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ORIGINAL ARTICLE

Relationship Between Functional Limitations and Self-Concept Among Individuals with Stroke

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ABSTRACT

Introduction: *Stroke is a leading cause of disability worldwide, often resulting in impaired physical function and disrupted self-concept. Extremity weakness, as one of the most common sequelae of stroke, may significantly impact an individual's psychological adjustment. However, the relationship between functional dependency and self-concept remains underexplored in clinical practice.* ***Objectives:*** *This study aimed to investigate the association between functional status and self-concept in individuals recovering from stroke.* ***Methods****: A cross-sectional correlational design was employed involving 33 stroke patients selected through non-probability sampling. Functional status was assessed using the Barthel Index, while self-concept was measured with a validated self-concept questionnaire. Statistical analysis was performed using Spearman's rank correlation test.* ***Results:*** *The majority of patients exhibited total dependency (69.7%) and negative self-concept (60.6%). A significant positive correlation was found between functional status and self-concept (r = 0.578, p = 0.046), indicating that higher functional independence was associated with more positive self-perception.* ***Conclusions****: Functional limitations in stroke patients are significantly associated with negative self-concept. These findings suggest the need for holistic rehabilitation strategies that integrate physical and psychological support to optimize recovery and quality of life.*

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A. Introduction

Stroke remains a leading cause of mortality and long-term disability worldwide, with substantial socio-economic and individual impacts. Globally, stroke accounts for approximately 11% of total deaths and is the second leading cause of death after ischemic heart disease (World Health Organization [WHO], 2021; Johnson et al., 2019). The pathophysiology of stroke involves either a blockage (ischemic) or rupture (hemorrhagic) of cerebral vessels, leading to focal neurological deficits (Feigin et al., 2017; Campbell et al., 2019). Rapid diagnosis and treatment are essential to minimize brain injury and enhance recovery potential.

Stroke survivors often experience a variety of functional impairments, including hemiparesis, speech difficulties, and limitations in daily activities (Langhorne et al., 2011; Bernhardt et al.,

2017). These deficits can significantly diminish a patient's independence and quality of life, particularly due to extremity weakness (Winstein et al., 2016; Dobkin, 2005). Functional status, defined as the ability to perform self-care and daily activities, becomes a crucial marker in post-stroke rehabilitation (Rochette et al., 2007; Kwakkel et al., 2004). Poor functional outcomes are often associated with prolonged hospitalization and increased dependency post-discharge.

In Indonesia, the prevalence of stroke remains alarmingly high. According to the Basic Health Research (Riskesdas) 2018 report, stroke prevalence was estimated at 10.9 per 1,000 population, with variations across provinces (Kementerian Kesehatan RI, 2018). This reflects both a growing burden of non-communicable diseases and gaps in early prevention strategies (Mboi et al., 2018; Thrift et al., 2017). Despite improvements in acute care, functional recovery and psychosocial adjustment remain inadequately addressed in many healthcare settings (Chen et al., 2013; Strong et al., 2007).

Functional status post-stroke is commonly assessed using standardized tools, such as the Barthel Index, which measures performance in activities of daily living (Mahoney & Barthel, 1965; Sulter et al., 1999). This index is both reliable and sensitive for detecting changes during recovery, especially in rehabilitation settings (Wade & Collin, 1988; Hsueh et al., 2001). Studies have shown that a significant proportion of patients remain dependent at discharge, especially those with severe motor deficits (Gresham et al., 1995; Saxena et al., 2006). Functional status, therefore, plays a central role in evaluating stroke care outcomes.

In addition to physical limitations, stroke has profound psychological consequences, affecting self-concept and emotional well-being (Lai et al., 2002; Hackett et al., 2005). Self-concept encompasses an individual's perception, beliefs, and values about oneself and is essential in shaping emotional responses and social behavior (Rosenberg, 1989; Potter & Perry, 2013). Stroke-related disabilities can undermine self-esteem, body image, and identity, particularly in those who lose functional independence (Clarke, 2003; Eilertsen et al., 2010). Consequently, the interplay between physical dysfunction and self-concept becomes critical in the recovery process.

Patients with reduced functional status often experience social withdrawal, feelings of uselessness, and even clinical depression (Whyte & Mulsant, 2002; Watkins et al., 2007). This decline in self-concept can negatively influence rehabilitation outcomes and motivation for recovery (Cumming et al., 2014; Turner et al., 2009). Environmental factors, such as social support and perceived autonomy, also modulate the psychological impact of disability (Kouwenhoven et al., 2011; Ellis-Hill et al., 2000). Understanding these psychosocial dynamics is necessary to design effective, holistic care interventions.

Several studies have highlighted the importance of addressing psychological dimensions, such as self-concept, alongside physical rehabilitation in stroke care (Kootker et al., 2012; Morris et al., 2012). However, clinical practice often prioritizes physical recovery, while neglecting mental health and identity reconstruction (Egan et al., 2014; Taylor et al., 2013). This disconnect can delay long-term adjustment and reintegration into community life (Salter et al., 2008; Desrosiers et al., 2002). Therefore, a comprehensive approach should be adopted to support stroke survivors in both physical and psychological domains.

