



Study of the performance of activities of daily living (ADLs) by patients with stroke sequelae (Cerebrovascular Accident)

Estudo da realização das atividades de vida diária (AVDs) por pacientes com sequelas de AVC (Acidente Vascular Cerebral)

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ABSTRACT

Introduction: The study of activities of daily living (ADL) in patients with post-stroke sequelae is of great relevance due to the impact that these sequelae have on functional independence and quality of life in these individuals. **Objective:** The objective of this study is to examine recent studies on daily activities in patients with sequelae of stroke in order to understand the challenges they face and identify therapeutic interventions and rehabilitation strategies that can promote improvement in their conditions. **Methodology:** The adopted methodology involved a systematic search of the literature in the electronic databases PubMed and Scopus. Keywords related to stroke, daily activities, rehabilitation, and quality of life were used. Inclusion criteria were established to select studies that specifically addressed daily activities in patients with sequelae of stroke and reported therapeutic interventions and rehabilitation strategies. **Result:** The literature review revealed that the most affected daily activities in patients with sequelae of stroke are personal independence, mobility, and communication. These patients face significant challenges in walking, lifting objects, and performing basic self-care tasks, which compromises their autonomy and quality of life. **Conclusion:** The literature review highlights the importance of understanding the difficulties faced by patients with sequelae of stroke in their daily activities. It also emphasizes the need for appropriate therapeutic interventions and a patient-centered approach, where healthcare professionals and caregivers work together.

Keywords: Stroke, Daily activities, Mobility, Stroke sequelae.



1 INTRODUCTION

Stroke is a serious condition that causes damage to the brain and is one of the leading causes of disability worldwide. Stroke survivors often face a series of challenges and sequelae that significantly affect their daily activities and functional independence. The most frequent sequelae of stroke can include mobility impairment, muscle weakness, balance and coordination problems, speech and language difficulties, cognitive disorders, sensory alterations, among others. These sequelae can have a significant impact on patients' activities of daily living.

Activities of daily living (ADLs) refer to a variety of essential tasks and personal care that we carry out on a daily basis to satisfy our basic needs and maintain our health and well-being. These activities include tasks such as bathing, dressing, feeding, personal hygiene, toileting, household chores and self-care. Understanding the impact of these sequelae on patients' daily activities is fundamental to targeting therapeutic intervention effectively.

Rehabilitation plays a crucial role in the recovery of these patients, and physical, occupational and speech therapies are often used to improve mobility, strengthen muscles, improve coordination and help speech and language recovery.

In addition to traditional therapies, environmental adaptations and the use of assistive devices can be implemented to facilitate the performance of daily activities and promote patient independence. These adaptations can involve modifying the home environment, using adapted utensils and tools, using orthoses or prostheses, among other strategies.

In this literature review, the main objective is to examine the most recent studies on activities of daily living in patients with stroke sequelae, focusing on the difficulties encountered and the therapeutic interventions available. By analyzing the limitations and challenges faced by these patients in their daily activities, we can identify therapeutic approaches and rehabilitation practices aimed at restoring functionality and improving autonomy. Through this in-depth understanding, we hope to help improve the quality of life of stroke survivors and promote a more effective recovery.

2 THEORETICAL BACKGROUND

Stroke is a serious medical condition that occurs when the blood supply to a part of the brain is interrupted or reduced, resulting in damage to brain tissue. There are two main types of stroke: ischemic and hemorrhagic. Hemorrhagic stroke occurs when a blood vessel ruptures, resulting in bleeding in the brain. In ischemic stroke, blood flow is blocked due to a clot or



narrowing of the arteries, depriving brain cells of oxygen and essential nutrients (GAGLIARDI, 2009).

According to Cabral (2009), stroke is a medical condition that affects more women than men worldwide, especially in low- and middle-income countries. According to the same study, advanced age and smoking are the two main risk factors for stroke, followed by high blood pressure, high cholesterol and diabetes (CABRAL, 2009).

Stroke is a serious medical condition that affects the brain and can have significant consequences for the health and quality of life of affected individuals. However, it is important to emphasize that prevention and early treatment of stroke play a crucial role in reducing the risk of complications and improving patients' prognosis (ABRAMCZUK, *et al*, 2009).

2.1 WHAT ARE ACTIVITIES OF DAILY LIVING?

Activities of daily living (ADLs) are essential tasks that we carry out on a daily basis to look after ourselves and maintain our functional independence. They encompass a variety of basic and complex activities, involving personal care, mobility and environmental management. Basic ADLs are those related to primary needs, such as eating, personal hygiene, dressing, using the toilet and basic mobility, such as getting up and lying down (MARRA *et al*, 2007).

