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Research on the Clinical Efficacy of Integrated Medical-Nursing Comprehensive Care for Patients with Cerebral Infarction

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Abstract: *Objective*: To analyze the application effectiveness of the integrated medical-nursing comprehensive care model in cases of cerebral infarction and clarify its clinical practical value for the patient rehabilitation process. *Methods*: A total of 60 patients with cerebral infarction admitted from June 2024 to December 2024 were selected as the research subjects and randomly divided into a control group and a research group, with 30 cases in each group. Patients in the control group received routine clinical nursing measures, while those in the study group underwent collaborative healthcare intervention in addition to routine nursing. The intervention included joint disease assessment, personalized rehabilitation training guidance, psychological counseling, and continuous nursing services after discharge. A comparative study was conducted by evaluating indicators such as the scores on adverse emotion scales, the extent of neurological recovery, the effectiveness rate of clinical rehabilitation treatment, and the level of satisfaction with nursing services between the two groups. *Results:* After the intervention, the scores on the Self-Rating Anxiety Scale (SAS) and the Self-Rating Depression Scale (SDS) in the study group decreased to (40.12 ± 5.01) and (41.36 ± 5.20), respectively, both significantly lower than those in the control group, which were (47.36±5.82) and (48.95 ± 5.63), respectively. The differences between the two groups were statistically significant ($p < 0.05$). The improvement in the neurological deficit scores of patients in the study group reached (9.18 ± 2.04), higher than that in the control group, which was (5.17 ± 1.82) ($p < 0.05$). The overall clinical rehabilitation effectiveness rate in the study group was 93.3%, significantly higher than that in the control group, which was 73.3%. The satisfaction rate with nursing services in the study group reached 96.7%, also higher than that in the control group, which was 83.3%. The differences between the two groups were statistically significant ($p < 0.05$). *Conclusion:* The integrated healthcare nursing model can effectively alleviate adverse emotional states in patients with cerebral infarction, facilitate the repair and reconstruction of neurological function, improve the effectiveness of clinical rehabilitation treatment and satisfaction with nursing services, and thus holds high value for clinical promotion and application.

Keywords: Healthcare integration; Cerebral infarction; Comprehensive nursing; Neurological function recovery; Nursing satisfaction

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1. Introduction

Cerebral infarction is a clinically prevalent ischemic cerebrovascular disease characterized by high morbidity, disability, and mortality rates, making it one of the primary diseases that seriously endanger public health [1]. Patients often experience neurological impairments such as limb paralysis, abnormal bodily sensations, and language dysfunction due to ischemia and hypoxia in brain tissue, which have a persistent negative impact on their daily quality of life. Traditional nursing models exhibit drawbacks such as fragmented service processes and a lack of continuity in intervention measures in terms of patient condition management, psychological and emotional counseling, and rehabilitation training guidance, making it difficult to fully meet the actual needs of cerebral infarction patients for systematic rehabilitation interventions. The integrated healthcare comprehensive nursing model has gradually gained attention and importance in clinical practice. This model relies on healthcare professionals collaborating to conduct condition assessments, jointly formulating individualized intervention plans, and establishing long-term communication and feedback mechanisms to provide patients with more precise, unified, and continuous full-course nursing services.

This nursing model demonstrates good application potential in improving patients' negative emotions and promoting neurological function recovery. This study, based on the core concepts of healthcare collaboration and comprehensive nursing services, explores the application value and innovative points of this nursing model in the nursing care of cerebral infarction patients, aiming to provide a reference basis for optimizing and improving clinical nursing models.

2. Materials and methods

2.1. General information

Sixty patients with cerebral infarction who received treatment in our hospital from June 2024 to December 2024 were selected for inclusion in the study. All enrolled cases met the clinical diagnostic criteria for cerebral infarction, were in a stable condition, and were able to cooperate in completing the entire research process. Using a random number table method, these patients were divided into a control group and a research group, with 30 cases in each group. Comparisons of basic data such as gender distribution, age range, disease duration, and location of infarction lesions between the two groups did not reach statistically significant differences ($p > 0.05$), meeting the conditions for inter-group comparison. This research protocol has been reviewed and approved by the hospital's ethics committee, allowing clinical observation to be conducted after fully informing patients and their families about the details of the study.

