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Family Support and Self-Efficacy Among Post-Ischemic Stroke Patients: A Cross-Sectional Study

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Abstract

Background: Post-ischemic stroke patients often experience residual functional limitations that affect recovery and daily functioning. Family support may influence self-efficacy during the rehabilitation process. **Methods:** This cross-sectional study was conducted from November to December 2023 among 193 post-ischemic stroke patients undergoing medical rehabilitation in a general Hospital in Indonesia. Samples were selected using purposive sampling. Family support was measured using a modified Family Support Instrument, and self-efficacy was assessed using the Stroke Self-Efficacy Questionnaire (SSEQ). Data were analyzed using the Spearman Rho correlation test. **Results:** Overall family support showed a weak positive correlation with self-efficacy ($r = 0.290$; $p < 0.001$). Informational support demonstrated a moderate positive correlation with self-efficacy ($r = 0.429$; $p < 0.001$). Appreciation support showed a weak negative correlation ($r = -0.262$; $p < 0.001$), while instrumental and emotional support were not significantly associated with self-efficacy. **Conclusion:** Family support is associated with self-efficacy among post-ischemic stroke patients, with informational support appearing to play a particularly important role. Strengthening family support through integration with healthcare and community-based services may enhance rehabilitation outcomes for post-ischemic stroke patients.

Keywords: Family Support, Self-Efficacy, Post-Ischemic, Stroke, Rehabilitation

Introduction

Stroke ranks second among non-communicable diseases and third among all diseases as the leading cause of mortality and disability worldwide (Feigin et al., 2025). Although national stroke prevalence data are limited, findings from the Indonesian Health Survey indicate that stroke prevalence in Indonesia reached 8.3 per 1,000 population, indicating that stroke is the leading cause of disability (11.2%) and death (18.5%) (SKI, 2023). Age-standardized stroke burden rates have declined over time, but some regions have shown significant increases in prevalence, incidence, mortality, and disability-adjusted life years in post-stroke patients (He et al., 2024).

Ischemic stroke is the most common type of stroke, causing significant death and disability worldwide, and has various modifiable risk factors (Timur et al., 2025). Ischemic stroke represents the most prevalent form of stroke, characterized by a lower mortality rate and a more favorable prognosis compared to hemorrhagic stroke, which is the primary cause of significant long-term disability (Salvadori et al., 2021; Tsao et al., 2023). Post-stroke patients experience physical impairments, including weakness or paralysis and coordination and balance problems; cognitive impairments, including difficulties with memory, attention, and problem-solving, as well as speech impairments; sensory changes, such as changes in touch or vision; and emotional disturbances, including depression, anxiety, and other neuropsychiatric disorders. Poor rehabilitation outcomes can interfere with daily life and social participation (Bailliard et al., 2025; Greenberg et al., 2022).

Changes in self-efficacy in post-stroke patients are due to changes in self-concept resulting from disability. Self-efficacy toward chronic illness in ischemic stroke patients is influenced by a history of falls, physical

dysfunction, and cognitive impairment; social support helps prevent post-stroke depression and anxiety (Wang & Liu, 2023). Self-efficacy refers to an individual's belief in their ability to perform activities or task. Self-efficacy has been shown to be a significant mediator of increased daily activities and life satisfaction in post-stroke patients (Nott et al., 2021). Self-efficacy serves as a motivating factor for behavioural changes during poststroke recovery, especially in rehabilitation programs (Gangwani et al., 2022). Research by Welten et al. (2023) suggests that high self-efficacy from close family members can reduce depressive symptoms and increase life satisfaction in post-stroke patients. Ischemic stroke is not only a traumatic event for patients but also presents significant crises and challenges for their families (Zhang et al., 2023).