In addition to basic ADLs, there are instrumental ADLs, which are more complex skills needed to function independently in society. This includes activities such as preparing meals, managing finances, shopping, using public transport, looking after the house and carrying out household chores. These activities are essential for daily life and for maintaining a satisfactory quality of life (CAPORICCI *et al*, 2011).

Recognizing the importance of these activities, it is essential to value and support people's ability to carry them out. This involves ensuring that they have access to adequate resources and support to overcome challenges and limitations that may arise. For example, individuals with stroke sequelae may need adaptations to the environment, assistive devices, specialized therapies, emotional support and training to strengthen their ADL skills (ANTÚNEZ, *et al*, 2018).

2.2 WHAT ARE THE MAIN CONSEQUENCES OF STROKE THAT CAN AFFECT PATIENTS' ADLS?

Stroke is a clinical condition that can affect various aspects of the patient's life, including their activities of daily living (ADLs). The sequelae of stroke vary according to the location and



extent of the brain lesion, and can affect the patient's motor, cognitive and communication skills (MONTEIRO, 2011).

The main motor sequelae that can affect patients' ADLs include hemiplegia or hemiparesis, which is the loss of strength and/or sensitivity on one side of the body. According to the Ministry of Health (2022), this sequela can affect the patient's ability to perform simple tasks such as dressing, bathing and eating, as well as interfering with the individual's mobility and independence (MINISTÉRIO DA SAÚDE, 2022).

Another sequela that can affect patients' ADLs is apraxia, which is the difficulty in performing complex movements, even if muscle strength is preserved. According to the article by Rangel *et al*, (2013), this condition can affect the patient's ability to perform activities that require manual skills, such as tying shoes, writing and using cutlery (RANGEL, *et al*, 2013).

Speech and language difficulties are also sequelae that can affect patients' ADLs. Some people who have suffered a stroke may have aphasia, which is difficulty understanding or expressing language. This can affect the ability to communicate verbally and interfere with social interactions and day-to-day communication activities (SANTOS, *et al*, 2020).

Stroke can also cause cognitive deficits, such as difficulties with attention, memory, reasoning and problem-solving. These deficits can impair the ability to plan and carry out complex tasks, such as managing finances, following instructions or dealing with everyday situations (BALDIN, 2009).

2.3 MAIN ASSESSMENT TOOLS USED TO EVALUATE THE DAILY LIFE OF PATIENTS WITH STROKE SEQUELAE

There are various instruments used to assess activities of daily living (ADLs) in patients with stroke sequelae. These include:

- Barthel Index (BI): The BI is one of the most widely used instruments for assessing ADLs in stroke patients. It assesses the patient's ability to perform ten basic activities of daily living, such as eating, bathing, dressing, toileting, moving around, among others. The BI is a simple, quick and easy-to-use instrument, and has been widely used in clinical studies and in clinical practice (MINOSSO *et al*, 2010).
- Lawton and Brody Index (LBI): The LBI is an instrument that assesses the patient's ability to perform instrumental activities of daily living, such as cooking, taking care of finances, shopping, using the telephone, among others. The ILB is widely used in



clinical practice to assess the patient's functional independence in relation to IADLs (SANAR, 2021)

- Modified Rankin Scale (MRS): The MRS is a scale that assesses the degree of disability in stroke patients. It consists of seven levels, ranging from no symptoms to death. The MRS is used to assess the patient's ability to perform ADLs, as well as their ability to return to social and professional activities (BRITO *et al*, 2013).

These are some of the instruments used to assess ADLs in patients with stroke sequelae. It is important to note that the choice of assessment tool should be based on the individual characteristics and needs of the patient, as well as the skills and knowledge of the professional responsible for the assessment (ALBUQUERQUE, *et al*, 2011).

2.4 THE ROLE OF THE FAMILY AND CAREGIVERS IN THE REHABILITATION OF DAILY LIFE IN PATIENTS WITH STROKE SEQUELAE

The rehabilitation of activities of daily living in patients with stroke sequelae is a complex task that requires the active participation of the family and caregivers. The family and caregivers play a fundamental role in the rehabilitation process, providing emotional and physical support to the patient, helping them to carry out their daily activities, ensuring their safety and helping them to adhere to the prescribed treatment (EUZEBIO *et al*, 2006).

