Literasi Kesehatan Husada: Jurnal Informasi Ilmu Kesehatan
Vol. 9, No. 2, June 2025

Original Article

EVALUATION OF DISCHARGE READINESS IN A PATIENT WITH SECONDARY STROKE: A CASE STUDY

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DOI: https://doi.org/10.60050/lkh.v9i2.73

ABSTRACT

Background: Early readmission in stroke survivors remains a critical issue, particularly in patients with mild initial symptoms but who experience early recurrence within a short period. Evaluating both patient and caregiver readiness for discharge is essential to improve home care outcomes and prevent avoidable hospitalizations.
Objectives: This case study aims to assess discharge readiness in a post-stroke patient and their caregiver using the PATH-s instrument and examine its implications for readmission prevention.
Methods: A descriptive single-case study was conducted involving a 66-year-old male with a secondary ischemic stroke within 30 days of the initial attack. Data were collected via clinical records and interviews. Discharge readiness was evaluated using the Preparedness Assessment for the Transition Home after Stroke (PATH-s) instrument, consisting of 25 items. The assessment was guided through a structured interview due to the patient's limited ability to self-complete the questionnaire.
Results: The PATH-s assessment yielded a total score of 69 out of 100, indicating a moderate level of discharge readiness. The average score per item was 2.67 out of 4, suggesting a need for additional support in specific areas. The domains identified for improvement included financial capacity, home and transportation accessibility, long-term prognosis, and patient insight about stroke.
Conclusion: Evaluating discharge readiness in the patient and family caregiver helped increase awareness of home care limitations and guided appropriate nursing interventions. These findings highlight the value of structured assessments like PATH-s in supporting clinical decision-making and individualized discharge planning.

Keywords: Discharge Readiness, Caregiver Preparedness, Stroke, Readmission.

INTRODUCTION

Stroke or cerebrovascular accident (CVA) is an acute compromise of cerebral perfusion or vasculature. About 85% of strokes are ischemic, and the rest are hemorrhagic (Khaku & Tadi, 2025). This condition is a critical medical emergency characterized by the sudden onset of focal neurological deficits in the vascular region due to underlying cerebrovascular pathology (Lui F et al., 2025). A stroke attack not only has a negative impact at the onset, but

various conditions, such as poor prognosis or recurrent attacks leading to readmission, also significantly affect patients.

The incidence and impact of post-stroke readmissions are significant concerns in healthcare, as they are associated with increased mortality rates and healthcare costs. Studies show that readmission rates vary, with factors such as patient demographics, comorbidities, and quality of care influencing these outcomes. The main risk factors include advanced age, comorbidities (such as diabetes, depression), and a lower level of functional independence upon discharge from the hospital. About 12% of stroke patients are readmitted to the hospital within 30 days (Gardener et al., 2023). In a cohort study, 24% of stroke survivors were readmitted in the first year after rehabilitation (Tay, 2021). The readmission rate for patients with ischemic stroke can be as high as 16.4% due to additional hospitalizations (Liu et al., 2024).

The risk of recurrent stroke in patients with minimal symptoms is a significant concern, as various studies have shown that even mild ischemic strokes can lead to severe outcomes. Factors such as genetic predisposition (X. Li et al., 2025), inflammatory markers (S. Li et al., 2023), and anatomical abnormalities contribute to this risk (Guglielmi et al., 2021). Management in the hospital, as well as after the transition of care to home, has become a unified focus of research in recent times. However, under certain conditions, especially in developing countries where most of the population is still in the lower-middle economic status, there are issues during the care transition phase. Thus, delving into the factors and potentials that can be enhanced becomes an important point in stroke management.

Assessing the readiness of stroke patients for discharge from the hospital is very important to reduce readmission rates. Research shows that patients' readiness for discharge (RHD) is greatly influenced by the quality of discharge teaching (QDT), self-efficacy, and self-management skills (S. Li et al., 2024). Many researchers have begun developing instruments to assess patient readiness before discharge from the hospital to home, such as a specific assessment tool for RHD that can help healthcare providers evaluate patient readiness more accurately by nurses in Thailand (Posri et al., 2022), or the specialized instrument "*Preparedness Assessment for the Transition Home after Stroke* (PATH-s)" developed by Michelle Camicia and Barbara Lutz (Camicia, Lutz, Joseph, et al., 2021). The findings from this assessment can be a key domain in the discharge plan that needs to be explained, and the patient and family must also be involved to achieve the care goals. This study aimed to evaluate the extent of the patient's and caregiver's readiness for discharge, and its relationship with readmission.

METHODS

Study Design

This study employed a single-subject descriptive case study design.