Family support may play a key role in improving self-efficacy, which in turn can motivate self-care and rehabilitation engagement. Family support plays a crucial role in the rehabilitation phase. Zhachrani et al. (2024) demonstrated that family support is the most important aspect in improving the quality of life of stroke patients. Research consistently shows that emotional, practical, and informational support from family members significantly improves physical and psychological outcomes for stroke survivors (Deepradit et al., 2023; Kosasih et al., 2020). The results of Lu (2024)research indicated a relationship between family support and family resilience, but family support is still low in ischemic post-stroke patients. Families in developed and developing countries differ significantly in their support mechanisms, primarily due to variations in socioeconomic status, government roles, and cultural norms regarding family structure. Family support is often not yet fully integrated as a formal component of post-stroke recovery programs. Family support in developed countries focuses on the stroke recovery phase, which is related to the healthcare system and access to community-based and technology-based healthcare services, such as stroke family warm lines, support group leader resources, and stroke support group finders. Family support in developing countries, particularly Indonesia, is a potential factor in accelerating the recovery of post-stroke patients, particularly in following up with them after completing inpatient care. In developing countries, patients are still required to come to the hospital for a series of outpatient check-ups that require all aspects of family support. Family support in developing countries, particularly in Indonesia, still focuses on traditional models and knowledge based on local cultural diversity and has not been well integrated across regions. To date, there has been little research examining the relationship between family support and self-efficacy in post-stroke patients. Based on this background, researchers are genuinely interested in examining the extent of the relationship between family support and self-efficacy in post-stroke patients in Aceh, Indonesia.

Methods

This cross-sectional study was conducted from November to December 2023 among post stroke patients in the neurology polyclinic, medical rehabilitation unit, and neurology inpatient ward of a general hospital in The province of Aceh, Indonesia.

The sample size for this study was determined using power analysis using the G*Power application. The sample size was calculated using an exact bivariate correlation model with an assumed effect size of 0.07, a correlation ρH1 of 0.2, an α err prob of 0.05, a power (1-β err prob) of 0.80, and a correlation ρH0 of 0. The sample size was 193 post-stroke patients undergoing medical rehabilitation. This study used a purposive sampling technique. The inclusion criteria were (1) compos mentis level of consciousness, (2) post-ischemic stroke patients, (3) Activities of Daily Living (ADL) were severely dependent (Barthel Index: 5-8). Exclusion criteria in this study included (1) verbal communication disorders, i.e., aphasia and apraxia; (2) visual impairment; and (3) depression.

This study used a family support questionnaire modified by the researcher. The family support questionnaire was modified based on relevant literature. Family support is any form of attention, affection, and motivation provided by family to ischemic post-stroke patients, both verbally and non-verbally. The results of the family support questionnaire consist of 16 statements. The family support questionnaire consists of 4 domains: informational support, appraisal support, instrumental support, and emotional support. The family support questionnaire was tested for reliability twice in 10 ischemic post-stroke respondents outside of the study. The reliability test indicated that the family support instrument demonstrated high reliability with a Cronbach's alpha of 0.85. The family support questionnaire measurement scale uses a ratio with a measurement range of 16-64, where a higher score indicates a high level of family support.

Self-efficacy was measured using the Stroke Self-Efficacy Questionnaire (SSEQ) from Jones et al. (2008), which was found to have good face validity and feasibility for use during the recovery period following stroke. The Cronbach's alpha was 0.90, indicating good internal consistency, and criterion validity was high compared to the Falls Efficacy Scale ($r = 0.803$, $p < 0.001$). Self-efficacy was the level of confidence and success of post-

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ischemic stroke patients in managing their symptoms and determining the best alternatives related to the post-ischemic stroke symptoms they experience. The SSEQ consisted of 13 statements organized into the domains of activity and self-management, presented as a ratio scale with a score range of 13-52. A higher score indicates a higher level of self-efficacy.

Data collection was conducted in accordance with administrative procedures and after obtaining research permission from the hospital. The researcher then sought assistance from five enumerators who had received a briefing beforehand. The researcher explained the purpose and benefits of the study, noting that the study would not pose any risks. Respondents signed research-informed consent. The researcher then administered the questionnaire directly to the respondents.

