ISSN 2663-8169 Vol. 7, Issue 4: 167-172, DOI: 10.25236/IJNDE.2025.070424

The Exploration of a Neuropsychological Rehabilitation Education Model Based on Educational Psychology

Yijie Sun*

Department of Neurosurgery, The First Affiliated Hospital of Zhengzhou University, Zhengzhou, 450000, China
**Corresponding author: fccsunyj@zzu.edu.cn*

Abstract: *Neuropsychological rehabilitation education plays a crucial role in improving rehabilitation outcomes. Given that neuropsychological patients often experience cognitive and emotional impairments, educational psychology provides a theoretical foundation for their rehabilitation education. This study, based on educational psychology, explores the combination of personalized educational strategies, cognitive training, and behavioral interventions, while emphasizing the importance of emotional support and motivational mechanisms. The findings suggest that educational psychology theories can effectively optimize rehabilitation education, enhance patients' rehabilitation motivation, cognitive function, and emotional stability, and promote comprehensive recovery. Future research may further explore the application of this model in various neuropsychological disorders and evaluate its long-term effects.*

Keywords: *Neuropsychological patients; rehabilitation education; educational psychology; personalized education; cognitive training; behavioral intervention; emotional support*

1. Introduction

With the increasing prevalence of neurological disorders, patients face increasingly significant cognitive and emotional challenges during the rehabilitation process. Neurological patients often experience various cognitive impairments and emotional issues, which significantly affect their rehabilitation outcomes. Therefore, exploring effective rehabilitation education models has become key to improving patient recovery quality. Educational psychology provides a theoretical foundation for rehabilitation education, especially in areas such as cognition, emotion, and motivation. By drawing on core theories of educational psychology, such as cognitive load theory and self-determination theory, personalized educational programs can be designed that not only improve patients' learning efficiency but also enhance their sense of participation and motivation in rehabilitation. However, current educational interventions for neurological patients remain relatively limited, and there is a lack of systematic research on educational models. Therefore, this study aims to explore a rehabilitation education model for neurological patients based on educational psychology, in hopes of providing more scientific and comprehensive educational support for patient recovery.

2. Theoretical Foundation of Rehabilitation Education for Neuropsychological Patients

2.1 The Role of Educational Psychology in Rehabilitation Education

Educational psychology, as a discipline that studies the learning process and psychological mechanisms, covers core areas such as learning motivation, cognitive development, and emotional regulation. In the rehabilitation education of neuropsychological patients, the application of educational psychology can provide effective learning strategies and promote the rehabilitation process. Educational psychology theories suggest that patients' cognitive functions and emotional states play a crucial role in the rehabilitation process, while learning motivation and emotional support are key factors affecting the effectiveness of rehabilitation education. Therefore, by integrating core principles of educational psychology, personalized rehabilitation education programs can be designed to effectively enhance patients' sense of participation, learning motivation, and self-efficacy[1].

ISSN 2663-8169 Vol. 7, Issue 4: 167-172, DOI: 10.25236/IJNDE.2025.070424

Cognitive load theory, constructivist learning theory, and self-determination theory, among others, provide theoretical support for rehabilitation education for neuropsychological patients. For example, cognitive load theory emphasizes the need to consider patients' cognitive resource limitations during the teaching process, avoiding information overload and ensuring that the presentation of educational content aligns with the patient's cognitive development level. Constructivist learning theory advocates for the use of methods such as contextual simulations and problem-solving, enabling patients to actively construct knowledge through interaction and practice. Self-determination theory highlights the importance of autonomy in the rehabilitation process, encouraging the use of motivational mechanisms to enhance intrinsic motivation and promote positive rehabilitation behaviors.

Therefore, educational psychology not only provides a theoretical basis for the design of rehabilitation education for neuropsychological patients but also offers systematic guidance for the implementation of educational strategies, making the educational process not merely the transmission of knowledge but an active guide to the patient's psychological, cognitive, and behavioral development.

