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# Characteristics and Pharmacological Therapy of Stroke Outpatients at the West Java Provincial Occupational Health Hospital in 2024

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***Abstract***

*Stroke represents a serious medical emergency and remains the second leading cause of mortality globally, while also being a major factor in long-term disability. This study aimed to describe the characteristics and health services provided to stroke patients at the outpatient unit of Occupational Health Hospital (RSUD-KK), West Java Province, during July–September 2024. A descriptive quantitative design was applied using secondary data from the neurology outpatient clinic, pharmacy records, and supporting data from RSUD-KK. The study included 316 patients and 1450 prescribed medications. The study population consisted mostly of male patients (51.27%) aged 40–65 years (70.6%). Most were returning patients (94%) and covered by national health insurance. Nineteen new stroke cases were identified during the study period, indicating a continuing burden of disease. Hypertension was the most common secondary diagnosis (66.5%). Antihypertensive (34%) and antiplatelet (30.8%) agents were the most frequently prescribed therapies. These findings highlight hypertension as the primary modifiable risk factor among stroke patients. Strengthening hypertension management and optimizing pharmacological therapy in outpatient settings are essential to prevent recurrent stroke and reduce morbidity*

## Background

Stroke remains a major global health problem and a leading cause of mortality and long-term disability. According to the World Health Organization (WHO), stroke is the second leading cause of death worldwide and the primary cause of permanent disability (World Health Organization, 2025). In Indonesia, stroke has become a significant public health issue, with a prevalence of 10.9% based on the 2018 Basic Health Research (Riskesdas), particularly among older adults and individuals with hypertension and diabetes (Kementrian Kesehatan Republik Indonesia, 2018). As a chronic and potentially life-threatening condition, stroke management requires comprehensive and multidisciplinary care involving physicians, nurses, pharmacists, psychologists, and other healthcare professionals to alleviate suffering and improve quality of life, including through palliative approaches (Holloway et al., 2016).

Previous studies have emphasized the importance of early diagnosis and timely treatment in improving stroke outcomes. Supriyadi and Budianto, (2022) reported that only about 30% of stroke patients receive reperfusion therapy within the recommended time window, limiting optimal recovery and increasing the risk of long-term complications (Supriyadi & Budianto, 2022). In addition, Pramono and Sari (2023) found that the speed and quality of care during the acute phase significantly influence recovery outcomes (Pramono & Sari, 2023). These findings

indicate that both patient characteristics and healthcare service delivery play essential roles in determining prognosis.

However, existing studies mainly focus on clinical outcomes or therapeutic timeliness, with limited research describing the combined profile of patient characteristics and patterns of healthcare services in specific hospital settings, particularly in outpatient units. Furthermore, studies that specifically examine the characteristics of stroke patients together with the patterns of therapeutic management provided in outpatient settings remain scarce. The West Java Provincial Occupational Health Hospital, operating under the West Java Provincial Health Office, is the only hospital in Indonesia specializing in occupational health services and treats a substantial proportion of stroke cases in its neurology clinic. Despite stroke accounting for a considerable percentage of cases, no study has specifically analyzed patient characteristics and healthcare services provided in this institution within a defined period.

This gap underscores the importance of generating contextual evidence to support service evaluation and healthcare planning. Therefore, this study aims to describe the characteristics and health services provided to stroke patients in the outpatient unit of the West Java Provincial Occupational Health Hospital during July–September 2024.

## Methods

This study employed a descriptive quantitative design using secondary data derived from medical records at the Neurology Outpatient Clinic and Pharmacy Unit of the West Java Provincial Occupational Health Hospital. The research was conducted from July to September 2024.

The study population consisted of all stroke patients receiving outpatient care during the study period. A total of 316 patients were included using total sampling, with inclusion criteria limited to complete medical record data. The variables analyzed included patient characteristics (age, sex, visit status, insurance status, and secondary diagnoses) and health services (types of prescribed medications). Data were analyzed descriptively using frequency and percentage distributions.