Recovery after a stroke can be challenging and frustrating for both the patient and their loved ones. The constant presence of family and caregivers, offering encouragement, psychological support and understanding, can contribute to patients' motivation and self-esteem. Through words of encouragement, displays of affection and positive stimulation, family and caregivers help to promote a positive and resilient mental attitude in patients (REIS, *et al*, 2017).

According to Marinho *et al* (2020), an article published in the Multidisciplinary Scientific Journal Núcleo do Conhecimento, the participation of family and caregivers in the rehabilitation of stroke patients' activities of daily living can be even more effective when they are trained in specific care strategies, such as the use of assistive technologies, guidance on safe transfers, guidance on proper positioning and guided physical exercise (MARINHO *et al*, 2020).

Therefore, family and caregivers play a crucial role in the rehabilitation of ADLs in patients with stroke sequelae. Their emotional support, adaptation of the home environment and practical help contribute to promoting patients' independence, safety and quality of life. Working together between health professionals, family and caregivers is essential to provide the necessary support and achieve better results in ADL rehabilitation (BOCCHI, 2004).



2.5 MAIN CHALLENGES IN THE REHABILITATION OF DAILY LIFE IN PATIENTS WITH STROKE SEQUELAE

The rehabilitation of activities of daily living (ADLs) in patients with stroke sequelae is a complex and challenging process. After a stroke, patients can face significant difficulties in performing basic daily tasks such as dressing, eating, getting around and communicating. In this context, it is important to understand and address the main challenges faced in ADL rehabilitation in order to develop effective strategies to overcome them and promote a more functional and satisfying daily life for these individuals (MARQUES, *et al*, 2019).

- **Motor impairments:** Many patients with stroke sequelae have impaired motor function, such as muscle weakness, loss of coordination and balance difficulties. These impairments make it difficult to carry out basic activities such as dressing, eating and personal hygiene (PIASSAROLI *et al*, 2012).
- **Communication difficulties:** Stroke can affect speech and language, hindering the ability to express oneself and communicate with others. This can interfere with daily activities, such as making requests, talking on the phone or communicating with caregivers (OLIVEIRA *et al*, 2011).
- **Cognitive impairment:** Some people who have suffered a stroke may have cognitive deficits, such as problems with memory, attention, reasoning and problem-solving. These difficulties can affect the ability to plan and organize daily activities, as well as compromising independence and safety (COÊLHO, 2018).
- **Depression and anxiety:** It is common for patients with stroke sequelae to face emotional challenges such as depression and anxiety. These conditions can affect motivation, energy and willingness to engage in daily activities, making the rehabilitation of daily life even more challenging (CALIL *et al*, 2007).

2.6 IMPORTANCE OF PHYSIOTHERAPY IN POST-STROKE REHABILITATION

Physiotherapy plays a key role in post-stroke rehabilitation, with the aim of helping patients regain the mobility, strength and functional skills needed to carry out activities of daily living. According to Silva *et al*, (2018), Physiotherapy can help improve balance, coordination, gait, range of motion and muscle strength in patients after a stroke. In addition, physiotherapy can help prevent secondary complications, such as the formation of deep vein thrombosis and aspiration pneumonia (SILVA *et al*, 2018).



Physiotherapy treatment is individualized and adapted to the specific needs of each patient, taking into account the degree of impairment, functional limitations and rehabilitation goals. The techniques used may include therapeutic exercises, gait training, functional electrical stimulation, aquatic therapy, tissue mobilization and postural guidance. Physiotherapy also plays an important role in guiding caregivers and adapting the home environment to promote patient safety and independence (BOAVENTURA, 2009).

Teamwork between physiotherapists, doctors and other health professionals is essential to maximize the results of post-stroke rehabilitation and provide patients with a better quality of life (RIBEIRO *et al*, 2012).

2.7 PHYSIOTHERAPY TECHNIQUES USED IN POST-STROKE REHABILITATION

In post-stroke rehabilitation, physiotherapy uses various techniques and approaches to help patients recover. Some examples of these techniques include:

- Therapeutic exercises: Specific exercises are performed to strengthen the affected muscles, improve range of motion and coordination. These exercises can include upper and lower limb movements, stretching, muscle strengthening and balance training (SOUZA, 2007).
- Gait training: This is a technique that aims to improve the patient's ability to walk. It can involve the use of support devices, such as walkers or canes, and include walking exercises on different surfaces and environments (CRUZ *et al*, 2016).
- Functional electrical stimulation (FES): In this technique, electrodes are placed on the skin to stimulate weakened or paralyzed muscles using controlled electrical currents. This helps to improve muscle strength, control and function (CARO *et al*, 2018).
- Postural guidance: The physiotherapist provides guidance on correct postures and proper positioning during daily activities. This aims to prevent postural complications, improve body alignment and facilitate functional movement (ARRAIS *et al*, 2016).

