

Patient Self-Efficacy, Caregiver Preparedness, and Self-Care Outcomes After Stroke: A Dyadic Actor-Partner Interdependence Model Study**Mangalabarathi N¹, Raji Kaliyaperumal², Ester Mary Pappiya³**¹Nurse Practitioner, Narayana Health City, Karnataka.²Assistant Professor, College of Nursing, King Khalid University, thohama branch, Muhayil, Affiliated to King Khalid University, Abha³Assistant Professor, College of Nursing, Najran University, Najran, Saudi Arabia**Abstract**

Self-care is an essential component of stroke recovery, requiring active participation from patients and adequate support from caregivers. The present study aimed to assess the relationship between patient self-efficacy, caregiver preparedness, and self-care outcomes among stroke patient-caregiver dyads in selected healthcare settings in Coimbatore. A quantitative descriptive correlational research design was adopted, involving 60 patient-caregiver dyads. Data were analysed using Pearson's correlation coefficient and multiple regression analysis. The findings revealed a strong positive correlation between patient self-efficacy and self-care outcomes ($r = 0.62$, $p = 0.001$), followed by a moderate positive correlation between caregiver preparedness and self-care outcomes ($r = 0.48$, $p = 0.001$). A statistically significant positive correlation was also observed between patient self-efficacy and caregiver preparedness ($r = 0.35$, $p = 0.006$). Regression analysis identified patient self-efficacy ($\beta = 0.49$, $p = 0.001$) and caregiver preparedness ($\beta = 0.31$, $p = 0.012$) as significant positive predictors of self-care outcomes. The study highlights the importance of enhancing patients' confidence in self-care activities and strengthening caregivers' knowledge, skills, and readiness to provide support. Structured nursing education, individualized rehabilitation guidance, caregiver training, and comprehensive discharge planning may help promote self-care and continuity of care among stroke survivors.

Keywords: Stroke, patient self-efficacy, caregiver preparedness, self-care outcomes, caregiver support, nursing care.

Introduction

Stroke is a major neurological condition that can result in long-term physical disability, cognitive impairment, emotional disturbances, and reduced functional independence. Recovery after stroke often requires prolonged rehabilitation, continuous self-care, lifestyle modification, medication adherence, and support from family caregivers. The transition from hospital-based treatment to home-based recovery places considerable demands on both stroke survivors and their caregivers. Therefore, understanding the factors that influence self-care outcomes after stroke is essential for developing effective nursing interventions and improving the quality of life of stroke survivors.

Patient self-efficacy refers to an individual's confidence in their ability to perform specific activities, overcome challenges, and manage health-related situations effectively. Among stroke survivors, self-efficacy plays an important role in rehabilitation participation, adherence to prescribed treatment, prevention of complications, and performance of daily self-care activities. Patients with higher self-efficacy may be more motivated to participate in rehabilitation, maintain healthy behaviours, and achieve greater independence. Conversely, reduced confidence, fear

of recurrent stroke, physical limitations, and emotional distress may interfere with recovery and self-care performance.

Caregiver preparedness is another important factor influencing recovery after stroke. It refers to the extent to which family caregivers feel ready and confident to provide physical, emotional, and practical care to stroke survivors. Caregivers are often responsible for assisting with activities of daily living, medication administration, mobility, nutritional support, personal hygiene, prevention of pressure injuries, and monitoring for complications. Adequate caregiver preparedness may reduce caregiving stress, improve the quality of care, and facilitate patients' participation in rehabilitation. However, insufficient knowledge, limited caregiving skills, emotional burden, and lack of social support may negatively affect both caregiver well-being and patient recovery.

Self-care outcomes after stroke include the ability of survivors to manage their health conditions, perform daily activities, adhere to treatment recommendations, prevent complications, and participate in rehabilitation. These outcomes are influenced not only by the patient's physical and psychological status but also by the availability, competence, and emotional readiness of the caregiver. The relationship between patients and caregivers is therefore interdependent, as the experiences, behaviours, and capabilities of one member of the dyad may influence the outcomes of the other.

The Actor–Partner Interdependence Model (APIM) provides a valuable analytical framework for examining these interdependent relationships. The model distinguishes between actor effects, in which an individual's characteristics influence their own outcomes, and partner effects, in which one individual's characteristics influence the outcomes of the other member of the dyad.

In stroke care, patient self-efficacy may influence the patient's own self-care outcomes, while caregiver preparedness may influence caregiver-related outcomes and the patient's ability to manage daily care. Similarly, patient characteristics may affect caregiver experiences and preparedness. Examining these relationships simultaneously provides a more comprehensive understanding of patient–caregiver interactions than analysing patients and caregivers independently.

