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Correlation between self-efficacy in treatment and rehabilitation programs with functional status among post-stroke patients

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Abstract

Background: Stroke patients must comply with medication and undergo rehabilitation to prevent recurrent attacks. Self-efficacy plays a significant role in patient adherence to and compliance with these programs. Post-stroke patients have varying functional statuses, which may result in differences in their levels of self-efficacy in carrying out these programs.
Purpose: To identify the relationship between patients' self-efficacy in undergoing rehabilitation and treatment.
Method: A correlational descriptive study using accidental sampling conducted on 69 post-stroke patients. Data were collected using the Stroke Self-Efficacy Questionnaire (SSEQ), the Self-Efficacy for Appropriate Medication use Scale (SEAMS), and the Barthel Index. Data analysis was performed using Spearman's analysis.
Results: Most respondents (40.6%) had high self-efficacy in rehabilitation, 62.3% had high self-efficacy in medication, and 56.5% had mild dependence. There was a significant relationship between self-efficacy in carrying out rehabilitation and the functional status of patients (p = 0.000), and there was a significant relationship between self-efficacy in carrying out medication and the functional status of patients (p = 0.000).
Conclusion: There is a significant relationship between self-efficacy in undergoing rehabilitation and treatment and the functional status of patients. Health workers, especially nurses, must motivate patients to undergo treatment and rehabilitation, particularly those with low functional status.

Keywords: Functional Status; Rehabilitation; Self-Efficacy; Treatment.

INTRODUCTION

Stroke is a chronic disease that causes the second-highest number of deaths and disabilities worldwide (Bettger, Li, Xian, Liu, Zhao, Li, & Wang, 2017). Post-stroke patients may experience various obstacles in carrying out their activities, which can lead to a decline in their quality of life. Stroke management is carried out from the acute phase to rehabilitation, which requires a significant amount of time and money. Stroke is one of the most costly diseases (Fadhilah & Permanasari, 2020). Patients who have had a stroke are at risk of having another stroke, which can cause worse symptoms than the first one and has a death rate of 17.5% (Erdur, Scheitz, Ebinger, Rocco, Grittner, Meisel, & Nolte, 2025). To improve functional status and prevent recurrent attacks, post-stroke patients must undergo rehabilitation and self-management. Self-management in post-stroke patients includes symptom management, physical activity, and adherence to treatment (Ruksakulpiwat & Zhou, 2021).

Based on previous studies, most post-stroke patients are non-compliant in carrying out self-management and treatment. Various factors, such as the patient's financial situation, the severity of the stroke diagnosis, and the length of the stroke, are linked to most post-stroke patients who do not follow their treatment (Sakr, Dabbous, Akel, Salameh, & Hosseini, 2022). Non-compliance among post-stroke patients can have various impacts, including increased treatment costs

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and higher morbidity and mortality rates. Therefore, various interventions must be carried out to improve patient compliance in following treatment programs (Aboobacker, Subrahmanyam, Karun, & Chacko, 2025).

Self-efficacy is one factor that influences patient compliance in following treatment and rehabilitation. Numerous studies have demonstrated a significant relationship between self-efficacy and the patient's capacity for self-management. Self-confidence can increase the ability of post-stroke patients to comply with the treatment program prescribed by health workers (Hazanah, Marufa, & Yulianti, 2023; Sasmito, Hartoyo, Sujana, Sudrajat, Lie, Astuti, & Rosyid, 2025). Various studies mention that the self-efficacy of post-stroke patients is often low (Aboobacker et al., 2025). Low self-efficacy can not only reduce self-management abilities but also reduce the achievement of rehabilitation programs. Therefore, post-stroke patients must have high self-efficacy. Stroke patients often have low functional status, making it difficult for them to perform daily activities. This condition can cause patients to have difficulty undergoing treatment and rehabilitation (Lorica, Rosdewi, & Solon, 2020).