2.2 Cognitive and Emotional Characteristics of Neuropsychological Patients

The cognitive and emotional characteristics of neuropsychological patients directly affect the effectiveness of their rehabilitation education. Common neurological disorders, such as stroke, Parkinson's disease, and Alzheimer's disease, are often accompanied by varying degrees of cognitive impairments, including attention deficits, memory loss, and executive function disorders. These cognitive deficits often present significant challenges for patients during the rehabilitation process. Therefore, understanding the cognitive characteristics of patients helps to develop adaptive educational strategies. For example, patients with memory impairments may experience difficulties in learning new information. In such cases, methods like repetitive training and staged learning can be used to enhance their memory retention and retrieval abilities.

At the same time, neuropsychological patients are often accompanied by emotional disorders, such as depression, anxiety, and other mood issues. These emotional states not only affect the patient's quality of life but also seriously impact their rehabilitation progress. Emotional problems can lead to a negative attitude toward rehabilitation, reducing the patient's motivation and initiative in participating in treatment. Therefore, rehabilitation education must pay close attention to the emotional needs of patients, providing positive psychological interventions, such as establishing trust, offering emotional support, and using positive reinforcement, to enhance the patient's emotional stability and promote recovery.

The cognitive and emotional characteristics of neuropsychological patients determine the personalized needs of rehabilitation education. The design of educational programs must fully consider the patient's cognitive level, emotional state, and individual differences, using flexible and diverse educational methods to achieve the best rehabilitation outcomes[2].

2.3 Psychological Models and Frameworks of Rehabilitation Education

Psychological models of rehabilitation education provide systematic theoretical support for neuropsychological patients, helping educators consider the multiple psychological needs of patients when developing intervention strategies. Common psychological theories, such as cognitive-behavioral theory, social learning theory, and multiple intelligence theory, have important application value in the rehabilitation education of neuropsychological patients.

Cognitive-behavioral theory emphasizes the adjustment of patients' cognitive patterns to influence their behavior, which is particularly useful for neuropsychological patients who often face emotional distress and a loss of confidence in rehabilitation. By identifying and correcting negative thinking, helping patients reconstruct a positive cognitive framework can effectively enhance their rehabilitation motivation and self-efficacy. During the educational process, setting staged goals, providing positive feedback, and increasing emotional support can boost patients' confidence and self-regulation abilities, thus promoting the rehabilitation process.

Social learning theory focuses on observation and imitation, promoting learning and behavior change through social interaction and support. In the rehabilitation process of neuropsychological patients, especially those with cognitive impairments, enhancing social interaction is of great importance. With the support of family members or peers, patients can not only find emotional comfort but also gain more positive reinforcement and behavioral modeling through group rehabilitation activities, thereby promoting their learning and rehabilitation outcomes.

ISSN 2663-8169 Vol. 7, Issue 4: 167-172, DOI: 10.25236/IJNDE.2025.070424

Combining these theoretical frameworks, educators can design differentiated rehabilitation education models based on patients' cognitive and emotional characteristics. Multiple intelligence theory suggests that individuals have varying potential in different areas of intelligence, and rehabilitation education should consider patients' abilities in language, spatial reasoning, movement, and other aspects. By using multi-sensory stimulation and personalized learning strategies, educators can stimulate patients' potential, thereby improving rehabilitation outcomes. Integrating the advantages of these psychological models provides neuropsychological patients with a more comprehensive and personalized rehabilitation education plan, effectively promoting their physical and mental recovery[3].

3. Key Strategies for Rehabilitation Education of Neuropsychological Patients

3.1 Design of Personalized Educational Strategies

In rehabilitation education for neuropsychological patients, the design of personalized educational strategies is crucial, as each patient exhibits significant differences in cognition, emotion, and behavior. The core of personalized education is to tailor the content and methods based on the patient's specific circumstances, such as disease type, cognitive level, emotional state, and living environment. Educational psychology theories provide effective guiding frameworks. For example, content presentation should be adjusted according to the patient's cognitive load limitations, avoiding excessive information while ensuring the effectiveness of the teaching.