Settings

The study was conducted in the Stroke Unit of Hospital X. Interaction and data collection occurred over four days during the patient's hospitalization in June 2025, specifically from June 1 to June 4.

Research Subject

A 66-year-old male patient with a history of ischemic stroke was purposively selected for this study. He was admitted to the stroke unit following a secondary stroke episode occurring 30 days after his initial hospitalization. The patient was selected based on the clinical relevance of recurrent stroke within a short interval and the opportunity to assess discharge readiness during a high-risk transition period. Patient eligibility and study access were approved by the clinical instructor and ward supervisor in the hospital.

Instruments

Discharge readiness was specifically assessed using the Preparedness Assessment for the Transition Home after Stroke (PATH-s) instrument, which consists of 25 items rated on a 4-point Custom Ordinal scale (from 1 = severe limitation/absence of preparedness, to 4 = optimal preparedness). Due to the patient's physical limitations, the PATH-s tool was administered as a structured interview conducted at the bedside.

Data Collection

Data were obtained from clinical records, patient history, and semi-structured interviews with both the patient and caregiver. On the first day of interaction, the researcher introduced himself to the patient and caregiver, provided a clear explanation about the patient's current condition, and outlined the purpose and procedures of the study. Both the patient and caregiver verbally agreed to participate and gave their permission to proceed. Following this, they openly shared details about the previous stroke episode, prior hospitalization, and current health status.

The interviewer, a nurse researcher, read each item aloud and provided clarification as needed to ensure comprehension. The interview lasted approximately 30 minutes and was conducted one day before the patient's discharge.

Data Analysis

The data were analyzed and interpreted using total scores, either as sum scores (ranging from 25 to 100) or average scores (ranging from 1 to 4). Caregiver preparedness/readiness levels were categorized based on the total score into Low (25–50), Moderate (51–75), and High (76–100) readiness to facilitate interpretation. Individual item analysis was also performed to identify specific areas requiring targeted intervention. A score of 2 or lower on any item may indicate a need for caregiver intervention in that area (Camicia, Lutz, Joseph, et al., 2021).

Ethical Considerations

Ethical clearance was obtained from the institutional review board of the Faculty of Nursing and Midwifery, Nahdlatul Ulama University Surabaya. The patient provided written informed consent to participate in the study and to publish anonymized findings. Privacy, confidentiality, and the right to withdraw at any stage were ensured throughout the intervention.

RESULTS

Patient Information

A 66-year-old man was admitted on June 1, 2025, for an acute ischemic stroke—his second cerebrovascular event within one month. His initial stroke occurred on May 1, 2025 (manifesting as *cerebral infarctions in the left caudate nucleus and right lentiform nucleus*). Current CT findings indicate *hypoxic-ischaemic encephalopathy*. He presented with severe hypertension (228/123 mmHg in the ER) and abdominal pain. Chest X-ray revealed cardiomegaly. By the second day of treatment (June 2, 2025), he showed neurological

improvement, reporting tingling sensations in the right hand and foot. Motor function remains intact: muscle strength is 5/4 in the upper extremities and 5/4 in the lower extremities bilaterally. No deficits in speech, consciousness, facial symmetry, or motor function have been observed since admission. Current management focuses on strict bed rest, continuous monitoring, and aggressive blood pressure control (current reading: 190/123 mmHg). He remains under standardized stroke unit care protocols.

The results of supporting examinations conducted on June 1, 2025, showed no abnormalities in blood sugar levels, total triglycerides, HDL, LDL, total cholesterol, and uric acid, all within normal limits. The complete blood count revealed an increase in leukocytes (12,470/µL) and eosinophils (12.4%). Blood chemistry results indicated an elevated liver enzyme SGOT (58 U/L) and a decreased blood potassium level (2.7 mmol/L). Due to the absence of major stroke symptoms such as facial and arm weakness or speech impairment, the researchers proceeded with additional assessments focusing on the patient's cognitive abilities. On June 2, 2025, the Mini-Mental State Examination (MMSE) was administered, which showed no cognitive impairments.

Interventions

The patient is being treated in the stroke unit, with primary focus on monitoring the post-stroke condition, managing high blood pressure, and correcting potassium imbalance. The doctor advised bed rest for the first two days, accompanied by medication therapy to support nerve and cardiovascular repair.