This research is one of the results of the PKKM MBKM Merdeka Belajar Research Internship Program, which has obtained an internship permit from the Occupational Health Hospital with letter number 34419/KS.01/SDK. Ethical clearance has been obtained through a letter of consent to access medical records from the Occupational Health Hospital with letter number 7711/TU.01.02/RSKK. Additionally, there is also supplementary data from the West Java Health Department obtained during the internship period.

## Result and Discussion

### Patient Characteristics

The results on the Table 1 show that 51.27% of stroke patients were male. The majority of patients (70.6%) were aged 40–65 years, reflecting a predominance in the productive age group. During the study period, 19 new stroke cases were identified. Most patients (94.6%) were covered by BPJS/JKN insurance.

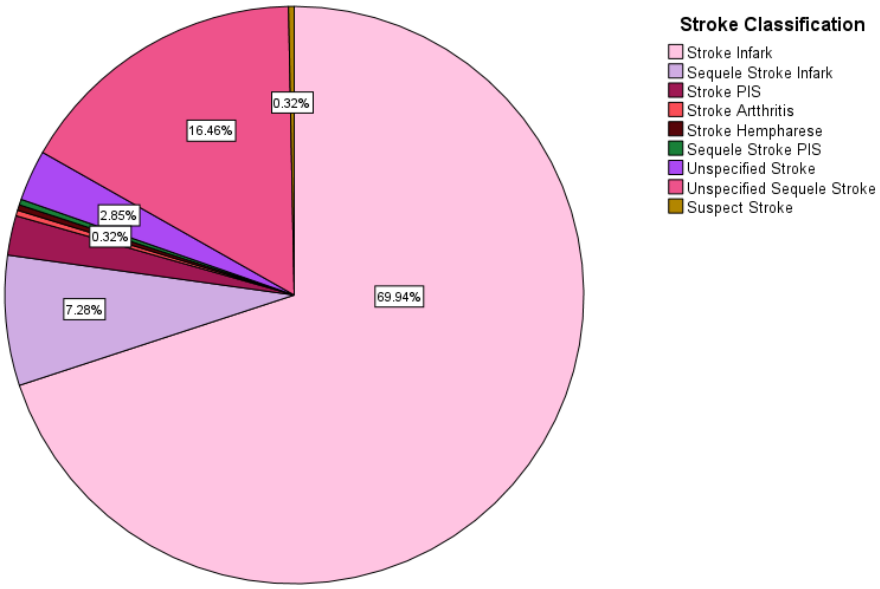
**Table 1. Patient Characteristics (n=316)**

| Variable | n | % |
|---|---|---|
| Gender | | |
| Males | 162 | 51.27 |
| Females | 154 | 48.73 |
| Age | | |
| 0-20 years | 0 | 0 |
| 20-40 years | 14 | 4.4 |
| 40-65 years | 223 | 70.6 |
| ≥ 65 years | 79 | 25 |
| Patient Status | | |
| Old | 297 | 94 |
| New | 19 | 6 |
| Insurance Type | | |
| BPJS/JKN | 299 | 94.6 |
| Uninsured | 17 | 5.4 |
| Hypertension Status | | |
| Hypertensive | 210 | 66.5 |
| Non-hypertensive | 106 | 33.5 |

This finding suggests a higher vulnerability among men, which can be explained biologically and behaviorally. Estrogen in women provides vascular protection by inhibiting atherosclerotic plaque formation, particularly during reproductive age (Regitz-zagrosek, 2023). In contrast, men tend to have greater exposure to modifiable risk factors such as smoking and alcohol consumption, which are associated with endothelial dysfunction and the development of hypertension. This finding is consistent with the report of Vera Regitz-Zagrosek (2023), who found that 62% of stroke patients were male, suggesting a similar gender distribution.

Increasing age is associated with arterial stiffness, reduced vascular elasticity, and progressive atherosclerosis, which elevate stroke risk. Additionally, individuals in productive age often experience occupational stress and unhealthy lifestyle patterns that may contribute to hypertension (Purnomo et al., 2022). This finding aligns with previous research showing the highest stroke distribution in the 51–60 age group (Regitz-zagrosek, 2023). The shift toward middle adulthood suggests that stroke is no longer confined to elderly populations.