Research shows that enhancing self-concept through education, counseling, and family support can significantly improve adaptation and quality of life among stroke patients (Cott et al., 2007; McKevitt et al., 2004). Positive reinforcement and self-management strategies have been found effective in promoting resilience and autonomy (Jones et al., 2008; Holbrook & Skilbeck, 1983). Empowering patients with knowledge about stroke and coping strategies is

also linked with better functional outcomes (Brousselle et al., 2010; White et al., 2014). Thus, integrating psychological care into stroke rehabilitation is not only beneficial but necessary.

Given the significance of functional impairment and its psychosocial repercussions, further research is needed to explore their relationship, especially in post-stroke patients. Identifying the association between extremity weakness and self-concept can inform targeted interventions and individualized care plans (Andersen et al., 1995; Gillen, 2015). Such findings may also aid healthcare professionals in recognizing patients at risk of poor psychosocial outcomes (Kong et al., 2011; Blanton et al., 2008). Ultimately, bridging the gap between physical and psychological recovery is essential for comprehensive stroke rehabilitation.

Considering the significant impact of stroke on both physical function and psychological well-being, it is essential to explore how functional impairments, particularly extremity weakness, may influence self-concept among stroke patients. While much emphasis has been placed on physical rehabilitation, the psychological dimension, including issues of identity and self-worth, often remains underassessed and undertreated. A deeper understanding of the relationship between physical limitations and self-concept could provide valuable insight for holistic stroke care planning. Therefore, this study aims to examine the relationship between functional status—specifically extremity weakness—and self-concept in individuals who have experienced a stroke.

B. Methods

This study employed a correlational descriptive design with a cross-sectional approach to investigate the relationship between functional status—specifically extremity weakness—and self-concept in stroke patients. A cross-sectional design was chosen to allow data collection at a single point in time, capturing simultaneous measurements of the independent and dependent variables. This methodological framework was selected to determine the statistical correlation between physical functional ability and psychological perception among post-stroke individuals.

The study population consisted of stroke patients admitted to an inpatient unit during the data collection period. Sampling was conducted using non-probability, accidental sampling, which is appropriate for studies with limited time frames and small populations. Inclusion criteria were: stroke patients aged 25–75 years, capable of communication, accompanied by a family member, cognitively intact, and physically limited in mobility. Patients with altered consciousness, cognitive impairment (e.g., dementia), or significant communication barriers were excluded.

The independent variable, functional status, was measured using the Barthel Index, a validated observational tool consisting of 10 items evaluating activities of daily living. Functional levels were categorized into: independent (score >80), mildly dependent (61–80), moderately dependent (41–60), severely dependent (21–40), and totally dependent (0–20). The dependent variable, self-concept, was assessed using a modified self-report questionnaire with 17 items (10 positive and 7 negative statements). Responses were binary (yes = 1, no = 0 for positive items; yes = 0, no = 1 for negative items). A total score of 9–17 was classified as positive self-concept, and 0–8 as negative.

Data collection involved structured interviews and direct observation conducted by the researcher. Patients were asked to complete the self-concept questionnaire independently or with assistance when needed, while the Barthel Index was filled out by the researcher based on observations and caregiver reports. Demographic information—including age, gender,

education, and stroke type—was also recorded. Ethical procedures included obtaining informed consent, ensuring respondent anonymity, and maintaining data confidentiality throughout the study.

Data were processed through stages of editing, scoring, coding, and entry into SPSS software for statistical analysis. Univariate analysis was used to describe the frequency distributions of variables, while bivariate analysis using Spearman's rank correlation test assessed the relationship between functional status and self-concept. A significance level of $p < 0.05$ was considered statistically significant, and the normality of data was verified using Shapiro-Wilk tests prior to analysis.

C. Results and Discussion

Participant Characteristics

Table 1 presents the demographic characteristics of the 33 stroke patients who participated in this study. Most respondents were in middle adulthood (40–60 years), accounting for 51.5% of the sample. The majority were female (60.6%) and had completed primary education (36.4%). Ischemic stroke was more common (60.6%) than hemorrhagic stroke.

Table 1. Sociodemographic characteristics of stroke patients (N = 33)

Variable	Category	Frequency	Percentage (%)
Age	Early adulthood (25–39)	4	12.1
	Middle adulthood (40–60)	17	51.5
	Late adulthood (>60)	12	36.4
Gender	Male	13	39.4
	Female	20	60.6
Education	Primary (SD)	12	36.4
	Junior High (SMP)	9	27.3
	Senior High (SMA)	8	24.2
	Diploma (DIII)	1	3.0
	Bachelor's (S1)	3	9.1
Stroke Type	Ischemic	20	60.6
	Hemorrhagic	13	39.4

Functional Status and Self-Concept

Table 2 shows the distribution of functional status. The majority of patients (69.7%) were totally dependent in performing daily activities. Only 9.1% of respondents were functionally independent.