2.2. Inclusion and exclusion criteria

2.2.1. Inclusion criteria

Meeting the diagnostic criteria corresponding to the imaging examination characteristics and clinical symptoms of cerebral infarction; having stable vital signs and a clear state of consciousness; possessing normal language communication and comprehension abilities, enabling cooperation in completing various assessment scale fill-outs; both the patients themselves and their families voluntarily participating in this study and signing written informed consent documents.

2.2.2. Exclusion criteria

Patients with severe dysfunction of vital organs such as the heart, liver, and kidneys; those accompanied by psychiatric disorders, cognitive impairment, or inability to cooperate in completing nursing intervention measures; those with concurrent acute infectious diseases or other conditions that may interfere with the assessment indicator results; and those who have received other systematic rehabilitation nursing interventions prior to hospital admission for treatment.

2.3. Nursing methods

2.3.1. Control group

Implement routine clinical nursing measures, including dynamic monitoring of the patient's condition during hospitalization, observation of basic vital signs, and timely management of sudden changes in the patient's condition. Strictly follow medical advice to guide patients in standard medication use, while also carrying out basic life care tasks, such as assisting with eating, skin cleaning and care, proper positioning, and implementing measures to prevent pressure ulcers.

2.3.2. Study group

On the basis of routine nursing measures, implement an integrated medical-nursing comprehensive care model intervention. Collaboratively, the attending physician and responsible nurse work together to develop a nursing plan and rehabilitation training program tailored to the individual patient's condition, clearly defining intervention goals, specific implementation measures, and periodic arrangements.

Psychological nursing care runs through the entire hospitalization treatment cycle of patients. Responsible nurses regularly assess patients' negative emotions such as anxiety and depression and employ intervention techniques including one-on-one communication, positive language encouragement, and relaxation training guidance to alleviate patients' psychological stress and enhance their confidence in treatment and recovery. Rehabilitation training programs are tailored based on the degree of neurological deficits and recovery status of patients, encompassing limb motor function training, swallowing function training, body balance ability training, and daily living self-care ability training. These programs are carried out progressively under the joint guidance of medical staff to ensure the scientific nature and safety of the training process.

Health education is conducted simultaneously for patients and their families, covering aspects such as the pathogenesis of cerebral infarction, management of disease risk factors, norms for medication administration, and implementation of secondary prevention measures. This helps patients establish scientific and healthy behavioral patterns during their hospitalization. After patients are discharged from the hospital, continuous nursing services are initiated. Through telephone follow-ups and home visits, the improvement of patients' symptoms, the progress of rehabilitation training implementation, and potential nursing-related issues after discharge are tracked, providing patients with ongoing rehabilitation guidance suggestions and psychological support services.

2.4. Observation indicators

The changes in negative emotional states of patients in both groups before and after nursing interventions were observed. Quantitative scoring assessments were performed using the Self-Rating Anxiety Scale (SAS) and the Self-Rating Depression Scale (SDS). The progress of neurological function recovery in patients from both groups was compared, with evaluations conducted based on the commonly used clinical scale for assessing neurological

deficits. The dimensions for evaluating rehabilitation outcomes included the degree of improvement in limb motor function, enhancement in daily living self-care abilities, and other aspects. A comprehensive judgment was made by combining the results of clinical symptom observations with scale scoring data.

2.5. Statistical methods

Data processing was carried out using the SPSS statistical analysis software. Measurement data were presented in the form of mean ± standard deviation ($\overline{x} \pm s$), and comparisons between groups were made using the independent samples *t*-test. Count data were expressed as rates or composition ratios, and comparisons between groups were conducted using the χ^2 test. A significance level of $p < 0.05$ was used as the criterion to determine that differences between groups were statistically significant.

3. Results

3.1. Comparison of negative emotions between the two groups of patients

After the nursing intervention, the scores of the Self-Rating Anxiety Scale (SAS) and the Self-Rating Depression Scale (SDS) in both groups showed a downward trend compared to those before the intervention, with a more significant decrease observed in the study group. The SAS and SDS scores of patients in the study group were significantly lower than those in the control group at the same time point ($p < 0.05$), suggesting that the integrated medical-nursing comprehensive care model had a more desirable intervention effect in alleviating negative emotions in patients with cerebral infarction. See **Table 1** for details.

