Resilience Level of Stroke Survivors

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ABSTRACT

A stroke attack has both physical and psychological impacts on sufferers. Resilience in stroke survivors refers to an individual's ability to recover and adapt after experiencing a stroke, both physically, psychologically, and socially. This study aims to identify the level of resilience of stroke survivors. The number of samples in this study was 44 respondents taken using the Purposive Sampling technique. This is a descriptive study. The research tool used the Connor Davidson Resilience Scale-25 (CD-RISC-25). The results showed that the mean resilience score was 95.11 (SD 5.487), indicating high resilience. The level of resilience in stroke survivors shows above-average results. Some implications for healthcare providers or clinical practice are integrating psychological and social support into rehabilitation, empowering survivors to build self-efficacy and adaptive coping, and family and caregiver inclusion with long-term continuity of care.

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1. INTRODUCTION

According to the Global Burden of Disease 2021 study, stroke remains one of the most significant non-communicable diseases worldwide: it ranks second in causes of global mortality (about 7 million deaths) and third in overall disease burden (160 million DALYs) (Feigin et al., 2025; Zhang et al., 2020a). Since 1990, the absolute numbers of incident strokes increased by 70%, deaths by 44%, and prevalence by 86%. In 2021, 93.8 million people were living with stroke sequelae, and nearly 12 million experienced a new stroke episode (Feigin et al., 2025). Low- and lower-middle-income countries account for roughly 87% of all stroke-related deaths and 89% of DALYs, with regions such as Southeast Asia and South Asia showing rising incidence. Globally, the stroke-attributable economic burden exceeds USD 890 billion annually, accounting for approximately 0.7% of global GDP (Feigin et al., 2025). The Indonesian health survey conducted in 2023 found that the incidence of stroke in the age group over 15 years was 8.3%, with the largest age group being 75 years and above at 41.3% (Indonesia, 2023). Stroke has many effects on the survivor. Data shows 33% of all deaths from stroke occur in people below 70 years old, with 52% occurring in men. About 55% of healthy life lost due to stroke-related death and disability affects people below the age of 70 years (Feigin et al., 2025). A study in 124 patients has resulted in the Quality of Life dimensions, in which participants presented most problems were anxiety/depression (66.7%) and pain/discomfort (62.2%). According to the predictive model for the EQ-5D index, 72% of the score on QoL items is explained by functional status, dependence for the activities of daily living (basic and instrumental), and depressed mood. Being married, in contrast, seems to be a protective factor (López Espuela et al., 2020). To be able to cope with changes in health problems due to stroke, stroke survivors should have good resilience.

Resilience refers to the ability to "bounce back" and thrive in the face of adversity. It enables the improvement in the mental health and quality of life of individuals. It is also an adaptive ability that attenuates the impact of adverse events when individuals face the threat of disease or are required to undergo long-term treatment (Han et al., 2021; Hildon et al., 2010; Nishimi et al., 2021; Park et al., 2021). Resilience is increasingly viewed not as an innate trait but as a dynamic set of skills—such as self-efficacy, positive outlook, social support, and emotion regulation—that can be cultivated through targeted intervention. For individuals with chronic conditions, resilience supports proactive disease management and mitigates psychological distress, which in turn improves quality of life and adherence to treatment protocols (Chen et al., 2024; Zhang et al., 2020a, 2022). The defining attributes of resilience in stroke patients were classified into internal personality traits and external environmental support. Antecedents included physical, mental, and familial and social impairments caused by the disease, and the consequences were good adaptation, which included active cooperation with rehabilitation activities, positive thinking, goal setting, and harboring hope for the future (Yan & Lin, 2022).

Resilience in stroke survivors is closely associated with the outcome of their abilities. A six-month cohort study in Shanghai found that higher resilience during acute hospitalization was associated with significant improvements in health-related quality of life, independent of stroke severity, depression, or anxiety (Liu et al., 2021; Zhang et al., 2020b). A Chinese longitudinal analysis demonstrated that baseline resilience protected against post-stroke depression across the first six months (e.g., OR 0.22 at 1 month; OR 0.03 at 6 months) (Liu et al., 2021)(Zhou et al., 2020). In chronic-phase survivors (5 months to 28 years post-stroke), lower resilience correlated with worse cognitive, emotional, and participation outcomes. Conversely, high resilience independently predicted better functioning in mood, memory, communication, and social role (Gyawali et al., 2020). Community studies confirmed a strong inverse association between resilience and perceived stress, and resilience accounting for significant variance in recovery across domains of the Stroke Impact Scale (Gyawali et al., 2019, 2020).

