

# The Role of Physical Therapy in Stroke Rehabilitation: Improving Mobility, Independence, and Quality of Life

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## Abstract

Stroke is a major neurological condition and a leading cause of long-term disability worldwide. Many stroke survivors experience difficulties with movement, balance, coordination, and independent performance of daily activities. Physical therapy is an essential component of stroke rehabilitation, helping individuals improve mobility, restore functional abilities, and enhance quality of life.

Despite the benefits of physiotherapy, access to rehabilitation services remains a challenge in many developing countries, including Nigeria. This review examines the contribution of physical therapy to stroke recovery and explores factors limiting access to rehabilitation services among Nigerian stroke survivors.

A narrative literature review approach was used to analyze existing scientific studies on stroke rehabilitation, physiotherapy interventions, healthcare accessibility, and rehabilitation challenges. Literature from academic databases was reviewed to identify common rehabilitation outcomes and barriers affecting service utilization.

Findings indicate that physical therapy interventions, including exercise therapy, mobility training, balance training, and functional rehabilitation, contribute significantly to improving independence among stroke survivors. However, financial limitations, inadequate rehabilitation facilities, shortage of trained professionals, and limited awareness of physiotherapy services continue to affect access to care.

Improving rehabilitation infrastructure, increasing public awareness, and strengthening healthcare policies are necessary steps toward improving stroke recovery outcomes in Nigeria. Expanding access to physical therapy services may help reduce disability and promote better quality of life among stroke survivors.

## 1. Introduction

Stroke is a serious neurological disorder caused by disruption of blood supply to the brain, resulting in damage that may affect movement, communication, cognition, and independence. It remains one of the major causes of disability globally, creating significant health and socioeconomic challenges for individuals, families, and healthcare systems.



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Many stroke survivors experience long-term physical impairments such as muscle weakness, reduced balance, difficulty walking, and limitations in performing daily activities. These challenges can affect social participation, emotional well being, and overall quality of life.

Physical therapy, also known as physiotherapy, is a critical aspect of stroke rehabilitation. Physiotherapists use structured interventions to improve movement, prevent complications, and maximize functional recovery. Rehabilitation approaches may include strengthening exercises, gait training, balance activities, and task oriented functional training. Current stroke rehabilitation guidelines emphasize the importance of organized rehabilitation services for improving recovery outcomes.

However, access to physical therapy services remains unequal, especially in low and middle income countries. Nigeria faces challenges including limited rehabilitation centers, financial barriers, inadequate equipment, and insufficient awareness of rehabilitation services. Studies examining stroke rehabilitation in Africa have identified cost and limited resources as major barriers affecting access to care.

This paper aims to explore the role of physical therapy in stroke rehabilitation and examine barriers affecting access to physiotherapy services among stroke survivors in Nigeria.

## 2. Literature Review

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### 2.1 Stroke and Its Impact on Physical Function

Stroke is a neurological event that can significantly affect an individual's physical, psychological, and social functioning. Depending on the location and severity of brain injury, stroke survivors may experience various impairments, including muscle weakness, paralysis, reduced coordination, impaired balance, and difficulty performing movements required for daily activities.

Motor impairment is one of the most common consequences of stroke. Many survivors experience weakness on one side of the body (hemiparesis), which can affect walking ability, transfers, and independence in self care activities. Reduced mobility may also increase the risk of complications such as falls, reduced physical activity, and dependence on caregivers.

The effects of stroke extend beyond physical limitations. Loss of independence can negatively influence emotional well being, social participation, and overall quality of life. Therefore, effective rehabilitation strategies are necessary to support recovery and help survivors regain meaningful function.

### 2.2 Role of Physical Therapy in Stroke Rehabilitation

Physical therapy is a key component of multidisciplinary stroke rehabilitation. The primary goal of physiotherapy is to improve functional movement, maximize independence, prevent secondary complications, and promote participation in daily activities.

Physiotherapists assess patients' movement abilities and develop individualized rehabilitation programs based on their specific needs. These programs often include:

#### 2.2.1 Exercise Therapy

Exercise-based rehabilitation is widely used in stroke recovery to improve muscle strength, endurance, flexibility, and movement control. Therapeutic exercises encourage active participation and support the recovery of affected body functions.

Progressive strengthening exercises can help improve physical capacity, while repetitive task practice may assist the brain's ability to reorganize and develop new movement patterns.

#### 2.2.2 Balance and Postural Training

Balance impairment is common among stroke survivors and can increase the risk of falls. Physiotherapists use balance training techniques to improve postural control, coordination, and stability during movement.