This finding reflects a persistent incidence of stroke and corresponds with data from the Occupational Health Hospital (RSUD-KK), West Java Province showing an increasing trend from 2021 to 2023. The rise may be influenced by improved case detection, longer life expectancy, and sustained exposure to risk factors. This indicates high utilization of national health insurance for stroke management. Nurasyah (2023) reported a similar upward trend in BPJS participation among stroke patients. While this suggests improved access to healthcare services, it also highlights the financial burden of chronic stroke management on the national insurance system (Nurasyah et al., 2023).




**Picture 1. Stroke Classification**
Source: (Hospital medical record, 2024)

Picture 1 shows that ischemic stroke accounted for 69.9% of cases, consistent with global epidemiological data showing ischemic stroke as the dominant type. Furthermore, Table 1 shows that 66.5% of patients had hypertension as a secondary diagnosis.

Chronic hypertension causes vascular remodeling, endothelial damage, and increased arterial stiffness, thereby increasing both ischemic and hemorrhagic stroke risk (Kim, 2023; Boutouyrie et al., 2021). This proportion is comparable to findings in previous studies, confirming hypertension as the primary modifiable risk factor.

Overall, these findings support the study objective by demonstrating that stroke patients in this outpatient setting are predominantly male, within productive age, insured under BPJS, and commonly affected by hypertension. The dominance of modifiable risk factors emphasizes the importance of strengthening preventive strategies, particularly early detection and optimal hypertension control.

## Stroke Therapy

Antihypertensive agents accounted for the largest proportion of prescribed medications (34%). Antiplatelet agents constituted 30.8% of total prescriptions, ranking second after antihypertensives. Central nervous system drugs accounted for 24% of prescriptions, while analgesics represented 11.2%.

**Table 2. Stroke Therapy (n=1450)**

| Variable | n | % |
|---|---|---|
| Therapy | | |
| Antihypertensive drugs | 247 | 34 |
| Analgesics | 81 | 11.2 |
| Central nervous system drugs | 174 | 24 |
| Antiplatelet agents | 223 | 30.8 |

This finding reflects the high prevalence of hypertension as a secondary diagnosis among patients. Pathophysiologically, uncontrolled blood pressure accelerates vascular remodeling, endothelial dysfunction, and atherosclerotic plaque formation, which increase the risk of both primary and recurrent stroke (Młynarska et al., 2025). The most frequently prescribed antihypertensive was amlodipine, a calcium channel blocker. Wang et al. (2023) reported that amlodipine reduces stroke risk by up to 23% compared to other antihypertensive regimens (Wang et al., 2023). Meta-analyses indexed in PubMed also demonstrate its significant protective effect against stroke and myocardial infarction in hypertensive patients (Iyengar et al., 2021). The dominance of amlodipine prescription in this study is therefore consistent with evidence-based recommendations for blood pressure control in secondary stroke prevention.

The most commonly used agent was acetylsalicylic acid (aspirin). Aspirin is widely recommended for secondary prevention of ischemic stroke due to its mechanism of inhibiting cyclooxygenase (COX), thereby reducing thromboxane $A_2$ production and platelet aggregation. Wang et al. (2023) reported that aspirin can reduce the risk of recurrent stroke by approximately 20% (Wang et al., 2023). The high utilization of antiplatelet therapy in this study aligns with clinical guidelines emphasizing thrombosis prevention in ischemic stroke patients.

Overall, the prescribing pattern observed supports the study objective by demonstrating that pharmacological management in this outpatient setting focuses primarily on blood pressure control and antiplatelet therapy. These findings are consistent with established pathophysiological concepts and previous research. From a practical perspective, strengthening adherence monitoring and comprehensive risk factor management may further optimize secondary stroke prevention outcomes.

## Conclusion

This study described the characteristics and health services provided to stroke patients in the outpatient unit of the West Java Provincial Occupational Health Hospital during July–September 2024. The findings showed that stroke patients were predominantly male and within the productive age range of 40–65 years, with hypertension identified as the most common comorbidity. Antihypertensive and antiplatelet therapies were the most frequently prescribed treatments, reflecting evidence-based secondary stroke prevention strategies. From a nursing perspective, strengthening patient education, regular blood pressure monitoring, lifestyle modification counseling, and adherence support are essential components of outpatient stroke management.

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