Table 1. Comparison of negative emotion scores between the two groups (score, $\overline{x} \pm s$)

Group	n	SAS (Pre-care)	SAS (Post-care)	SDS (Pre-care)	SDS (Post-care)
Control	30	58.42 ± 6.15	47.36 ± 5.82	59.17 ± 6.40	48.95 ± 5.63
Experimental	30	58.58 ± 6.09	40.12 ± 5.01	59.33 ± 6.28	41.36 ± 5.20
t-value		0.09	5.27	0.10	5.36
p-value		> 0.05	< 0.05	> 0.05	< 0.05

3.2. Comparison of neurological function recovery between the two groups

After the nursing intervention, the decrease in neurological deficit scores in the study group was greater than that in the control group, with a statistically significant difference between the groups ($p < 0.05$), indicating that the integrated medical-nursing comprehensive care model had a prominent advantage in promoting neurological function reconstruction in patients with cerebral infarction. See **Table 2** for details.

Table 2. Comparison of neurological deficit scores between the two groups (score, $\overline{x} \pm s$)

Group	n	Pre-care score	Post-care score	Improvement score
Control	30	18.63 ± 3.72	13.46 ± 3.10	5.17 ± 1.82
Experimental	30	18.70 ± 3.68	9.52 ± 2.86	9.18 ± 2.04
t-value		0.07	5.29	7.62
p-value		> 0.05	< 0.05	< 0.05

3.3. Comparison of rehabilitation outcomes between the two groups

The rehabilitation outcomes were comprehensively evaluated based on dimensions such as the degree of recovery of limb motor function and improvement in daily living self-care ability. The significant efficiency and overall effective rate of rehabilitation treatment in the study group were significantly higher than those in the control group, with a statistically significant difference between the groups ($p < 0.05$). See **Table 3** for details.

Table 3. Comparison of rehabilitation outcomes between the two groups [n (%)]

Group	n	Markedly effective	Effective	Ineffective	Total effective rate
Control	30	9 (30.0)	13 (43.3)	8 (26.7)	22 (73.3)
Experimental	30	16 (53.3)	12 (40.0)	2 (6.7)	28 (93.3)
χ^2					5.12
p-value					< 0.05

3.4. Comparison of nursing satisfaction between the two groups of patients

The study group scored higher than the control group in survey items such as nursing service attitude, doctor-patient communication effectiveness, and professionalism of rehabilitation guidance. The overall nursing satisfaction in the study group was significantly better than that in the control group, with statistically significant differences between the groups ($p < 0.05$). This indicates that the integrated medical-nursing comprehensive care model has a positive effect on improving the quality of clinical nursing services. See **Table 4** for details.

Table 4. Comparison of nursing satisfaction between the two groups [n (%)]

Group	n	Very Satisfied	Satisfied	Not Satisfied	Total Satisfaction
Control	30	14 (46.7)	11 (36.7)	5 (16.6)	25 (83.3)
Experimental	30	21 (70.0)	8 (26.7)	1 (3.3)	29 (96.7)
χ^2					4.12
p-value					< 0.05

4. Discussion

4.1. The effect of integrated medical-nursing comprehensive care on improving negative emotions in patients with cerebral infarction

After the onset of cerebral infarction, patients often experience varying degrees of negative emotions such as anxiety and depression. These emotional responses not only reduce patients' clinical treatment compliance but also exacerbate the body's stress response, thereby adversely affecting the process of neurological recovery. The data from this study shows that although the SAS and SDS scores of patients in the control group decreased after nursing compared to before, the decline in scores was more pronounced in the study group. The SAS and SDS scores in the study group decreased to (40.12 ± 5.01) and (41.36 ± 5.20), respectively, both significantly better than the control group's scores of (47.36 ± 5.82) and (48.95 ± 5.63) ($p < 0.05$).

The collaborative healthcare model between doctors and nurses enables patients to receive more consistent and continuous information support related to their diseases, reducing anxiety caused by asymmetric information

transmission. During the process of clinical treatment and nursing intervention, doctors are responsible for explaining the progression of the disease and the principles of the treatment plan to patients and their families, while nurses undertake daily psychological counseling. Through interventions such as verbal guidance, emotional state assessment, and relaxation training instruction, nurses strengthen patients' self-emotional regulation abilities [2]. This nursing model compensates for the deficiencies in traditional nursing models, such as insufficient attention to psychological intervention and a lack of systematic intervention measures. It establishes a stable psychological support system for patients, helping them adjust their psychological states more effectively and enhancing their ability to cope with the disease.