RESEARCH METHOD

A correlational descriptive study conducted on post-stroke patients who visited the neurology clinic at a regional government hospital. The sampling technique used was accidental sampling with 69 respondents. The inclusion criteria for this study were age >18 years and ability to communicate eloquently. This study has passed the ethics committee test with ethics number 123/KEPK/FITKes-Unjani/XII/2024. The instrument used to assess self-efficacy in stroke patients was the Stroke Self-Efficacy Questionnaire (SSEQ). This questionnaire was developed by Jones et al. (2008) and consisted of 13 items. This instrument consists of two components, namely activities and self-management. Self-efficacy is categorized into three types, namely low self-efficacy (score 0-12), moderate self-efficacy (score 13-26), and high self-efficacy (27-39). The Indonesian version of the SSEQ and shows that all items are valid ($p < 0.005$) and reliable (Cronbach's alpha ≥ 0.80).

Patient self-efficacy in carrying out treatment was measured using the Self-Efficacy for Appropriate Medication use Scale (SEAMS) instrument developed by Risser et al. in 2007. The SEAMS questionnaire consists of 12 items. Self-efficacy in medication adherence is categorized into low self-efficacy (12-19), moderate self-efficacy (20-28), and high self-efficacy (29-36). The Indonesian version of SEAMS has been proven to be valid and reliable with a Cronbach's α of 0.85 (Pratama, Aulia, & Christianty, 2022). The functional status of patients is measured using the Barthel Index instrument. The questionnaire consists of 10 activity items that are scored/valued based on the respondent's level of independence and have an overall score between 0-100, which is divided into 5 categories: 91-100 (independent), 61-90 (mild dependence), 41-60 (moderate dependence), 21-40 (severe dependence), and 0-20 (total dependence).

RESEARCH RESULTS

Table 1. Characteristics of Respondents (N=69)

Variable	Results
Age (Mean±SD)(Range)(Year)(n/%)	(61.9±6.1)(50-75)
<65	43/62.3
≥65	26/37.7
Self-Efficacy in Carrying Out Rehabilitation (Mean±SD)(n/%)	(21.5±9.3)
Poor	16/23.2
Moderate	25/36.2
Severe	28/40.6
Self-Efficacy in Medication (Mean±SD)(n/%)	(29.0±7.6)
Poor	11/15.9

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Doi: 10.56922/mhc.v4i5.2247

Moderate	15/21.7
Severe	43/62.3
Gender (n/%)	
Male	35/50.7
Female	34/49.3
Marital Status (n/%)	
Married	61/88.4
Unmarried	0/0.0
Widowed	8/11.6
Education (n/%)	
Elementary School	41/59.4
Junior High School	9/13.0
Senior High School	15/21.7
University	4/5.8
Occupation (n/%)	
Employed	66/95.7
Unemployed	3/4.3
Stroke Attack Number (n/%)	
First Attack	60/87.0
Sequelae Attack	9/13.0
Duration of Stroke (n/%)	
1 Week-1 Month	11/15.9
>1 Month-6 Months	10/14.5
≥6 Months	48/69.6
Dependency Level (n/%)	
Severe	18/26.1
Moderate	8/11.6
Mild	39/56.5
Independent	4/5.8

Most respondents were aged <65 years (43; 62.3%), with a mean age of 61.9±6.1 years and an age range of 50–75 years. The highest proportion of self-efficacy in carrying out rehabilitation was in the high category (28; 40.6%), and self-efficacy in medication was also predominantly high (43; 62.3%). The majority of respondents were male (35; 50.7%), married (61; 88.4%), had an elementary school education (41; 59.4%), and were employed (66; 95.7%). Most respondents experienced a first stroke attack (60; 87.0%), had a stroke duration of ≥6 months (48; 69.6%), and had a mild level of dependency (39; 56.5%).

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Table 2. Relationship Between Medication and Rehabilitation Self-Efficacy with Functional Status (N=69)

Variable	ρ (Spearman)	P-Value
Self-efficacy in taking medication	0.713	0.000
Self-efficacy in carrying out rehabilitation programs	0.850	0.000

Most respondents showed a strong positive correlation between self-efficacy in taking medication and the outcome variable ($\rho = 0.713$; $p < 0.001$) while self-efficacy in carrying out rehabilitation programs demonstrated a very strong positive correlation ($\rho = 0.850$; $p < 0.001$) based on Spearman's correlation analysis.