By assessing the patient's cognitive characteristics and learning styles, educators can choose multi-sensory teaching methods, such as visual, auditory, or tactile approaches, to enhance interaction and engagement, improving the effectiveness of information absorption and memory retention. For patients with weaker cognitive functions, educational content should be delivered in a phased, step-by-step manner, supplemented by specific aids such as memory cards or smart devices, to help patients continuously accumulate and consolidate new knowledge during the rehabilitation process.

Personalized education strategies should also focus on stimulating the patient's emotions and motivation. By establishing a positive teacher-student relationship, educators can help patients build self-confidence and initiative, enhancing their intrinsic motivation to participate in rehabilitation. In this process, flexibility in educational strategies is essential, as educators must adjust the content and methods as needed to accommodate the patient's rehabilitation progress and emotional changes, ensuring the continuous effectiveness of the educational intervention[4].

3.2 Educational Method Combining Cognitive Training and Behavioral Intervention

The educational method combining cognitive training and behavioral intervention provides neuropsychological patients with a dual-path rehabilitation plan, aiming to promote overall recovery by strengthening cognitive functions and optimizing behavior patterns. Cognitive training, through carefully designed tasks and activities, helps patients restore and enhance impaired cognitive abilities, including memory, attention, and executive functions. This type of training not only relies on traditional cognitive tasks and psychological tests but also incorporates challenging cognitive tasks that engage multiple cognitive resources in the brain, allowing patients to gradually recover their cognitive functions.

Cognitive training can be personalized according to the specific situation of each patient, helping them progress from simple daily memory training to more complex situational judgments, gradually improving cognitive abilities. Moreover, incorporating real-life scenarios into the training not only enhances patients' ability to cope with real-world situations but also effectively shortens the period of cognitive decline during the rehabilitation process.

Building on this, behavioral intervention plays a crucial role. Behavioral intervention focuses on promoting rehabilitation outcomes by altering patients' behaviors and emotional responses. Cognitive Behavioral Therapy (CBT) is widely applied in the rehabilitation education of neuropsychological patients, helping them identify negative emotions and cognitive biases, and adjust maladaptive behavior patterns. This method is particularly useful for patients experiencing emotional fluctuations, anxiety, depression, and other psychological distress due to neurological disorders. Through systematic emotional management and behavior adjustment, patients can effectively control negative emotions and enhance their self-regulation abilities.

Behavioral intervention also helps patients gradually develop adaptive behaviors through positive

ISSN 2663-8169 Vol. 7, Issue 4: 167-172, DOI: 10.25236/IJNDE.2025.070424

reinforcement, such as increasing physical activity and actively participating in rehabilitation training. Additionally, educators help patients gradually achieve self-regulation of behaviors through step-by-step task design and goal-setting, enhancing rehabilitation outcomes. The combination of cognitive training and behavioral intervention not only helps neuropsychological patients achieve breakthroughs in cognitive recovery but also leads to significant improvements in emotional regulation and behavioral self-control, providing strong support for the patients' overall rehabilitation[5].

3.3 Emotional Support and Motivation Mechanisms in the Educational Process

Emotional support and motivation mechanisms play a central role in the rehabilitation education of neuropsychological patients, directly influencing their rehabilitation motivation and outcomes. During the rehabilitation process, patients often experience emotional fluctuations, anxiety about future rehabilitation outcomes, and doubts about their own abilities. These negative emotions may lead to resistance toward the rehabilitation process or even abandonment of treatment. Therefore, the role of emotional support in rehabilitation education cannot be overlooked.

Studies have shown that positive emotional support not only helps improve patients' mental health and alleviate anxiety, depression, and other emotional issues but also enhances their rehabilitation motivation. In addition to providing cognitive guidance, educators need to establish a good interactive relationship, demonstrate patience and care, listen to patients' concerns, and offer emotional comfort and encouragement. Through this emotional support, patients can feel understood and cared for, which boosts their confidence and positivity towards the rehabilitation process.

