of total disabilities and 18.5% of total deaths. According to the 2023 Indonesian Health Survey, the prevalence of stroke in Indonesia reached 8.3 per 1,000 people. Stroke is also one of the most costly catastrophic diseases, with the third highest cost after heart disease and cancer, reaching IDR 5.2 trillion in 2023 (Ministry of Health, 2024).

At the provincial level, particularly in Central Java, stroke is a non-communicable disease with a relatively high incidence. According to a report from the Indonesian Ministry of Health through the 2018 Basic Health Research (Riskesdas), the prevalence of stroke in Central Java. More recent data shows that the stroke burden in Central Java remains high. According to data from the Central Java Provincial Health Office, the prevalence of stroke reached approximately 2.1%, with approximately 267,890 cases registered. This figure indicates that stroke remains one of the highest burdens of disease compared to other non-communicable diseases in Central Java (Central Java Health Office, 2023).

Stroke cases in Kudus Regency have shown an increasing trend year after year. In 2017, approximately 618 cases of non-hemorrhagic stroke were recorded, then the number increased in 2019 to approximately 864 patients. An increase was also seen at one hospital, Mardi Rahayu Hospital, which experienced a 40% increase in stroke patients in the same year. A more significant spike occurred in the most recent period, specifically from 2023 to 2024. In 2023, the number of outpatients reached approximately 14,800 cases and approximately 2,243 inpatients. This figure increased sharply in 2024, with outpatients reaching over 27,000 cases and nearly 3,000 inpatients. As of 2025, the number of cases remains relatively high, with tens of thousands of patients recorded and expected to continue to increase by the end of the year. Overall, these data show that stroke is becoming an increasingly serious health problem in Kudus with a trend that continues to increase every year (Afidah, 2025).

METHODS

This study employed a descriptive method with a secondary data analysis approach. Data were obtained from publications on the Kudus Regency government's information portal and regional health reports containing stroke-related data. The analysis was conducted by examining the number of stroke cases found in official local government reports to illustrate the distribution of stroke cases in Kudus Regency.

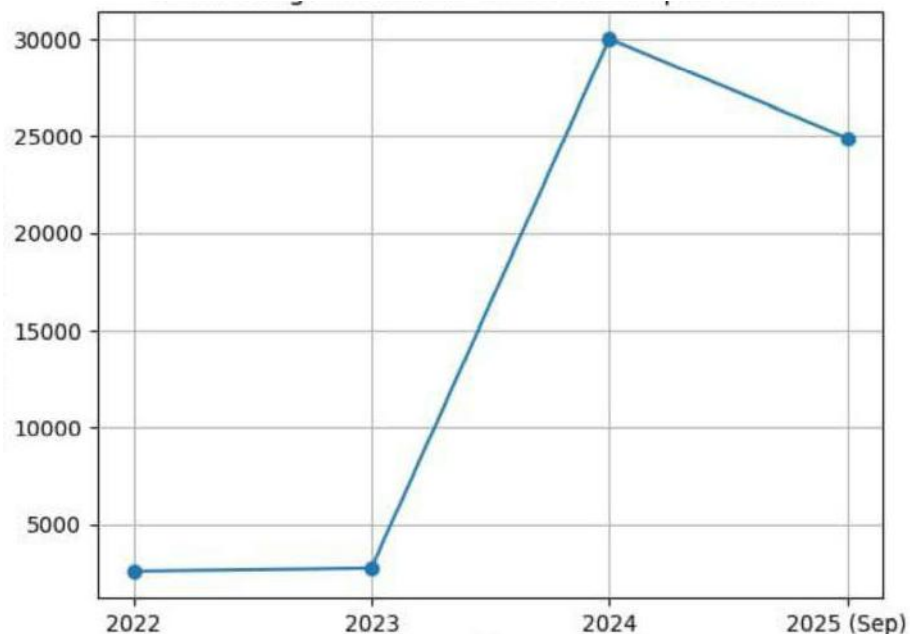
RESULTS AND DISCUSSION

Analysis of health data in Kudus Regency shows a significant upward trend in the burden of stroke in recent years. Based on the Kudus Regency Health Profile, the number of individuals suffering from stroke in 2022 was recorded at 2,605, and this figure increased to 2,762 in 2023, a 6.03% increase. This increase in the number of sufferers is directly proportional to the surge in the burden of services at local health facilities. In 2023, the number of outpatient visits reached 14,800 cases and 2,243 inpatients. This condition worsened drastically in 2024, with outpatients soaring to over 27,000 cases and inpatients approaching 3,000 cases. As of September 2025, this trend showed no signs of abating, with outpatient visits reaching 24,887 patients.

indicates that stroke has become a very urgent public health problem in Kudus Regency (Kudus Regency Health Office, 2024).

This high incidence is closely related to the predominance of sufferers in the elderly. Biologically, the function of blood vessels and organs experiences degenerative decline with age, making the elderly more susceptible to impaired blood flow to the brain. Medical risk factors such as hypertension, diabetes mellitus, and high cholesterol remain the main triggers that exacerbate this condition. People's lifestyles also play a significant role, including smoking habits, a high-fat diet, and a lack of regular physical activity (Ministry of Health of the Republic of Indonesia, 2024). The resulting impact is not only limited to high mortality rates but also the risk of permanent disability, which limits sufferers' motor activities in daily life (WHO, 2025).