Activities may include sitting balance exercises, standing practice, weight shifting activities, and functional movement exercises designed to improve safety and independence.

#### 2.2.3 Mobility and Gait Training

Difficulty walking is a major challenge experienced by many stroke survivors. Physiotherapy interventions focus on improving walking ability through gait training, strengthening exercises, and movement retraining.

Gait rehabilitation may involve practicing walking patterns, improving lower limb control, and using appropriate assistive devices when necessary.

#### **2.2.4 Functional Rehabilitation**

Functional rehabilitation focuses on helping individuals regain the ability to perform everyday activities. Physiotherapists may train patients in activities such as transferring from a bed to a chair, climbing stairs, and performing movements required for independent living.

This approach is important because successful rehabilitation is not only measured by physical improvement but also by a person's ability to participate in society and maintain independence.

### **2.3 Benefits of Physical Therapy After Stroke**

Research has demonstrated that physical therapy contributes significantly to stroke recovery by improving functional outcomes and reducing disability. Major benefits include: Improved Mobility. Physiotherapy interventions help patients regain movement control and improve walking ability. Increased mobility allows individuals to participate more actively in daily activities. Increased Independence, Through functional training and repeated practice, stroke survivors may regain the ability to perform self-care activities with less assistance. Improved Quality of Life Recovery of physical function can positively influence confidence, social participation, and emotional well being. Prevention of Secondary Complications Regular rehabilitation can help reduce complications associated with inactivity, including muscle stiffness, reduced endurance, and increased risk of falls.

### **2.4 Stroke Rehabilitation in Developing Countries**

Although rehabilitation services provide significant benefits, access remains unequal globally. Low and middle income countries often experience challenges in providing adequate rehabilitation services due to limited healthcare resources.

The World Health Organization has identified rehabilitation as an essential health service, yet many individuals in developing countries do not receive the rehabilitation they require.

In Nigeria, stroke rehabilitation is affected by several healthcare system challenges, including:

- Limited availability of specialized rehabilitation centers
- High cost of treatment
- Transportation difficulties
- Shortage of rehabilitation professionals
- Limited health insurance coverage
- Low awareness of physiotherapy services

These challenges may result in delayed rehabilitation or complete lack of access to care, negatively affecting recovery outcomes.

### **2.5 Barriers to Accessing Physical Therapy Services in Nigeria**

#### **2.5.1 Financial Barriers**

One of the major challenges affecting access to physiotherapy in Nigeria is the cost of rehabilitation. Stroke rehabilitation often requires multiple sessions over a long period, creating financial pressure for patients and families.

Limited insurance coverage for rehabilitation services may result in patients discontinuing treatment before achieving optimal recovery.

#### **2.5.2 Limited Rehabilitation Facilities**

Access to physiotherapy services is uneven across Nigeria. Urban areas generally have more healthcare

facilities, while individuals living in rural communities may experience difficulty accessing specialized rehabilitation services.

The shortage of rehabilitation centers contributes to delayed treatment and reduced continuity of care.

### **2.5.3 Shortage of Physiotherapy Professionals**

An inadequate number of trained rehabilitation professionals can limit the availability of quality services. Increasing the training and employment of physiotherapists is important for improving rehabilitation access.

### **2.5.4 Lack of Awareness**

Some stroke survivors and families may not understand the importance of physical therapy after stroke. Misconceptions about rehabilitation may prevent individuals from seeking professional physiotherapy care. Improving public education about the role of physiotherapy can encourage earlier rehabilitation and better outcomes.

## **2.6 Importance of Improving Stroke Rehabilitation Services in Nigeria**

Improving access to physical therapy services can have significant benefits for individuals and the healthcare system. Effective rehabilitation can reduce long-term disability, improve independence, and decrease dependence on caregivers.

Strategies for improvement may include:

- Expanding rehabilitation facilities
- Integrating physiotherapy into primary healthcare services
- Increasing health insurance coverage for rehabilitation
- Promoting public awareness campaigns
- Supporting research in rehabilitation sciences

## **3. Methodology**

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### **3.1 Research Design**

This study adopts a narrative literature review design to examine the role of physical therapy in stroke rehabilitation and identify barriers affecting access to physiotherapy services among stroke survivors in Nigeria.

A narrative review approach was selected because it allows the analysis and synthesis of existing research findings from different studies, providing a broad understanding of rehabilitation practices, healthcare challenges, and opportunities for improving stroke care.