Resilience shapes stroke recovery at multiple levels. In psychological level, It prevents or reduces post-stroke depression and anxiety and enhances subjective well-being (Zhang et al., 2020a). Cognitive and Functional factors with higher resilience is associated with clearer memory and communication functions, as well as better perceived recovery. In quality of Life, it supports adaptive coping, promotes health literacy, ensures adherence to rehabilitation, and fosters engagement in daily activities. In modifiability, since resilience can be strengthened through early interventions—such as self-efficacy building, positive coping strategies, and social support—it presents a viable target for clinical programs (Zhang et al., 2022). A qualitative study in 2021 shows that each post-stroke patient has a different way of achieving resilience. From the seven aspects of resilience, the subject can be reached 5 aspects, namely causal analysis, self-efficacy, optimism, empathy, and reaching out (Kaffatan et al., 2022). As far as researchers have searched, there have been no studies on the resilience of stroke survivors in Indonesia, especially with a Javanese cultural background.

In Surakarta, the definite number of stroke cases is not reported annually. The 2023 Surakarta City Health Profile reported 67,355 cases of hypertension (78.6%), which, if not properly managed, can lead to further non-communicable diseases such as heart disease, stroke, kidney failure, and others (Dinas Kesehatan Kota Surakarta, 2023). A preliminary study conducted at the Sibela Community Health Center of Surakarta obtained data showing that during May 2024, there were 78 stroke patients. So, the objective of this study is to identify the level of resilience of stroke survivors.

2.   RESEARCH METHOD

This study is quantitative research with a descriptive design. The population of this study is 78 stroke survivors who registered in the Sibela Community Health Centre of Surakarta. The number of samples in this study was 44 respondents taken using the Purposive Sampling technique. The use of a non-probability sampling method was considered most appropriate for this study due to its alignment with the research objectives and practical constraints. While probability sampling could have enhanced representativeness, it was not feasible given the limited resources, accessibility issues, and the specific characteristics of the target population. Non-probability sampling allowed the researchers to reach participants who possessed the relevant knowledge and experiences necessary to address the study's aims. Moreover, this approach ensured the collection of in-depth and contextually rich data, which was prioritised over broad generalizability in this research design. The criteria of this study are stroke survivors in the chronic phase of stroke recovery (≥5 months post stroke attack), and survivors without cognitive impairment. This study utilised the Connor-Davidson Resilience Scale-25 (CD-RISC-25). CD-RISC-25 is a self-report instrument developed by Connor & Davidson (2003) to measure resilience, understood broadly as the ability to cope with stress, recover from adversity, and adapt in challenging conditions. Each item is rated by respondents on a 5-point Likert scale, from 0 to 4. A higher total score indicates a higher level of resilience. The possible total score range is from 0 to 100 (i.e. 25 items × maximum 4). The Indonesian version of CD-RISC-25 has been tested for validity with an r-value calculation ranging from 0.370 to 0.859. Test of reliability shows the Alpha Cronbach level is 0.930. This study was ethically approved by Health Research Ethics Committee of Dr. Moewardi General Hospital with letter number 2.237/IX/HREC/2024. Written informed consent was obtained from all participants before the study.

3. RESULT AND DISCUSSION

A total of 44 stroke survivors have completed the data. The average age of respondents is 64.9 years, with a standard deviation of 8.10.

Table 1. Demographics Characteristics (N=44)

Demographics Characteristics	Mean (SD)/ n (%)
Age, years	64.9 (8.10)
Sex	
Male	25 (56.82)
Female	19 (43.18)
Blood Pressure	
Systole, mmHg	135.66(8.41)
Diastole, mmHg	84.98 (6.4)

The results study on the age factor align with the 2020 study. The study shows that the mean (± standard deviation) age was 64 (± 14.4) years (Milky et al., 2020). The other result shows the same data. Each year, about 53% of all strokes occur in people below 70 years of age. 65% of people who have experienced a stroke and are currently living are below the age of 70 years. (Feigin et al., 2025). A study of France found that 28% of stroke patients were elderly, and the absolute number of first-ever strokes increased by 47% in patients over 75 years old. Ageing and growth of the population led to a rise in the absolute number of strokes, especially in the elderly, which is expected to increase dramatically in the coming years. Improved stroke care was accompanied by an increase in stroke survivors, which contributed to a rise in recurrent events (Béjot et al., 2019). The elderly age group is at risk of experiencing stroke due to chronic health problems experienced, which are related to changes in body function due to the effects of aging.