Graph 1. Increase in Stroke Cases in Kudus Regency



Conditions in Kudus Regency are also influenced by risk factors specific to Central Java. High salt and fat consumption patterns have been shown to contribute to increased blood pressure and cardiovascular disease. Research by Sari et al. (2020) shows that high sodium consumption is significantly associated with hypertension in Central Java. Smoking is also a dominant factor, consistent with research by Prasetyo and Widodo (2019), which states that active smokers have a higher risk of stroke than non-smokers. Low levels of physical activity due to sedentary work patterns in the industrial sector also increase the risk.

non-communicable diseases, as found in research (Rahmawati et al., 2021) in urban areas of Central Java. The main cause of stroke in Central Java and Kudus Regency is ischemic stroke, which occurs due to blockage of cerebral blood vessels by atherosclerotic plaque or thrombus. This condition is generally triggered by uncontrolled hypertension, diabetes mellitus, and dyslipidemia. Research by (Handayani et al., 2018) shows that hypertension is the most dominant risk factor in stroke patients, contributing significantly to the incidence of ischemic stroke. Hemorrhagic stroke is also found in patients with uncontrolled chronic high blood pressure. Delays in treatment are a factor that worsens the patient's condition, as explained in research (Utami et al., 2022), which shows that delays in seeking medical care increase the risk of disability and death in stroke patients.

These findings align with various previous studies. A study by Kurniawan et al., 2020, showed that diabetes mellitus significantly increases the risk of stroke due to long-term blood vessel damage. Another study by Wahyuni and Sari, 2021, found that the combination of hypertension, smoking, and hypercholesterolemia cumulatively increases the risk of stroke. These findings reinforce the idea that the increase in stroke cases in Kudus Regency is influenced not only by individual factors but also by broader environmental and lifestyle factors.

CONCLUSIONS AND SUGGESTIONS

Conclusion

This study shows that stroke cases in Kudus Regency experienced an increasing trend from 2022 to 2025. The number of sufferers increased from 2,605 in 2022 to 2,762 in 2023, accompanied by a surge in outpatient visits and hospitalizations, indicating that stroke remains a serious public health problem. The increase in cases is influenced by factors such as advanced age, hypertension, diabetes mellitus, dyslipidemia, and unhealthy lifestyles such as smoking, a diet high in fat and salt, and lack of physical activity. The impact of this increase in cases is not only high morbidity and mortality, but also increases the burden on health services and increases the risk of permanent disability in sufferers.

Suggestion

1. For Health Services: it is necessary to strengthen promotive and preventive programs, including public health education, risk factor control, and screening or early detection of stroke at the health facility and community levels.
2. For the public: it is recommended to adopt a healthy lifestyle, such as exercising regularly, maintaining a balanced diet low in salt and fat, stopping smoking, and having regular health checks to detect hypertension, diabetes, and high cholesterol.
3. For Health Facilities: it is necessary to improve the quality of services by accelerating patient treatment from the first symptoms appear, implementing effective stroke management protocols, and minimizing the risk of complications, permanent disability, and death.

REFERENCES

- Afidah Utia. (2025). *Penyakit Sroke di Kudus Meningkat Hingga Puluhan Ribu Pasien*. Dinas Kesehatan Jawa Tengah. (2023). *Data Dinas Kesehatan Provinsi Jawa Tengah*. Dinas Kesehatan Kabupaten Kudus. (2024). *Profil Kesehatan Kabupaten Kudus Tahun 2023*. Kudus: Dinas Kesehatan Kabupaten Kudus.
- Handayani, D., Susanto, H., & Prabowo, A. (2018). *Faktor risiko hipertensi pada pasien stroke iskemik di Jawa Tengah*. *Jurnal Kesehatan Masyarakat Indonesia*, 13(2), 101– 109.
- Kementerian Kesehatan Republik Indonesia. (2024). *Laporan Survei Kesehatan Indonesia (SKI) 2023*. Jakarta: Badan Kebijakan Pembangunan Kesehatan (BKPK).
- Kementerian Kesehatan Republik Indonesia. (2024). *Riset kesehatan dasar (Riskesdas) 2023*. Jakarta: Kemenkes RI.
- Kementrian Kesehatan. (2024). *Cegah Stroke dengan Aktivitas Fisik*.
- Kurniawan, R., Putri, D., & Hadi, S. (2020). *Hubungan diabetes melitus dengan kejadian stroke: Studi observasional di RSUD Provinsi Jawa Tengah*. *Jurnal Ilmu Kesehatan*, 11(1), 45–52.
- Pemerintah Kabupaten Kudus. (2024). *Rencana Strategis Pembangunan Kesehatan Daerah: Pengembangan Pusat Layanan Unggulan Stroke (Stroke Center)*. Kudus: Bappeda Kabupaten Kudus.
- Prasetyo, B., & Widodo, T. (2019). *Hubungan kebiasaan merokok dengan risiko stroke pada penduduk dewasa di Jawa Tengah*. *Jurnal Kardiovaskular Indonesia*, 7(2), 75–82.

- Rahmawati, E., Sari, M., & Nugroho, H. (2021). *Aktivitas fisik dan risiko penyakit tidak menular pada pekerja perkotaan*. Jurnal Gizi dan Kesehatan, 14(3), 150–160.
- Riskesdas. (2018). *Laporan Provinsi Jawa Tengah Riskesdas*.
- Utami, S., Lestari, P., & Hidayat, R. (2022). *Keterlambatan penanganan stroke dan risiko kecacatan: Studi retrospektif di Jawa Tengah*. Jurnal Neurologi Indonesia, 18(1), 33–41.
- Wahyuni, F., & Sari, D. (2021). *Analisis faktor risiko stroke: Kombinasi hipertensi, merokok, dan hiperkolesterolemia*. Jurnal Kesehatan dan Kedokteran, 15(2), 88–96.
- World Health Organization . (2025). *Stroke*.
- World Health Organization (WHO). (2025). *Global report on stroke prevention and management*. Geneva: WHO.
- World Health Organization. (2025). *Global Stroke Fact Sheet: Death and Disability Trends*.
- .