Table 1. Sociodemographic Characteristics of Post-Stroke Patients (N = 193)

Variables	Categories	n	%
Gender	Male	107	55.4
	Female	86	44.6
Marital status	Married	145	75.1
	Single	5	2.6
	Widower/ Widower	43	22.3
Education level	Primary Education	57	29.5
	Secondary Education	71	36.8
	Higher Education	65	33.7
Occupation	Unemployed/ Retired	31	16.1
	Housewife	58	30.1
	Private Employee	7	3.6
	Public Servant/ Military /Police	40	20.7
	Labourer/ Farmer	33	17.1
	Self-Employed	24	12.4
Living with	Parents	5	2.6
	Husband/ Wife	136	70.5
	Children	35	18.1
	Other Family Members	17	8.8
Duration of stroke (years):	<1	126	65.3
	1-2	29	15.0
	2-3	14	7.3
	>3	24	12.4
Recurrent stroke (times)	1	130	67.4
	2	54	28.0
	>3	9	4.7

The data analysis in this study used the computerized statistical analysis program IBM Statistical Package for the Social Sciences (SPSS) software version 27. Univariate analysis included age, marital status, education level, and duration of stroke. Bivariate analysis used the Spearman Rho correlation test because the data were not normally distributed after the Kolmogorov-Smirnov test ($\rho < 0.25$).

This study adheres to the principles of the World Medical Association Code of Ethics (Declaration of Helsinki). This study has received ethical clearance from Aceh Hospital, Indonesia, with ethics number 262/ETIK-RSUDZA/2023. Informed consent was obtained by the researcher, prioritizing ethical principles.

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Results

The median age of respondents was 57 years (min–max = 30–82). The gender distribution was relatively balanced, with 107 males (55.4%) and 86 females (44.6%). Most participants were married (75.1%), while 2.6% were single and 22.3% were widowed. Education levels included secondary education (36.8%), primary education (29.5%), and higher education (33.7%). The largest occupational group was housewives (30.1%), followed by public servants/military/police (20.7%), laborers/farmers (17.1%), unemployed/retired (16.1%), self-employed (12.4%), and private employees (3.6%). Most respondents lived with a spouse (70.5%), while others lived with children (18.1%), other family members (8.8%), or parents (2.6%). The majority had experienced stroke for less than one year (65.3%), followed by 1–2 years (15.0%), 2–3 years (7.3%), and more than three years (12.4%). Most participants reported one recurrence (67.4%), followed by two recurrences (28.0%) and more than three recurrences (4.7%). The sociodemographic characteristics of respondents are presented in Table 1.

Table 2. Descriptive Statistics of Self-Efficacy and Family Support Domain

Variables/Sub-variables	Median	Min-Maks
Self-efficacy	48.93	45-50
Family support:	57.00	51-59
Informational support	17.79	16-19
Appreciation support	10.24	10-11
Instrumental support	10.24	8-13
Emotional support	18.31	17-19

Self-efficacy had a median score of 48.93 (min = 45; max = 50), while overall family support had a median score of 57.00 (min = 51; max = 59). For the family support domains, the median scores were 57 for informational support (min = 16; max = 19), 10.24 for appreciation support (min = 10; max = 11), 10.24 for instrumental support (min = 8; max = 13), and 18.31 for emotional support (min = 17; max = 19). These descriptive statistics are summarized in Table 2.

Spearman Rho analysis showed a weak positive correlation between family support and self-efficacy ($r = 0.290$; $p = 0.001$). Informational support demonstrated a moderate positive correlation with self-efficacy ($r = 0.429$; $p = 0.001$), while appreciation support showed a weak negative correlation ($r = -0.262$; $p = 0.001$). No significant correlation was found between instrumental support ($r = -0.135$; $p = 0.062$) or emotional support ($r = 0.231$; $p = 0.087$) and self-efficacy. Details of correlation between family support domains and self-efficacy among post-stroke patients are presented in Table 3.