The day before the patient was scheduled to be discharged from the hospital (June 4, 2025), the researcher conducted an assessment of the patient's and family's readiness to return home using the Preparedness Assessment for the Transition Home after Stroke (PATH-s) instrument. Since the patient was unable to complete the instrument independently, the researcher used it as an interview guide, explaining the meaning of each item to the patient. Typically, this assessment is conducted a few hours before discharge. However, given the patient's history of recurrent strokes within a short period (less than 30 days since readmission), the discharge readiness assessment served not only to evaluate overall readiness but also to identify specific domains where the patient and family may face challenges in providing home care.

Table 1. Readiness Level

No	Domains	Items	Sum Score	Average Score
1	Long-term implications/prognosis and insights	1, 2, 3, 4	13	2,6
2	Commitment/willingness	6, 7, 17, 25	14	3,5
3	Capacity/formal and informal resources	11, 12, 15	10	3,34
4	Capacity/pre-stroke caregiver experience	5, 16	6	3
5	Capacity/financial resources	19, 22	2	1
6	Capacity/preexisting health problems	9, 10	6	3
7	Capacity/home and transportation accessibility	20, 21, 23	6	2
8	Social context/commitment and capacity	8, 13, 14, 24	12	3
	Total	**25**	**69**	**2,67**

According to Table 1, the total score from all items is 69 points (maximum 100 points). This result indicates that the readiness level is at a moderate level. Meanwhile, the average score is 2.67 (maximum average score is 4), which indicates the need for additional support/intervention in certain areas/domains that have 2 or lower scores. The two domains that were highlighted due to low scores are capacity/financial resources (domain 5) and capacity/home and transportation accessibility (domain 7). The other domain with a moderate score but still requires improvement is long-term implication/prognosis and insights (domain 1).

DISCUSSION

Based on the results in Table 1, the total PATH-s score was relatively high, despite the absence of structured discharge education before assessment. Typically, lower readiness scores are expected in patients without targeted discharge planning. However, in this case, both the patient and caregiver were experiencing their second hospitalization within a short interval (30 days), which may have contributed to a higher level of baseline preparedness. These findings are consistent with those of Kusuma Putri et al. (2024), who examined the effects of structured discharge education on family readiness to provide transitional care for stroke patients. In their study, the pre-intervention readiness scores in the intervention group ranged from 59 to 69, with a median of 63 and an average of 63.67. The control group showed even lower readiness levels, with a minimum of 55 and an average of 62.05 (Kusuma Putri et al., 2024). These results suggest that additional interventions—such as structured discharge education—can enhance hospital discharge readiness and potentially contribute to the prevention of hospital readmissions.

Interpretation of the total score indicates that the patient's readiness level is at a moderate level, meaning that the family has sufficient ability to care for the patient. The assessment from a brief interview with the patient at the beginning of the meeting (June 2, 2025) showed difficulty in defining their condition as a stroke patient. When asked about his current condition, the patient expressed concern but was unable to accurately identify the underlying illness as a stroke. He stated, *"I was worried because I felt abdominal pain along with tingling sensations in my right hand and foot. It felt similar to the last time I was hospitalized."* However, when further questioned about the specific condition, the patient was unable to name it or recognize it as a sign of stroke.

The patient and caregiver demonstrated awareness of areas that needed improvement in home care, particularly related to dietary restrictions and smoking cessation. The caregiver stated, *"We have already made some adjustments at home, such as stopping smoking, reducing salt intake in meals, and consistently taking the medication prescribed by the doctor."* This reflects a proactive attitude from both the patient and caregiver in managing the condition. However, this does not imply that no further improvement is needed. On the contrary, the occurrence of readmission underscores the importance of reassessing discharge readiness and implementing additional supportive interventions tailored to their needs (Camicia, Lutz, Harvath, et al., 2021a).

Analysis of the assessment results identified several domains requiring further improvement, including: (1) understanding of long-term implications and prognosis; (2) home environment and transportation accessibility; and (3) financial capacity and resource

availability. Comprehensive knowledge about stroke—its symptoms, risk factors, and potential outcomes—is essential for effective prevention, timely intervention, and successful rehabilitation (Melak et al., 2021). Recognizing early signs and seeking immediate medical care are critical, as rapid response significantly reduces the risk of long-term brain damage. In this case, the patient noted that his symptoms were similar to those experienced during his previous hospitalization, yet he was unable to identify the condition as a stroke. This highlights a critical gap in disease understanding, particularly in anticipating and responding to recurrent stroke events (Karki & Manandhar, 2024).

Providing insight into the likelihood of readmission is essential and should be communicated to both the patient and caregiver. Male patients of advanced age with comorbidities such as hypertension are at significantly higher risk of readmission within 30 days of discharge. This aligns with findings by Liu et al. (2024), who emphasized that common risk factors should be discussed with patients to raise awareness of their vulnerability. Educating patients and families about these risks encourages proactive management. Effective control of modifiable risk factors can reduce the likelihood of readmission and improve long-term outcomes (Liu et al., 2024).

