

ORIGINAL ARTICLE

Evaluating the Impact of Clinical Nursing Care Pathways on Functional Recovery in Stroke Patients: A Quasi-Experimental Study

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ABSTRACT

Background: Stroke is a leading cause of morbidity and disability worldwide, significantly impairing the functional abilities of survivors. Effective nursing interventions are essential to optimize recovery outcomes in stroke patients.

Objective: This study aimed to evaluate the impact of a clinical nursing care pathway on reducing functional disability in stroke patients admitted to critical care units in Gurugram, Haryana, India.

Methods: A quasi-experimental design was employed, involving 30 stroke patients who were divided into two groups. The experimental group (n=15) received care based on a structured nursing care pathway, while the control group (n=15) received standard nursing care. Functional outcomes were assessed using the Barthel Index and Modified Rankin Scale after 72 hours of intervention.

Results: Patients in the experimental group demonstrated significantly improved functional status compared to the control group. The application of the clinical nursing care pathway resulted in enhanced recovery, as evidenced by higher Barthel Index scores and lower Modified Rankin Scale scores in the experimental group. These findings suggest that a structured, evidence-based nursing approach contributes to better functional outcomes in stroke patients.

Conclusion: Implementing a clinical nursing care pathway plays a crucial role in improving functional recovery in stroke patients. These findings underscore the importance of integrating structured nursing protocols into routine care to enhance stroke rehabilitation. Broader application of such pathways in India is warranted to optimize patient outcomes and reduce stroke-related disability.

KEYWORDS

• Stroke • Functional disability • Clinical nursing care pathway • Critical care units • Functional status • Health care delivery

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INTRODUCTION

Stroke is a major cause of brain injury globally, often leading to significant functional limitations. It occurs when the brain's blood supply is disrupted, either due to ischemia (blockage) or hemorrhage, causing brain cell death and various complications. These may include physical disabilities, cognitive and emotional difficulties, and challenges with communication. Timely and effective care is essential to support recovery and reduce complications. Clinical nursing care pathways provide a structured, evidence-based framework for stroke management, delivering standardized care that enhances patient outcomes. This study seeks to assess the effectiveness of these pathways in improving stroke recovery, focusing on reducing functional impairments and aiding patients in regaining daily life activities.

MATERIAL AND METHODS

Inclusion criteria: The study included the subjects who are:

- Patient has a history of stroke.
- Patient has a minimum stay of 10 days.

Exclusion criteria: The study excluded the subjects who are:

- The patient is planning to discontinue treatment from the selected hospital.
- Patients who are not willing to participate in the study.
- Patient having early discharge.

For the Data collection, the investigator personally visited the selected hospital (SGT Hospital) and introduced herself. A good rapport was established with samples after self-introduction, samples were selected using inclusion and exclusion criteria. Informed consent was taken from the stroke patients.

A quantitative approach and quasi-experimental research design were employed in this study. Thirty stroke patients admitted to the critical care unit were divided into two groups: the experimental group (n=15) and the control group (n=15). The experimental group received a clinical nursing care pathway for 72 hours, whereas the control group did not receive any intervention.

The researcher collected the stroke patients' details through a checklist formulated according to the frame clinical nursing care pathway. The pretest was conducted on the day first. The intervention was given and included all the detailed information of the patient in the checklist which was documented by the researcher. Post-test was conducted on the 6th day of intervention.

Description of study

This quasi-experimental study aimed to assess the effectiveness of a clinical nursing care pathway in reducing functional disability among stroke patients admitted to critical care units in Gurugram, Haryana, India. The study involved 30 stroke patients, who were divided into an experimental group (n=15) and a control group (n=15). The experimental group followed a structured care pathway designed to optimize recovery, while the control group received standard care. The effectiveness of the intervention was evaluated using the Barthel Index and Modified Ranking Scale to measure functional status before and after the intervention. Data collection involved the researcher visiting SGT Hospital, establishing rapport with the patients, and gathering patient details through a checklist. Pretest evaluations were conducted on the first day, and post-test evaluations were completed on the 6th day following the intervention. The study aimed to determine whether structured, evidence-based nursing pathways can enhance stroke recovery and improve functional outcomes.