The majority of respondents' gender characteristics are male, about 25 (56,82%). This result is similar to the Global Stroke Fact Sheet of 2025. Among incident stroke, 6.3 million (95% UI 5.6 to 7.0); or 52.6% (52.4 to 53.1)) occurred in males and 5.7 million (5.1 to 6.3); or 47.4% (47.3 to 47.6)) in females (Feigin et al., 2025). Male-specific risk factors for stroke are associated with low induced testosterone levels and erectile dysfunction. These sex-specific variables could help identify specific patient groups with an increased risk of stroke, and individual risk factors should be considered in recommendations on primary prevention of stroke and secondary prevention of stroke in patients with manifest cardiovascular disease (Poorthuis et al., 2017). Men are at greater risk of having a stroke due to many factors that originate from themselves that cannot be changed, and other inherited factors such as lifestyle.

The average blood pressure of respondents is 135,66/84,98 mmHg. The risk probability of stroke among hypertension patients was high in followed-up hypertension patients (total 78.9%, male 91.0%, female 70.7%), and would continue to increase disproportionately during the period of hypertension (4 different onset peaks). With the persistence of hypertension, the risk of stroke would increase continuously (Li et al., 2022). Hypertension, especially in the elderly, can develop into stroke complications more often than in other age groups due to the decline in body function with aging.

Table 2. Resilience Level of Study Sample (N = 44)

	Mean	Median	Standard Deviation	Min - Max
Resilience	95.11	97	5.487	78 - 100

The resilience level of the study sample shows that the mean was 95.11 with a standard deviation of 5,487. This result shows that the level of resilience is at a high level. Strong resilience is associated with successful adjustment, more participation, and fewer depressive symptoms in several rehabilitation populations, such as spinal cord injury, multiple sclerosis, traumatic brain injury, and stroke. Resilience was associated with adaptation and adjustment for individuals faced with serious injury, such as Acute Brain Injury (Neils-Strunjas et al., 2017; Sherer et al., 2015; Vos et al., 2019). In addition, high resilience is reported to be associated with better cognitive function as well as greater recovery of cognitive function in individuals with traumatic brain injury and stroke (Castor & El Massioui, 2020). A survey found that elderly people who have family support have a better coping structure compared to those who do not. Family ties contribute to the well-being of individuals, in addition to allowing them to remain integrated into their life contexts. The demonstration of affection is essential for elderly people to feel valued and live with dignity (Lima et al., 2016). All of the respondents are Javanese. Javanese ethnic backgrounds live with their families. Javanese culture recognizes the term "*ngopeni wong tuo*," meaning caring for parents. This is a form of respect and responsibility for their parents, encompassing meeting their physical, emotional, and spiritual needs. So, it can be concluded that the full involvement of the family in caring for stroke survivors greatly influences their ability to be resilient.

Table 3. Dimensional Aspect of Resilience of Study Sample (N=44)

	Mean	Standard Deviation
Emotion regulation	3.848	0.092.
Impulse control	3.727	0.133
Optimism	3.864	0.041
Causal analysis	3.750	0.438
Emphatic	3.682	0.601
Self-efficacy	3.826	0.125
Reaching out	3.886	0.060

Table 3 shows that the highest mean in the dimensional aspect of resilience was the reaching out factor. The aspect of reaching out describes an individual's ability to achieve success. Resilient individuals can take risks to overcome problems, understand themselves well, and have life goals. Individuals who have reached out will achieve the positive aspects of the misfortune experienced (Reivich, Karen & Shatte, 2022). How stroke survivors can increase their resilience levels by maximising the reaching out dimension that exists within them, through taking risks from problems to overcome problems, understanding themselves well, and having life goals after a stroke attack. The limitations of this study are a small sample size, a single-centre setting, and a descriptive design (no causal inference). The future research can be built in longitudinal studies or an interventional program to build resilience in stroke survivors. So, though resilience may be higher in some survivors, the main trend is that there is vulnerability, especially early post-stroke, and resilience is modifiable via targeted interventions. Some implications for healthcare providers or clinical practice are early assessment of resilience and related factors, integrating psychological and social support into rehabilitation, empowering survivors to build self-efficacy and adaptive coping, family and caregiver inclusion, long-term continuity of care and tailoring interventions to individual characteristics. The policy makers or health systems toward this study's results are the inclusion of psychological well-being and resilience in stroke care guidelines, funding and resources for multidisciplinary teams, support for community rehabilitation and long-term follow-up, caregiver support programs, and health equity considerations.

4. CONCLUSION

The resilience level of the stroke survivors is at a strong level. The dominant dimensional aspect of resilience is the reaching out factor. Further studies are needed to analyse the long-term impact of resilience on stroke survivors.

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