### **3.2 Literature Search Strategy**

Relevant scientific literature was identified through electronic academic databases, including:

- PubMed
- Google Scholar
- ScienceDirect
- ResearchGate

The search was conducted using combinations of keywords related to stroke rehabilitation and physiotherapy, including:

- "Stroke rehabilitation"
- "Physical therapy after stroke"
- "Physiotherapy interventions"
- "Stroke survivors"
- "Rehabilitation barriers in Nigeria"
- "Access to physiotherapy services"
- "Neurological rehabilitation"

### 3.3 Inclusion Criteria

Studies were included if they met the following criteria:

- Focused on stroke survivors and rehabilitation outcomes
- Discussed physical therapy or physiotherapy interventions
- Examined mobility, independence, functional recovery, or quality of life
- Addressed rehabilitation access challenges
- Were published in peer-reviewed journals
- Were available in English

### 3.4 Exclusion Criteria

Studies were excluded if they:

- Did not focus on stroke rehabilitation
- Were unrelated to physical therapy
- Were opinion articles without scientific evidence
- Lacked sufficient methodological information
- Were duplicate publications

### 3.5 Data Extraction and Analysis

Information extracted from selected studies included:

- Author and year of publication
- Study objectives
- Rehabilitation approaches discussed
- Key findings related to physical therapy outcomes
- Barriers affecting access to rehabilitation services

The findings were analyzed through thematic synthesis, with major themes identified including:

1. The effectiveness of physical therapy in stroke recovery
2. Challenges affecting rehabilitation access
3. Healthcare system limitations in developing countries
4. Recommendations for improving stroke rehabilitation services

### 3.6 Ethical Considerations

As this study is a literature review and does not involve direct interaction with human participants, ethical approval was not required. All information used was obtained from previously published academic sources, and proper acknowledgment of original authors will be maintained through appropriate citation.

## 4. Discussion

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### 4.1 Importance of Physical Therapy in Stroke Rehabilitation

Stroke rehabilitation is a long term process that aims to help individuals regain lost abilities and achieve maximum independence. Physical therapy plays a central role in this process by addressing movement limitations, improving physical function, and reducing the impact of disability. The rehabilitation process requires a patient-centered approach, where treatment plans are developed according to the individual's specific impairments and goals. Physiotherapists assess strength, balance, coordination, mobility, and functional abilities to design appropriate interventions. Evidence from previous studies indicates that structured physical therapy programs can improve walking ability, balance, muscle strength, and participation in daily activities. Rehabilitation does not only focus on physical recovery but also supports individuals in returning to social and community activities.

### 4.2 Importance of Physical Therapy in Stroke Rehabilitation

Various physiotherapy interventions have demonstrated positive effects in stroke recovery.

#### 4.2.1 Exercise-Based Rehabilitation

Exercise therapy is one of the most commonly used approaches in stroke rehabilitation. Regular therapeutic exercise helps improve muscle strength, cardiovascular endurance, flexibility, and movement control. Repetitive practice of specific movements can encourage functional improvement by supporting the brain's ability to adapt after injury. This process, known as neuroplasticity, allows the nervous system to reorganize and develop improved movement patterns.

#### 4.2.2 Gait and Mobility Training

Difficulty walking is a common problem among stroke survivors. Physiotherapists use gait training techniques to improve walking patterns, balance, coordination, and confidence during movement. Improved mobility can increase independence and reduce dependence on caregivers, allowing survivors to participate more actively in daily life.

#### 4.2.3 Balance and Fall Prevention Training

Many stroke survivors experience reduced balance, increasing the risk of falls and injuries. Balance training helps improve postural stability and safe movement. Fall prevention strategies are particularly important for older stroke survivors who may already have additional age related mobility challenges.

### 4.3 Barriers Affecting Access to Physical Therapy Services in Nigeria

Although physical therapy provides significant benefits, many stroke survivors in Nigeria face challenges accessing rehabilitation services.

#### 4.3.1 Financial Challenges

Cost remains one of the major barriers to continuous physiotherapy care. Stroke rehabilitation often requires repeated sessions over weeks or months, which may become financially difficult for patients and families. Limited insurance coverage for rehabilitation services means that many individuals pay out-of-pocket, which can result in interrupted treatment or early discontinuation of therapy. Affordable rehabilitation programs and stronger healthcare financing systems may improve access to physiotherapy services.

#### **4.3.2 Limited Availability of Rehabilitation Facilities**

Access to rehabilitation services is often concentrated in major cities, leaving many individuals in rural communities with limited options. Patients may need to travel long distances to access physiotherapy centers, creating additional challenges related to transportation costs, time, and physical difficulty. Expanding rehabilitation facilities and integrating physiotherapy services into more healthcare settings could improve accessibility.