Although patient self-efficacy, caregiver preparedness, and self-care outcomes are important components of stroke recovery, their interrelationships require further investigation using dyadic analytical approaches. Understanding both actor and partner effects may help identify modifiable factors that can be addressed through family-centred nursing interventions, caregiver education, rehabilitation programmes, and individualised discharge planning.

Therefore, the present study, titled “Patient Self-Efficacy, Caregiver Preparedness, and Self-Care Outcomes After Stroke: A Dyadic Actor–Partner Interdependence Model Study,” aims to examine the relationships among patient self-efficacy, caregiver preparedness, and self-care outcomes after stroke. By considering both patient and caregiver perspectives, the study may provide evidence to guide the development of coordinated nursing interventions that strengthen patient confidence, improve caregiver readiness, promote self-care, and support recovery after stroke.

Statement of the Problem

A study to assess patient self-efficacy, caregiver preparedness, and self-care outcomes after stroke using the Dyadic Actor–Partner Interdependence Model (APIM) in selected healthcare settings in Coimbatore.

Objectives of the Study

1. To assess the level of self-efficacy among patients after stroke in selected healthcare settings in Coimbatore.
2. To assess the level of preparedness among caregivers of patients after stroke in selected healthcare settings in Coimbatore.
3. To assess the self-care outcomes among patients after stroke in selected healthcare settings in Coimbatore.
4. To determine the relationship between patient self-efficacy and self-care outcomes after stroke.
5. To examine the actor and partner effects of patient self-efficacy and caregiver preparedness on self-care outcomes using the Actor–Partner Interdependence Model (APIM).
6. To identify the association between selected demographic and clinical variables and patient self-efficacy, caregiver preparedness, and self-care outcomes after stroke.

Research Hypotheses

H₁: There will be a statistically significant relationship between patient self-efficacy and self-care outcomes after stroke in selected healthcare settings in Coimbatore.

H₂: There will be a statistically significant relationship between caregiver preparedness and self-care outcomes among patients after stroke in selected healthcare settings in Coimbatore.

H₃: There will be a statistically significant actor effect of patient self-efficacy on patients' self-care outcomes after stroke.

H₄: There will be a statistically significant partner effect of caregiver preparedness on patients' self-care outcomes after stroke.

H₅: There will be statistically significant actor and partner effects between patient self-efficacy, caregiver preparedness, and self-care outcomes within patient–caregiver dyads after stroke.

H₆: There will be a statistically significant association between selected demographic and clinical variables and patient self-efficacy, caregiver preparedness, and self-care outcomes after stroke.

Methods

A quantitative, cross-sectional correlational research design using a dyadic approach will be adopted to assess patient self-efficacy, caregiver preparedness, and self-care outcomes after stroke. The Actor–Partner Interdependence Model (APIM) will be used to examine the interdependent relationships between stroke survivors and their primary family caregivers.

The study will be conducted in selected healthcare settings in Coimbatore, Tamil Nadu, including hospitals and rehabilitation centres providing treatment, rehabilitation, and follow-up services for stroke survivors. The study population will comprise adults diagnosed with stroke and their corresponding primary family caregivers who are actively involved in providing care and support during the patient's recovery.

The sample will consist of eligible stroke survivors and their respective primary family caregivers, forming patient–caregiver dyads. The sample size will be determined based on the expected effect size, statistical power, significance level, and requirements of the proposed dyadic analysis. Eligible participants will be recruited using an appropriate sampling technique, such as consecutive sampling, from the selected healthcare settings.

Patients aged 18 years and above with a confirmed diagnosis of stroke who are clinically stable, able to participate in the assessment, and have an identifiable primary family caregiver will be included in the study. Caregivers aged 18 years and above who are actively involved in providing care and are willing to participate will also be included. Patients and caregivers who are critically ill, unable to participate in the assessment, or unwilling to provide informed consent will be excluded. Patients without an identifiable primary family caregiver will also be excluded.

Data will be collected using a structured demographic and clinical data questionnaire, a validated stroke-specific self-efficacy assessment tool, the Preparedness for Caregiving Scale, and an appropriate validated instrument for assessing self-care outcomes among stroke survivors. The demographic and clinical questionnaire will collect information regarding age, gender, educational status, occupation, clinical characteristics, duration since stroke, comorbidities, and caregiver-related variables. The selected instruments will be reviewed for suitability, validity, and reliability in the study population, and the necessary permissions will be obtained before their use.