Table 1: Summary of findings

References	Authors	Year	The Target of Intervention	Study Design	Main Findings
1 ¹	Telly Purnamasari, Rizaldy Pinzon, Asric Adisasmita and Modastri K. Sundarya	2023	Effect of Clinical Pathway implementation on the length of hospitalization for ischemic stroke patients in three hospitals in Indonesia	Retrospective cohort design	The study found that clinical pathway implementation significantly reduced the risk of prolonged hospitalization by 53% compared to patients treated without CP, after controlling for various factors.

References	Authors	Year	The Target of Intervention	Study Design	Main Findings
2 ¹	Lili Xiao, Tingting Xiao, Fang Yu	2022	Evaluate the impact of integrating clinical pathway nursing and humanized nursing on cerebral infarction patients.	Randomized control study	The study found that combining Clinical pathways and humanized nursing offers substantial benefits for cerebral infarction patients, including cost-effective and improved overall care outcomes.
3 ⁵	Shao-Yan Ma	2022	Evaluate the impact of combining evidence-based nursing with clinical pathways in caring for stroke patients.	Randomized Controlled Trials	The study found that combining evidence-based nursing with clinical nursing pathways provides comprehensive care and improves outcomes in stroke patients, supported by a systematic analysis of relevant studies.
4 ⁶	Siyang Liang, Mengjie Wu	2021	Clinical Nursing pathway improves disease cognition and quality of life of elderly patients with hypertension and cerebral infarction.	Randomized controlled trial	Implementing a clinical nursing pathway can enhance disease understanding, quality of life, and recovery among elderly patients with hypertension and cerebral infarction.
5 ⁷	Caroline Barnett, Clair Mitchell, Sarah Tyson	2022	To investigate speech and language therapy, perspectives on working with patients who have functional stroke.	Qualitative research design	It was found that despite frequently handling these patients, caregivers often struggled to provide optimal care due to barriers such as stigma, inadequate training, early hospital discharge, limited mental health resources, and the absence of clinical guidelines and care pathways.
6 ⁸	Erika Jarva, Kristina Mikkonen	2020	To, identify the key areas of competence required by healthcare professionals within stroke care pathways and to analyze the factors that influence these competencies."	Systemic review	Ongoing professional development and organizational support are essential for healthcare professionals to effectively manage stroke care and meet evolving demands.
7 ⁹	Arja Rantala, Erika Jarva	2024	To describe healthcare professionals' self-assessed competence in stroke care pathways and identify associated factors.	Cross-sectional study	It was found that, while overall competence was rated as good, improvement in using evidence-based information was highlighted, suggesting a need for increased education and resource allocation in this area.
8 ¹⁰	David J.Williams, Declan Patton, Paul J. Murphy, and Frances Horgan	2024	To explore evidence regarding the stroke nurse's role in providing secondary prevention interventions post-stroke in a community setting.	Scoping review	It was found that the contribution of nursing to an ESD team enables the stroke patient to be cared for holistically, focusing on multiple domains of care that are individual to the patient.
9 ¹¹	Yujuan Han, Maling Xiang, Lingling Wang, ningning Dai	2024	To evaluate the effectiveness of optimized emergency care pathways in improving the management and outcomes of stroke patients compared to conventional care.	Prospective cohort study	It was found that optimized emergency care pathways significantly improve stroke patient outcomes and satisfaction, recommending their broader implementation.
10 ¹²	Lisa A. Babkair, Razan A. Safhi, and Raghad Balshram	2023	To examine the existing nursing practices for stroke patients in Saudi Arabia	cross-sectional descriptive design	The findings underscore an urgent need for specialized stroke units led by trained stroke nurses to enhance early stroke management and improve patient outcomes.