#### **4.3.3 Shortage of Physiotherapy Professionals**

An insufficient number of rehabilitation professionals can limit the availability and quality of services provided to stroke survivors. Increasing investment in physiotherapy education, professional development, and employment opportunities is important for strengthening rehabilitation services in Nigeria.

#### **4.3.4 Lack of Awareness About Physiotherapy**

Awareness of the importance of rehabilitation after stroke remains a challenge. Some patients and families may focus only on immediate medical treatment and underestimate the importance of long-term rehabilitation. Public health education programs can help communities understand that physiotherapy is an essential part of stroke recovery rather than an optional service.

#### **4.4 Implications for Healthcare Practice**

Improving access to physical therapy services requires collaboration between healthcare professionals, government institutions, and communities. Healthcare systems should recognize rehabilitation as an essential component of stroke care. Early referral to physiotherapy, continuous rehabilitation support, and patient education can contribute to improved outcomes. The integration of rehabilitation services into primary healthcare may also help reach more stroke survivors, especially those living outside major urban areas.

#### **4.5 Future Opportunities in Stroke Rehabilitation**

Advances in healthcare technology provide new opportunities for improving rehabilitation outcomes.

- Emerging approaches such as:
- Tele-rehabilitation
- Virtual reality assisted rehabilitation
- Digital exercise monitoring
- Technology supported home rehabilitation programs

May help overcome some access challenges by allowing patients to receive support remotely. These approaches may be particularly valuable in areas where rehabilitation facilities and specialists are limited.

### **5. Conclusion and recommendations**

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#### **5.1 Conclusion**

Physical therapy is a fundamental component of stroke rehabilitation, contributing significantly to the improvement of mobility, functional independence, and quality of life among stroke survivors. Through interventions such as therapeutic exercises, gait training, balance exercises, and functional rehabilitation, physiotherapists help individuals regain abilities affected by stroke and improve participation in daily activities.

Despite the proven benefits of physical therapy, access to rehabilitation services remains a major challenge in Nigeria. Financial difficulties, limited rehabilitation facilities, shortage of trained professionals, transportation challenges, and inadequate public awareness continue to prevent many stroke survivors from receiving appropriate care.

Improving access to physiotherapy services requires greater recognition of rehabilitation as an essential part of healthcare. Strengthening healthcare policies, expanding rehabilitation infrastructure, and increasing awareness about the importance of physiotherapy can contribute to better recovery outcomes for stroke survivors.

A stronger rehabilitation system will not only improve the lives of individuals affected by stroke but also reduce long-term disability and dependence on caregivers. Future efforts should focus on creating affordable, accessible, and patient centered rehabilitation services throughout Nigeria.

## **5.2 Recommendations**

Based on the findings of this review, the following recommendations are proposed:

### **5.2.1 Expansion of Rehabilitation Services**

Government and healthcare organizations should increase investment in rehabilitation facilities, especially in rural and underserved communities. Establishing more physiotherapy centers will improve access for stroke survivors who currently face difficulties obtaining care.

### **5.2.2 Improved Healthcare Financing**

Rehabilitation services should receive greater support through health insurance programs and healthcare policies. Including physiotherapy coverage in health insurance schemes may reduce the financial burden on patients and families.

### **5.2.3 Increased Public Awareness**

Public education programs should be developed to improve understanding of stroke rehabilitation and the role of physical therapy. Patients and caregivers should receive information about the importance of early and continuous rehabilitation after stroke.

### **5.2.4 Strengthening Physiotherapy Workforce**

Investment should be made in the education, training, and employment of physiotherapists. Increasing the number of qualified professionals will improve the availability and quality of rehabilitation services

### **5.2.5 Integration of Physiotherapy into Primary Healthcare**

Physical therapy services should be integrated into primary healthcare systems to ensure early referral and easier access to rehabilitation, particularly for individuals living outside major cities.

### **5.2.6 Promotion of Research in Rehabilitation Sciences**

More research should be encouraged in areas such as:

- Stroke rehabilitation outcomes in Nigeria
- Cost effective physiotherapy approaches
- Tele rehabilitation solutions
- Community based rehabilitation programs

More evidence from local research will help develop rehabilitation strategies that address Nigeria's specific healthcare needs.

## **6. Limitations of the study**

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This review has some limitations. Since it is based on existing literature, it does not include direct assessment of stroke survivors or healthcare providers. Additionally, differences in healthcare systems, study populations, and rehabilitation approaches among reviewed studies may affect the generalization of findings. Future studies involving Nigerian stroke survivors and rehabilitation professionals are recommended to provide more detailed information about local experiences and challenges.

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