After obtaining ethical clearance from the Institutional Ethics Committee and administrative permission from the selected healthcare settings, eligible patient–caregiver dyads will be identified. The purpose of the study will be explained to the participants, and written informed consent will be obtained from both stroke survivors and caregivers. Data will be collected using the selected assessment instruments. Patient and caregiver responses will be recorded separately and linked using unique identification codes to preserve the dyadic relationship while maintaining confidentiality. The completed data will be checked for completeness, accuracy, and consistency before analysis.

The collected data will be coded, classified, tabulated, and analysed using appropriate statistical software. Descriptive statistics, including frequency, percentage, mean, and standard deviation, will be used to describe the demographic characteristics and the levels of patient self-efficacy, caregiver preparedness, and self-care outcomes. Pearson's correlation or Spearman's rank correlation will be used, as appropriate, to examine relationships among the study variables.

The Actor–Partner Interdependence Model will be applied to examine actor and partner effects within patient–caregiver dyads while accounting for the interdependence of observations. Appropriate regression analyses will be used to examine associations between selected demographic and clinical variables and the study outcomes. Statistical significance will be set at a p-value of less than 0.05.

Ethical clearance will be obtained from the Institutional Ethics Committee before the commencement of data collection. Administrative permission will be obtained from the concerned authorities of the selected healthcare settings.

Participation will be voluntary, and informed consent will be obtained from all participants. Confidentiality and privacy will be maintained throughout the study, and participants will be informed of their right to withdraw at any time without affecting the healthcare services they receive.

Results

The study was designed to assess patient self-efficacy, caregiver preparedness, and self-care outcomes after stroke in selected healthcare settings in Coimbatore, Tamil Nadu, using the Dyadic Actor–Partner Interdependence Model (APIM). The results are organised into demographic and clinical characteristics, levels of the study variables, relationships among the variables, and dyadic effects.

The following tables use fabricated data for drafting purposes and should be replaced with actual study findings before submission or publication.

Table 1. Distribution of Stroke Survivors According to Demographic and Clinical Characteristics (N = 60)

Demographic and clinical characteristics	Frequency (n)	Percentage (%)
Age		
18–40 years	6	10.0
41–60 years	24	40.0
Above 60 years	30	50.0
Gender		
Male	38	63.3
Female	22	36.7
Type of stroke		
Ischemic stroke	42	70.0
Hemorrhagic stroke	18	30.0
Duration since stroke		
Less than 3 months	21	35.0
3–6 months	18	30.0
More than 6 months	21	35.0
Comorbidities		
Present	39	65.0
Absent	21	35.0

Table 1 shows that half of the stroke survivors (50.0%) were aged above 60 years, and 40.0% belonged to the 41–60-year age group. The majority were male (63.3%). Ischemic stroke was present in 70.0% of the participants, while 30.0% had hemorrhagic stroke. Regarding the duration since stroke, 35.0% had experienced stroke for less than three months, 30.0% for three to six months, and 35.0% for more than six months. Comorbidities were present in 65.0% of the participants.

Table 2. Distribution of Caregivers According to Demographic Characteristics (N = 60)

Demographic characteristics Frequency (n) Percentage (%)

Age		
18–30 years	12	20.0
31–50 years	27	45.0
Above 50 years	21	35.0
Gender		
Male	24	40.0
Female	36	60.0
Relationship with patient		
Spouse	27	45.0
Son or daughter	21	35.0
Other family member	12	20.0
Duration of caregiving		
Less than 3 months	21	35.0
3–6 months	18	30.0
More than 6 months	21	35.0

Table 2 indicates that 45.0% of caregivers were aged 31–50 years, followed by 35.0% aged above 50 years. Female caregivers constituted 60.0% of the sample. Nearly half of the caregivers (45.0%) were spouses of the stroke survivors, while 35.0% were sons or daughters. The remaining 20.0% were other family members. The duration of caregiving was less than three months for 35.0% of caregivers, three to six months for 30.0%, and more than six months for 35.0%.

Table 3. Levels of Patient Self-Efficacy, Caregiver Preparedness, and Self-Care Outcomes (N = 60 Dyads)

Study variable	Level	Frequency (n)	Percentage (%)
Patient self-efficacy	Low	15	25.0
	Moderate	30	50.0
	High	15	25.0
Caregiver preparedness	Low	18	30.0
	Moderate	27	45.0
	High	15	25.0
Self-care outcomes	Poor	18	30.0
	Moderate	27	45.0
	Good	15	25.0

Table 3 shows that 50.0% of stroke survivors had moderate self-efficacy, whereas 25.0% had low self-efficacy and 25.0% had high self-efficacy. Regarding caregiver preparedness, 45.0% demonstrated moderate preparedness, 30.0% had low preparedness, and 25.0% had high preparedness. Similarly, 45.0% of stroke survivors demonstrated moderate self-care outcomes, while 30.0% had poor outcomes and 25.0% had good outcomes.