Table 3. Correlation Between Family Support Domains and Self-Efficacy Among Post-Strokes Patients

Variables/Sub-variables	Spearman Rho Correlation	ρ-value
Self-efficacy	0.290	0.001
Family support:	0.290	0.001
Informational support	0.429	0.001
Appreciation support	-0.262	0.001
Instrumental support	-0.135	0.062
Emotional support	0.231	0.087

Discussion

This study examined the relationship between family support and self-efficacy among post-stroke patients. The study found a weak positive correlation between overall family support and self-efficacy, indicating that higher levels of family support are associated with greater confidence in managing post-stroke conditions. A moderate positive correlation was observed between informational support and self-efficacy, suggesting that guidance, encouragement, and health-related information provided by family members may play an important role in strengthening patient confidence during recovery. These findings are consistent with previous studies showing that family involvement and supportive interactions contribute to improved self-efficacy and adaptation among stroke survivors (Istiana, 2024; Rembet & Wowo, 2023; Septianingrum et al., 2023; Zhang et al., 2024). The research findings of Wang & Liu (2023) stated that family support provided early on can indirectly increase

self-efficacy levels and motivate other family members to provide support to improve patient self-efficacy. The research findings of Luo et al. (2024) reveal that providing informational support can increase self-efficacy in patients with chronic diseases, pointing to the importance of family health policies and health literacy interventions regarding self-efficacy. Additionally, there is a need for electronic health literacy to improve health behaviors in post-stroke patients. Research by Xu et al. (2025) found an intrapersonal and interpersonal relationship between eHealth literacy (eHL), self-efficacy (SE), and health-promoting behaviors (HPB) in post-stroke patients and family caregivers.

In contrast, a weak negative correlation was identified between appreciation (appraisal) support and self-efficacy. This pattern may reflect situations in which support is delivered in an overprotective or dependency-reinforcing manner, which can reduce patient autonomy and confidence. To date, there is limited research reporting a negative correlation between appreciation (appraisal) support and self-efficacy among post-stroke patients. However, this condition, related to impatience and excessive support from caregivers, can lead to a decrease in self-reliance in post-stroke patients, which is one of the factors that lowers self-efficacy levels (Gurley Nettles, 2024). Additionally, caregivers may have trouble providing appropriate support, particularly when they lack adequate information or guidance following hospital discharge (McCarthy et al., 2025). Although family and social support provide a sense of security, post-stroke patients doubt their disease progression and feel like a burden to their families (Bartoli et al., 2025). These findings suggest that practical and emotional assistance alone may be insufficient to influence self-efficacy without being accompanied by empowering and informational forms of support. Family-centered education and empowerment strategies have been shown to promote positive health behaviors and strengthen patient confidence during rehabilitation, and promote patient behavioral changes, such as increasing self-confidence and self-protection in post-stroke patients and improving positive perceptions among primary caregivers (Liu et al., 2025).

Implication of Study

There is a need to strengthen the role of family development programs in helping family members improve the self-efficacy of post-stroke patients so they can achieve independence in activities.

The Limitation of Study

This study has limitations in the inclusion criteria, namely that the samples obtained are still not homogeneous because there are still patients with other comorbidities besides the ischemic stroke they suffered.

Conclusions

The results showed a moderate positive and weak correlation between family support and self-efficacy. Informational family support is positively and strongly correlated with self-efficacy, whereas appraisal of family support is negatively and weakly correlated with self-efficacy. A program for family carer associations for stroke patients integrated with the healthcare system and access to technology-based healthcare services is needed to improve post-stroke family support.

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Conflict of Interest

The authors declare no potential conflict of interest concerning this article's research, authorship, and publication.

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