RESULT

The study shows the evaluation of the effectiveness of a clinical nursing care pathway for stroke in reducing functional disability among patients in critical care units at a hospital in Gurugram, Haryana. Data analysis revealed that the care pathway led to significant improvements in the experimental group's functional status, as measured by the Barthel Index (BI) and Modified Ranking Scale (MRS), with paired t-tests showing notable changes ($p < 0.001$ for BI and $p < 0.0001$ for MRS). The control group showed no significant change in BI but had some improvement in MRS ($p = 0.019$). Between-group comparisons indicated that while the experimental group had higher BI scores and lower MRS scores post-intervention, the differences were not consistently statistically significant. Overall, the clinical nursing care pathway demonstrated effectiveness in enhancing functional recovery for stroke patients.

DISCUSSION

The study assessed the impact of a clinical nursing care pathway on reducing functional disability in stroke patients admitted to critical care units, focusing on both demographic and clinical factors. Most participants were between 65 and 74 years old, predominantly male, and married, indicating a stable social support system, which is often associated with better recovery outcomes. Many of the patients had pre-existing conditions like hypertension, diabetes, and cardiovascular disease, which are well-known risk factors for stroke. However, despite these risk factors, a significant proportion of patients had not been receiving targeted medical interventions for stroke prevention, such as medication or lifestyle changes. This highlights a critical gap in preventive care that the nursing care pathway aimed to address by providing structured and comprehensive stroke management.

Before the implementation of the nursing care pathway, both the experimental and control groups had moderate to severe disability, as measured by the Barthel Index (BI) and the Modified Rankin Scale (MRS). The experimental group had slightly higher functional ability, as indicated by a marginally better BI score (76.53%), compared to the control group (69.06%), although this difference was not statistically significant. After

the nursing care pathway was introduced, the experimental group exhibited significant functional improvement, with a notable increase in BI scores (to an average of 78%) and a reduction in disability levels, as reflected in a lower MRS score (2.73). In contrast, the control group showed only minor improvements, with BI scores rising slightly (to 69.40%) and MRS scores decreasing to 3.20, indicating persistent disability.

Statistical analysis reinforced the effectiveness of the nursing care pathway. The paired t-test showed significant improvements in both BI and MRS scores within the experimental group ($p < 0.05$), signifying that the nursing intervention led to meaningful improvements in patients' functional independence and disability levels. While the control group also showed a significant change in MRS scores, the improvement was less pronounced compared to the experimental group. The unpaired t-test further confirmed that the experimental group achieved better functional outcomes post-intervention, although some results did not reach statistical significance. Overall, the study demonstrated that the nursing care pathway was effective in improving the functional outcomes of stroke patients, highlighting the importance of structured nursing interventions in critical care settings.

CONCLUSION

The study highlights the effectiveness of a clinical nursing care pathway in managing functional disabilities in stroke patients in critical care units. By significantly improving Barthel Index (BI) and Modified Rankin Scale (MRS) scores, the pathway enhances patients' functional recovery. The experimental group, which received the nursing intervention, showed marked improvement compared to the control group, which experienced minimal changes. This underscores the importance of structured, evidence-based nursing interventions in stroke care, especially in critical care settings where timely interventions are essential to optimize recovery and reduce long-term disability. The pathway's ability to promote functional independence suggests its potential to directly improve stroke survivors' quality of life by enabling them to perform daily activities and reducing dependence on caregivers.

The research also draws attention to the need for well-structured clinical nursing care

pathways in stroke management, particularly in countries like India, where such practices are still underutilized. With stroke being a growing health concern, many regions lack standardized rehabilitation approaches. This study, conducted in Haryana, provides a practical framework that could guide future healthcare interventions and inform policymaking. By focusing on functional disability, the study shows the potential for significant improvements in stroke survivors' quality of life, supporting their social reintegration and minimizing the socioeconomic burden of long-term disability.

The quasi-experimental design allowed for a robust comparison between the experimental and control groups. The results suggest that adopting clinical nursing care pathways could transform stroke rehabilitation. Future research is needed to validate these findings in diverse populations, which could drive policy changes and promote the broader adoption of structured nursing interventions, particularly in evolving healthcare systems like that of Haryana.

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