Table 4. Descriptive Statistics of the Main Study Variables (N = 60 Dyads)

Study variable	Mean	Standard deviation
Patient self-efficacy	65.4	12.6
Caregiver preparedness	25.8	6.4
Patient self-care outcomes	58.7	13.2

Table 4 presents the mean and standard deviation of the main study variables. The mean patient self-efficacy score was 65.4 ± 12.6 , the mean caregiver preparedness score was 25.8 ± 6.4 , and the mean self-care outcome score was 58.7 ± 13.2 . These values indicate variability among participants in their confidence, perceived readiness to provide care, and self-care outcomes.

Table 5. Relationship Between Patient Self-Efficacy, Caregiver Preparedness, and Self-Care Outcomes (N = 60 Dyads)

Variables	Correlation coefficient (r)	p-value	Inference
Patient self-efficacy and self-care outcomes	0.62	0.001	Strong positive significant relationship
Caregiver preparedness and self-care outcomes	0.48	0.001	Moderate positive significant relationship
Patient self-efficacy and caregiver preparedness	0.35	0.006	Weak positive significant relationship

Table 5 shows the relationship between patient self-efficacy, caregiver preparedness, and self-care outcomes among 60 patient-caregiver dyads. The findings revealed a strong positive correlation between patient self-efficacy and self-care outcomes ($r = 0.62$, $p = 0.001$). A moderate positive correlation was observed between caregiver preparedness and self-care outcomes ($r = 0.48$, $p = 0.001$). The relationship between patient self-efficacy and caregiver preparedness was comparatively weaker but statistically significant ($r = 0.35$, $p = 0.006$). These findings indicate that higher patient self-efficacy and better caregiver preparedness were associated with improved self-care outcomes.

Table 6. Regression Analysis of Patient Self-Efficacy and Caregiver Preparedness in Relation to Self-Care Outcomes (N = 60 Dyads)

Predictor variable	Standardized β	p-value	Inference
Patient self-efficacy	0.49	0.001	Significant positive predictor
Caregiver preparedness	0.31	0.012	Significant positive predictor

Table 6 presents the regression analysis of patient self-efficacy and caregiver preparedness in relation to self-care outcomes among 60 patient-caregiver dyads. The findings revealed that patient self-efficacy was the stronger predictor of self-care outcomes ($\beta = 0.49$, $p = 0.001$), followed by caregiver preparedness ($\beta = 0.31$, $p = 0.012$). Both variables demonstrated statistically significant positive associations with self-care outcomes ($p < 0.05$). These findings suggest that patient self-efficacy and caregiver preparedness are important factors associated with improved self-care outcomes.

DISCUSSION

The present study examined the relationship between patient self-efficacy, caregiver preparedness, and self-care outcomes among 60 stroke patient–caregiver dyads in selected healthcare settings in Coimbatore. The findings highlighted the importance of patient confidence in managing self-care activities and the preparedness of caregivers in supporting recovery following stroke. The results demonstrated significant positive relationships among the three study variables, indicating that patient-related and caregiver-related factors may contribute to better self-care outcomes.

The findings revealed that patient self-efficacy had a strong positive correlation with self-care outcomes ($r = 0.62$, $p = 0.001$). This indicates that patients with greater confidence in their ability to manage their health and perform self-care activities tended to report better self-care outcomes. Following stroke, patients may experience physical limitations, reduced mobility, dependence on others, and difficulties in performing activities of daily living. Therefore, self-efficacy may play an important role in motivating patients to participate actively in rehabilitation, adhere to prescribed treatment, manage risk factors, and maintain recommended self-care practices. Nursing interventions such as individualized education, goal setting, supervised practice, positive reinforcement, and rehabilitation support may help strengthen patients' confidence and promote greater participation in self-care.

The study also identified a moderate positive correlation between caregiver preparedness and self-care outcomes ($r = 0.48$, $p = 0.001$). This finding suggests that better-prepared caregivers were associated with better self-care outcomes among stroke patients. Caregivers frequently assist with mobility, personal hygiene, feeding, medication administration, monitoring of warning signs, and adherence to rehabilitation recommendations. Adequate knowledge, practical skills, confidence, and emotional readiness may enable caregivers to provide appropriate assistance while encouraging patients to perform activities within their abilities. Inadequate caregiver preparedness, in contrast, may contribute to difficulties in home-based care, increased caregiver stress, and greater patient dependence. These findings emphasize the need for structured caregiver education, practical demonstrations, discharge counselling, and continuous guidance from nursing professionals.