DISCUSSION

Self-efficacy plays an important role in the recovery of stroke patients. Patients with good self-efficacy can have good self-management skills. Based on the results of this study, most respondents had good self-efficacy in carrying out rehabilitation and treatment. This differs from the results of previous studies, which explained that most post-stroke patients had low self-efficacy (Lv, Sun, Li, Zhang, He, & Zhou, 2021). This may be due to differences in respondent characteristics. In this study, most respondents were aged <65 years. Self-efficacy in adult patients is better than in elderly patients. Adult patients have better organ function than the elderly. In addition, adult patients are better able to follow treatment and rehabilitation programs (Yao, Wei, Zhang, Li, Gong, Zhou, & Wang, 2021). Most respondents in this study had mild dependence. This is inconsistent with previous studies that reported that most post-stroke patients had high dependence (Zhou, Liu, Zhou, Long, Zha, Chen, & Wang, 2021). This variance may be related to differences in the characteristics of the respondents in this study. In this study, most respondents were aged <65 years, had suffered their first stroke, and did not have severe complications. Such variables may affect the functional status of patients (Binawas, Vennu, Mawajdeh, & Alhaidary, 2017).

The results of this study show that there is a significant relationship between self-efficacy in carrying out rehabilitation and functional status ($p = 0.000$), as well as between self-efficacy in carrying out treatment and functional status ($p = 0.000$). Patients who have higher confidence in their ability to carry out treatment and rehabilitation programs tend to achieve better function in daily activities. Conversely, patients with outstanding activity abilities tend to have the motivation and confidence to carry out their treatment and rehabilitation programs (Takil & Ökten, 2023). Self-efficacy in carrying out treatment is essential to improve patient compliance after a stroke. Self-efficacy is a positive emotional expression whereby a person feels they can perform certain actions (Caprara, Gerbino, Mebane, & Ramirez-Uclés, 2022). Treatment self-efficacy encompasses the patient's conviction in their capacity to adhere to medication regimens, comprehend the pharmacological mechanisms and effects, manage adverse reactions, and engage in regular follow-ups and lifestyle modifications, including dietary changes, increased physical activity, and smoking cessation.

Previous studies have indicated that self-efficacy plays an important role in medication management and secondary stroke prevention behaviours, including control of risk factors such as hypertension, diabetes, and dyslipidaemia (Cadel, Cimino, Bradley-Ridout, Hitzig, Patel, Ho, & Guilcher, 2023). Patients with high self-efficacy are typically more compliant with treatment regimens and have a deeper understanding of long-term therapy, thereby reducing the risk of clinical deterioration and recurrent stroke. This favourable clinical condition is reflected in the patient's improved functional status. High self-efficacy can increase motivation and encourage active participation in social life (Nahari & Alsaleh, 2024). The functional limitations experienced by post-stroke patients can stimulate the limbic system and amygdala, thereby triggering emotional distress. This condition can affect patients' confidence in following their prescribed treatment (Wijeratne, Sales, & Wijeratne, 2022).

Self-efficacy in rehabilitation includes the patient's belief that they are capable of consistently performing physical exercises, occupational therapy, speech therapy, and independent exercise activities. The rehabilitation program that stroke patients must undergo is long-term and repetitive, often causing physical

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fatigue and psychological burnout. Patients with high self-efficacy tend to be more persistent, more actively participate, and do not give up when faced with obstacles such as physical weakness, pain, or slow progress. This is in line with Bandura's theory, which states that self-efficacy influences the amount of effort and persistence an individual puts into challenging tasks (Gangwani, Cain, Collins, & Cassidy, 2022). The results of this study are in line with previous studies, which found that post-stroke patients with high self-efficacy tend to have better functional status. Conversely, patients with lower self-efficacy tend to encounter it difficult and feel unable to carry out all the rehabilitation programs they must undergo. This issue is related to a decrease in patient motivation to perform rehabilitation exercises. Therefore, healthcare workers must pay attention to the self-efficacy of post-stroke patients, especially those with low functional status.

CONCLUSIONS

Self-efficacy in carrying out rehabilitation and treatment is significantly related to the functional status of stroke patients. Therefore, health workers, especially nurses, are expected to assess and provide various interventions that can increase the self-efficacy of post-stroke patients, especially those with high dependency rates.

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