4.2. Analysis of the promoting mechanism on neurological function recovery and rehabilitation outcomes

The repair of neurological damage in patients with cerebral infarction after onset depends on standardized rehabilitation training and timely, dynamic collaborative medical and nursing interventions. In this study, the neurological deficit scores of patients in the research group significantly decreased to (9.52 ± 2.86) points after nursing, with a greater decrease compared to the control group's (13.46 ± 3.10) points. The improvement value reached (9.18 ± 2.04) points, significantly higher than the control group's (5.17 ± 1.82) points ($p < 0.05$). The promoting mechanism of this nursing model is mainly reflected in the multi-dimensional collaborative aspect. The medical and nursing teams jointly participate in setting rehabilitation training goals for patients and dynamically adjust training plans according to the patient's recovery stage, making rehabilitation training measures more systematic and continuous. In terms of rehabilitation outcomes, the overall rehabilitation effectiveness rate in the study group reached 93.3%, significantly higher than the 73.3% in the control group. This result is closely related to factors such as the improvement of patients' negative emotions, the enhancement of the standardization of rehabilitation training, and the increased consistency of rehabilitation guidance [3].

4.3. Comparative advantages over traditional nursing models

Traditional nursing models emphasize that nursing staff complete various nursing operation tasks in accordance with medical orders. However, the information exchange between doctors and nursing staff is relatively limited, making it difficult to fully synchronize the implementation process of nursing goals and resulting in a lack of continuity in nursing service content.

The integrated medical-nursing comprehensive nursing model breaks through the limitations of traditional nursing models and establishes an efficient and collaborative work system. Team members enhance the coordination of roles between medical and nursing staff and improve the timeliness, pertinence, and accuracy of nursing measure implementation by jointly participating in ward rounds, collaboratively formulating nursing plans, and communicating in real-time about patients' latest conditions [4]. Another notable advantage of this care model is reflected in the aspect of service continuity. Traditional care models primarily focus on services provided during a patient's hospitalization, whereas the integrated physician-nurse care model emphasizes the importance of continuous care services, extending rehabilitation guidance into the post-discharge life stage of patients. This ensures that patients can still receive professional rehabilitation support in their home environment.

4.4. Innovation and clinical promotion value of this study

This study introduces the concept of integrated physician-nurse care services, integrating neurological

rehabilitation training, psychological state intervention, health knowledge education, and continuous care services into a comprehensive care service chain. It innovatively addresses the issue of fragmented services in traditional care models.

The integrated physician-nurse care model adheres to a patient-centered service philosophy, achieving homogeneous care services through teamwork. This core concept is highly aligned with the goal of "whole-course disease management" advocated by modern medicine [5].

4.5. Research limitations and future research directions

This study included a sample size of 60 cases, with a research period set at half a year. Although the research results can preliminarily demonstrate the effectiveness of the application of the integrated medical-nursing comprehensive care model, there are still certain limitations. The relatively limited sample size may impact the generalizability of the research conclusions. Future studies could further expand the sample inclusion scale, extend the follow-up observation period for patients, conduct stratified research on different types of cerebral infarction patients, and explore research directions that combine with intelligent rehabilitation equipment and telemedicine technology to construct a more multidimensional and efficient collaborative medical-nursing service model.

5. Conclusion

The integrated medical-nursing comprehensive care model establishes a collaborative service system between medical and nursing staff, enabling cerebral infarction patients to receive continuous, systematic, and individualized intervention support during their hospitalization and rehabilitation process. The results of this study indicate that this care model can significantly alleviate negative emotions such as anxiety and depression in patients, enhance their emotional stability, and improve their psychological experiences. The decline in neurological deficit scores among patients in the study group was significant, and both the effectiveness of rehabilitation treatment and the improvement in daily living self-care ability were superior to those in the control group. This suggests that the integrated medical-nursing intervention model has a positive effect on promoting the reconstruction of patients' neurological functions. In terms of nursing satisfaction, the overall satisfaction in the study group was significantly higher than that in the conventional care group, indicating that patients have a higher recognition of the joint medical-nursing management model, the consistency of doctor-patient communication, and the professionalism of rehabilitation guidance.

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Disclosure statement

The authors declare no conflict of interest.

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