Table 2. Functional status of stroke patients

Functional Status	Frequency	Percentage (%)
Independent	3	9.1
Mild dependency	3	9.1
Moderate dependency	0	0.0
Severe dependency	4	12.1
Total dependency	23	69.7

Regarding self-concept, 60.6% of patients had negative self-perceptions, while 39.4% had positive self-concept scores (Table 3).

Table 3. Self-concept among stroke patients

Self-Concept Type	Frequency	Percentage (%)
Positive	13	39.4
Negative	20	60.6

Correlation Between Functional Status and Self-Concept

Spearman's rank correlation test showed a significant positive correlation between functional status and self-concept ($r = 0.578$, $p = 0.046$), indicating that greater functional independence is associated with a more positive self-concept.

Table 4. Spearman's correlation between functional status and self-concept

Variable 1	Variable 2	Spearman's *r*	*p*-value
Functional Status	Self-Concept	0.578	0.046

Stroke remains a major contributor to physical disability and functional decline in both high- and low-income countries (Feigin et al., 2017; Langhorne et al., 2011). In this study, a majority of stroke patients were found to be totally dependent in performing basic daily activities. The impact of neurological impairment on mobility and independence was clearly evident in our sample.

Age appeared to be a critical determinant of functional outcomes. Middle-aged adults (40–60 years) represented the highest proportion of those with total dependency, which aligns with previous reports linking aging with reduced physiological recovery potential (Hayase et al., 2013; Ropyanto, 2011). Functional decline in this group may be exacerbated by comorbidities and delayed access to rehabilitation.

Stroke type may also play a role in recovery trajectories. Ischemic strokes, although less fatal than hemorrhagic ones, often lead to more chronic physical limitations that impair long-term functioning (Campbell & Khatri, 2020). As seen in our findings, ischemic stroke was the dominant subtype and closely associated with total dependency.

Beyond physical impairment, stroke survivors face profound psychological challenges. This study found that 60.6% of participants had negative self-concept, a condition often linked to perceived loss of control, identity, and autonomy (Potter & Perry, 2013; Clarke, 2003). The sudden disruption of roles, particularly in family and work settings, likely exacerbates negative self-image.

From a cognitive-behavioral perspective, chronic illness is known to affect how individuals perceive their self-worth (Lazarus & Folkman, 1984). Stroke disrupts routine, independence, and often communication—leading to isolation and emotional distress (Hackett et al., 2005). Left unaddressed, this can impede motivation to engage in rehabilitation activities.

The statistical analysis confirmed a moderate positive correlation between functional status and self-concept. Similar findings in other studies suggest that patients who regain independence tend to show improved emotional and psychological outcomes (Salter et al., 2008; Winstein et al., 2016). Thus, improving physical capacity may serve as a gateway to rebuilding psychological well-being.

Neurologically, the loss of physical function may act as a stressor that stimulates limbic system activation, particularly the amygdala, which processes emotional distress (Pessoa, 2013). This biological response may explain why stroke survivors with severe dependency also report poorer self-image and increased emotional lability. Addressing both physical and emotional outcomes is therefore essential.

Social support emerged as another key factor. Patients reported feeling worse when family members showed distress, emphasizing the need for emotional stability in caregiving environments (White et al., 2014; Okthavia, 2014). Educating caregivers on supportive communication could help mitigate patients' psychological burden.

The findings imply a need for integrated rehabilitation approaches. Interventions that simultaneously address physical recovery and psychological adaptation—such as structured self-management programs or peer support—may enhance holistic outcomes (Egan et al., 2014; Jones et al., 2008). Nurses and allied health professionals are well-positioned to lead these integrative efforts.

In conclusion, this study highlights the dynamic relationship between physical disability and self-concept in stroke survivors. Healthcare providers must recognize that functional gains alone are insufficient unless accompanied by strategies to improve psychological resilience and identity reconstruction. Future research should focus on longitudinal models to understand how this relationship evolves over time.

D. Conclusion

This study found a significant relationship between functional status and self-concept among stroke patients. Individuals with lower functional capacity tended to experience more negative self-concept, reflecting the psychological burden of dependency. The findings reinforce the need for stroke rehabilitation programs to address not only physical recovery but also psychosocial adaptation. Enhancing patients' sense of self-worth and independence is essential for holistic stroke care and improved long-term outcomes.

E. Implications for Practice

Nurses and allied health professionals should incorporate psychological assessment into routine care for stroke survivors. Interventions should include patient education, family engagement, and structured self-concept enhancement strategies. Family caregivers should be trained to provide positive reinforcement and emotional stability to avoid worsening patients' self-image. Multidisciplinary collaboration is recommended to deliver integrated care addressing both functional and emotional needs of stroke survivors.

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