The motivation mechanism is another crucial aspect in enhancing patients' rehabilitation motivation, directly influencing their level of participation and recovery progress. According to self-determination theory, a patient’s motivation comes from a sense of control over their behavior, competence, and belonging. In rehabilitation education, educators can set clear and appropriate small goals to gradually enhance the patient's sense of achievement. Whenever a patient reaches a small goal, educators should provide timely positive feedback to boost their confidence and sense of accomplishment. At the same time, the motivation mechanism should also focus on the patient’s autonomy, allowing them more control and decision-making power during the rehabilitation process. This not only increases their sense of participation but also encourages them to engage more actively in the rehabilitation process.

Social support is essential in rehabilitation education. The involvement of family members, friends, and peers can significantly enhance the rehabilitation outcomes for patients, especially in terms of emotional support and behavioral motivation. Social interaction provides patients with a sense of belonging and social connection, promoting mental health and rehabilitation motivation. Group rehabilitation activities and mutual support groups can strengthen mutual encouragement among patients, improving their emotions and sense of participation. Therefore, the combination of emotional support and motivation mechanisms not only helps alleviate psychological barriers but also accelerates the rehabilitation process.

4. Optimization Path of Rehabilitation Education Model from the Perspective of Educational Psychology

4.1 Continuous Update and Adjustment of Educational Content

In the rehabilitation education of neurology patients, the continuous update and adjustment of educational content is a key factor in ensuring the effectiveness of rehabilitation. The design of educational content should be dynamically optimized based on the patient's cognitive level, emotional state, and rehabilitation progress. As the patient's rehabilitation situation continuously changes, their demand for educational content also becomes diverse and gradually deepens. Educational psychology theory suggests that learning is a process of constant adaptation and adjustment, and educational content should be flexible to meet the cognitive and emotional needs of patients at different stages.

In practice, educators should regularly adjust the educational content based on patient feedback, assessment results, and the achievement of rehabilitation goals. For example, for patients with weaker cognitive abilities, the initial educational content should focus on simple and understandable knowledge and skill training. As the patient's cognitive abilities improve, the educational content should gradually transition to more advanced cognitive tasks and the enhancement of comprehensive abilities. In this process, educators should continuously optimize educational strategies through

ISSN 2663-8169 Vol. 7, Issue 4: 167-172, DOI: 10.25236/IJNDE.2025.070424

dynamic assessments and reflective practices, ensuring that the educational content aligns with the patient's actual needs, thereby improving the effectiveness and sustainability of rehabilitation education.

4.2 Diversification of Educational Methods and Enhancement of Interactivity

The diversification of educational methods and enhancement of interactivity are important ways to improve the quality of rehabilitation education for neurology patients. Educational psychology emphasizes that individuals have diverse learning styles, and educational interventions should fully consider these differences, adopting flexible and varied teaching methods. For neurology patients, due to the impact of their diseases, their cognitive, emotional, and behavioral characteristics may vary significantly. Therefore, a one-size-fits-all approach should be avoided when choosing educational methods. By combining various teaching techniques such as lectures, demonstrations, practice, and discussions, educators can adjust their teaching methods based on the needs and feedback of patients, maximizing the patients' learning motivation.

Interactivity is a key factor in enhancing patient engagement and learning effectiveness. Cognitive functions of neurology patients are often impaired to varying degrees, and one-way, information delivery-based teaching methods are often ineffective in stimulating deep learning and active participation. However, by incorporating interactive elements such as group discussions, problem-solving, and scenario simulations, not only can patient-to-patient experience exchanges be promoted, but it can also help patients reinforce their understanding and application of knowledge through interaction. Educators should focus on fostering patients' active learning awareness, encouraging them to ask questions, explore answers, and enhance their sense of control and responsibility over the rehabilitation process through continuous feedback and correction, thereby increasing their participation and enthusiasm.