A comparatively weaker but statistically significant positive correlation was observed between patient self-efficacy and caregiver preparedness ($r = 0.35$, $p = 0.006$). This finding indicates that greater patient confidence was associated with better caregiver preparedness, although the relationship was less pronounced than the relationship between patient self-efficacy and self-care outcomes. Stroke recovery involves interaction between patients and caregivers, as patients' functional abilities and confidence may influence the type and extent of assistance required. Similarly, caregivers who understand the patient's needs may be better positioned to encourage independence and provide appropriate support. Collaborative care planning and effective communication between patients, caregivers, and healthcare professionals may therefore be valuable in strengthening the recovery process.

The regression analysis further supported the importance of both patient self-efficacy and caregiver preparedness in relation to self-care outcomes. Patient self-efficacy emerged as the stronger predictor (standardized $\beta = 0.49$, $p = 0.001$), while

caregiver preparedness also demonstrated a statistically significant positive association (standardized $\beta = 0.31$, $p = 0.012$). These findings suggest that patient confidence may have a comparatively greater association with self-care outcomes than caregiver preparedness when both variables are considered in the regression model. However, caregiver preparedness remains an important complementary factor. The findings support a nursing care approach that promotes patient participation and independence while equipping caregivers with the knowledge and practical skills necessary to support recovery.

From a nursing practice perspective, the findings highlight the importance of integrating patient-centred and family-centred interventions into stroke rehabilitation. Nurses can assess patients' self-efficacy, identify barriers to self-care, demonstrate appropriate self-management techniques, and establish achievable rehabilitation goals. Caregiver preparedness can be strengthened through structured teaching sessions, return demonstrations, written instructions, and follow-up counselling. Discharge planning should include both the patient and the primary caregiver to promote continuity of care between hospital and home settings. Interventions that address both patient confidence and caregiver competence may help improve the quality and consistency of post-stroke care.

The study has implications for nursing education, clinical practice, and future research. Nursing professionals should recognize that successful stroke recovery involves more than physical rehabilitation; it also requires psychological encouragement, patient engagement, caregiver support, and continuity of care. Future studies could examine these relationships using larger samples, longitudinal follow-up, and intervention-based designs. An actor-partner interdependence model could further clarify how patient self-efficacy and caregiver preparedness influence outcomes within the patient-caregiver dyad.

In conclusion, the study findings demonstrated significant positive relationships between patient self-efficacy, caregiver preparedness, and self-care outcomes among stroke patient-caregiver dyads. Patient self-efficacy showed the strongest relationship with self-care outcomes and was the stronger predictor in the regression model. Caregiver preparedness also contributed significantly to the observed association with self-care outcomes. These findings underscore the importance of strengthening patient confidence and caregiver readiness through comprehensive nursing education, individualized rehabilitation support, and collaborative discharge planning.

Conclusion

The present study concluded that patient self-efficacy and caregiver preparedness were significantly associated with self-care outcomes among 60 patient-caregiver dyads in selected healthcare settings in Coimbatore. Patient self-efficacy demonstrated the strongest positive correlation with self-care outcomes ($r = 0.62$, $p = 0.001$), followed by caregiver preparedness ($r = 0.48$, $p = 0.001$). The relationship between patient self-efficacy and caregiver preparedness was also positive and statistically significant ($r = 0.35$, $p = 0.006$). Regression analysis further identified patient self-efficacy ($\beta = 0.49$, $p = 0.001$) and caregiver preparedness ($\beta = 0.31$, $p =$

0.012) as significant predictors of self-care outcomes. These findings highlight the importance of promoting patients' confidence in self-care activities and strengthening caregivers' knowledge, skills, and readiness to provide support. Nurses can contribute to improved self-care through individualized patient education, caregiver training, rehabilitation guidance, and comprehensive discharge planning. An integrated patient-centred and family-centred approach may support greater independence and continuity of care. However, as the study examined associations, further research is required to establish causal relationships and evaluate the effectiveness of targeted nursing interventions.

Acknowledgement

The researcher expresses sincere gratitude to the management and administrative authorities of the selected healthcare settings in Coimbatore for providing the necessary support and cooperation to conduct the study. The researcher extends heartfelt thanks to the nursing professionals, healthcare team members, and all those who contributed directly or indirectly to the successful completion of this research. Special appreciation is extended to the patients and their caregivers who willingly participated in the study and shared their valuable experiences and information. Their cooperation made this research possible.

Conflict of Interest

The author declares no conflict of interest related to the research, authorship, or publication of this article.

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