Caring for post-stroke patients places a substantial burden on family caregivers, impacting their physical, emotional, and social well-being. This burden is influenced by several factors, including the caregiver's health, the intensity and duration of caregiving tasks, and the level of interdependence between the caregiver and the patient. Research shows that caregivers with poor health and greater caregiving demands are more likely to experience higher levels of stress and burden. However, mutuality—the quality of the caregiver–patient relationship—can help mitigate this burden to some extent (Qian, 2023). The PATH-s instrument also emphasizes the importance of caregiver self-awareness, particularly in recognizing how their health status affects their caregiving role. As highlighted in a previous study, one caregiver shared, *"I need to take care of myself so I can take care of him [the post-stroke patient]"* (Camicia, Lutz, Harvath, et al., 2021b).

Social support plays a critical role in the management of post-stroke patients, significantly influencing recovery outcomes and overall quality of life (Lee & Won, 2022). Studies have shown that perceived social support can buffer the effects of stress and depression, enhance self-management capabilities, and improve health-related quality of life (Chen & Che, 2024). Sources of support may include not only co-residing family members but also extended family, neighbors, and community networks. In this case, the patient reported living with his wife and two children. However, during the four days of observation, only the wife was actively involved in caregiving during hospitalization. Increasing the involvement of other family members could potentially enhance the patient's perceived support and contribute to improved psychological well-being and discharge readiness.

The economic implications of managing post-stroke patients are multifaceted, involving direct medical expenses, access to rehabilitation services, and long-term outcomes shaped by socioeconomic status. Evidence suggests that effective management strategies can reduce healthcare costs while simultaneously improving patient outcomes (Chandola & Rouxel, 2022). Environmental modifications—such as installing ramps or widening doorways—have been shown to reduce the likelihood of nursing home admission, particularly in patients with moderate to severe physical limitations (Hollinghurst et al., 2020). These needs are often

determined by the patient's level of functional independence at discharge. Moreover, the home environment and transportation accessibility play a pivotal role in post-stroke rehabilitation. Studies highlight that inadequate home adaptations and mobility barriers can hinder recovery, underscoring the importance of a supportive and accessible physical environment tailored to the patient's condition (Elf et al., 2025).

Overall, this case study emphasizes the value of using structured tools like the PATH-s instrument to assess discharge readiness in post-stroke patients. By identifying specific areas requiring improvement—such as disease understanding, caregiver burden, social support, and home accessibility—healthcare providers can tailor interventions to reduce the risk of early readmission. These insights are particularly relevant in recurrent stroke cases, where timely education and support can significantly impact recovery outcomes. Incorporating discharge readiness evaluations into routine nursing practice may enhance the effectiveness of transitional care. Future research should explore the broader applicability of PATH-s across different populations and settings, including the development of intervention models based on its domain-specific findings.

CONCLUSION

The findings of this study demonstrate that assessing discharge readiness in both patients and caregivers is critical to ensuring effective home care following stroke. A detailed evaluation using structured tools can help identify specific domains requiring support, which in turn informs follow-up planning and targeted interventions. These insights hold potential for enhancing the management of stroke care across hospital discharge, home recovery, and recurrent stroke prevention. This case study offers a foundation for further research and integration of discharge readiness assessments into routine stroke care protocols.

SUGGESTION

This case study represents an initial step in developing research focused on discharge readiness assessment tools for post-stroke patients. Further research is recommended to validate the psychometric properties of instruments like PATH-s and to examine their applicability in diverse clinical settings, especially in Indonesia. In addition, findings from readiness assessments can inform structured caregiver education and support the integration of discharge planning tools into routine nursing practice to improve care transitions and reduce readmissions.

LIMITATIONS

The limitation of this study is that the descriptive explanation of a single patient cannot be directly generalized to the broader stroke patient population. In addition, the use of the PATH-s instrument as the sole measure, without the support of other interventions or data sources, limited the depth of analysis on discharge readiness. Interactions with the patient were also brief, either due to the patient's clinical prognosis or the constraints of a short hospital stay influenced by health insurance policies. Furthermore, several important factors that may influence discharge preparedness — such as cultural background, language barriers, social support, economic status, and emotional readiness — could not be quantitatively measured.

Despite these limitations, the study demonstrates that the PATH-s instrument can serve as a practical guide for nurses in assessing discharge readiness. It may be integrated into routine discharge planning to ensure that patient and caregiver needs are systematically identified and addressed before hospital discharge.

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