4.3 The Value of Interdisciplinary Collaboration in Rehabilitation Education

Interdisciplinary collaboration holds significant value in the rehabilitation education of neurology patients. Rehabilitation education is not only an intervention at the cognitive and behavioral levels but also involves multiple aspects such as the patient's physiological, psychological, and social environments. Educational psychology provides a theoretical framework to help educators understand the psychological needs of patients during the rehabilitation process, but a single-disciplinary perspective often fails to address the complex rehabilitation issues comprehensively. Interdisciplinary collaboration integrates knowledge from various fields, including medicine, psychology, and sociology, providing more comprehensive and holistic educational support for patients.

In practice, neurologists, psychological experts, rehabilitation therapists, and educators should collaborate closely to develop and adjust rehabilitation education programs. Medical professionals provide patients with specialized diagnosis and treatment, psychological experts promote patients' mental health through emotional support and behavioral interventions, and rehabilitation therapists assist patients in functional recovery. Educators, from the perspective of educational psychology, design and implement personalized educational interventions based on patients' cognitive development characteristics. This interdisciplinary collaboration model not only provides a systematic rehabilitation plan for patients but also enhances the effectiveness of educational interventions through the synergistic effects of various disciplines, promoting comprehensive recovery for patients.

Another significant value of interdisciplinary collaboration lies in the complementarity and sharing of knowledge and experience. Through regular team discussions and case analyses, experts from different fields can evaluate the progress of patients' rehabilitation in a timely manner and adjust educational strategies based on the latest research findings and clinical experience. This collaborative model not only improves the professionalism of rehabilitation education but also provides patients with multi-level, multidimensional support, ensuring they receive effective help and guidance in all aspects[6].

5. Conclusion

This study, from the perspective of educational psychology, proposes a rehabilitation education model for neurology patients, incorporating personalized education strategies, cognitive training, and behavioral interventions. It also emphasizes the application of emotional support and incentive

ISSN 2663-8169 Vol. 7, Issue 4: 167-172, DOI: 10.25236/IJNDE.2025.070424

mechanisms. The research shows that the rehabilitation education model, based on educational psychology theories, can significantly improve patients' rehabilitation motivation, enhance emotional states, and promote cognitive function recovery. However, future research needs to further explore how to implement this education model in different neurology patient groups and evaluate its effectiveness in the long-term rehabilitation process. Additionally, interdisciplinary collaboration should be more widely applied, integrating professional knowledge from fields such as medicine, psychology, and sociology to achieve comprehensive rehabilitation for patients.

References

[1] Gu Ye, Hou Shuping. Strategies for Enhancing the Core Literacy of Higher Vocational Teacher Education Students in Classroom Teaching—Taking the "TRE Teaching Model" in Educational Psychology Classes as an Example [J]. Innovation and Entrepreneurship Theory Research and Practice, 2024, 7(24): 137-140.

[2] Zhang Naqin, Li Yanfei, Wang Jun, et al. Neurology Nurses' Cognition and Practice of Neurocritical Rehabilitation Nursing [J]. Chinese Journal of Practical Neurological Diseases, 2024, 27(07): 883-886.

[3] Liu Lijuan. Psychological Care and Rehabilitation Guidance for Neurocritical Patients [N]. Medical Health and Wellness Report, 2024-02-25(011).

[4] Chang Jiafeng, Lu Ying, Chen Ping, et al. The Application Effect of Psychological Rehabilitation Nursing for Neurology Patients [J]. Psychological Monthly, 2022, 17(23): 123-125.

[5] Jin Linya, Li Ting, Sun Heyu, et al. Research on the Pathway of Improving Patient's Cognitive Ability through Medical-Patient Communication Based on Narrative Medicine—Taking Neurology as an Example [J]. Chinese Journal of Medical Ethics, 2021, 34(05): 581-584.

[6] Chen Yuxia, Ran Hong, Sheng Jing. Application of Observational Detail Management in Neurology Ward Nursing Management [J]. Practical Clinical Nursing Electronic Journal, 2020, 5(06): 153.