It is important to note that the physiotherapy techniques used in post-stroke rehabilitation vary according to the individual needs and conditions of each patient. The physiotherapist will assess the patient and draw up a personalized treatment plan aimed at maximizing functional recovery and quality of life (FERNANDES *et al*, 2009).



3 METHODOLOGICAL PROCEDURES

This literature review was conducted with the aim of analyzing and synthesizing relevant studies on daily activities in patients with stroke sequelae. The methodology adopted was based on a systematic and careful search of the available literature.

Initially, widely recognized electronic databases such as PubMed and Scopus were selected to search for scientific articles on the subject. used key terms and combinations of keywords, including "stroke", "sequelae", "daily activities", "rehabilitation" and "quality of life". The search was restricted to articles published in the last twenty years, with a focus on the English, Spanish and Portuguese languages.

The inclusion criteria adopted were as follows: studies that specifically addressed daily activities in patients with stroke sequelae, including different aspects such as mobility, personal independence, communication, eating and self-care; studies that reported therapeutic interventions and rehabilitation strategies aimed at improving patients' daily activities; and studies available in full and with access to the full text.

From the initial search, the titles and abstracts of the articles were examined to identify their relevance in relation to the objective of the review. The selected articles were read in full for a more in-depth analysis and extraction of relevant data. Review studies, original articles, case studies and clinical trials were considered.

Data analysis consisted of organizing and synthesizing the relevant information found in the selected studies. Trends, similarities and divergences in the results and therapeutic interventions reported were identified.

Finally, the findings have been compiled and presented clearly and concisely in this literature review in order to provide an overview of daily activities in patients with stroke sequelae and the relevant therapeutic interventions.

4 RESULTS

The results of the literature review revealed that mobility and communication are the most severely affected daily activities in patients with stroke sequelae. These individuals face significant challenges in walking, moving around and performing basic locomotion tasks. In addition, they find it difficult to communicate effectively, which can have a negative impact on both their functional independence and their quality of life (MARQUES *et al*, 2019).

In the context of rehabilitation, the active participation of the family plays a fundamental role in the recovery of these patients. The family plays an important role in providing emotional



support, encouragement and involvement in the rehabilitation process. Their presence and support are essential in promoting the patient's motivation and engagement in daily activities. In addition, the family plays a crucial role in adapting the home environment, making it safe, accessible and adapted to the patient's needs. These environmental modifications can facilitate the performance of daily activities and promote the patient's independence, thus contributing to their effective rehabilitation (BOCCHI, 2004).

Physiotherapists also play an extremely important role in the rehabilitation of patients with stroke sequelae. Through specialized therapeutic interventions, the physiotherapist aims to improve mobility, strengthen the affected muscles and promote the functional recovery of patients. In addition, the physiotherapist plays the role of educator by providing guidance and training to the family. This approach aims to empower family members so that they can continue with care and rehabilitation strategies at home, thus ensuring that the gains achieved during treatment are maintained (COÊLHO, 2018).

In addition, the mental health of patients after a stroke is also a major concern. Adapting to a new reality with physical and functional limitations can lead to emotional problems, such as the aforementioned depression and anxiety. It is crucial that health professionals, including psychologists and psychiatrists, are involved in the rehabilitation process, providing psychotherapeutic support if necessary and assessing the need for drug intervention (CALIL *et al*, 2007).

The consequences of a stroke can be devastating for patients, profoundly affecting their quality of life and functional independence. In addition to the issues already mentioned, such as mobility and communication, it is worth noting that the impacts of stroke extend to other spheres of individuals' lives, such as cognition and mental health (MONTEIRO, 2011).

Cognition can also be impaired in patients with stroke sequelae. Difficulties with memory, attention and reasoning are common, which can directly influence the patient's ability to perform everyday tasks. Cognitive rehabilitation, often carried out by professionals such as neuropsychologists, plays an important role in recovering these compromised cognitive abilities (ANTUNEZ *et al*, 2014).

With regard to the social context, it is important to recognize that the stigma associated with physical disabilities and stroke sequelae can lead to social exclusion and lower self-esteem among patients. Public awareness and education programs about the challenges faced by those with stroke sequelae can help reduce this stigma and promote inclusion (MARINHO *et al*, 2020).



In addition, it is essential to consider the particularities of each patient. Each case of stroke is unique, and rehabilitation approaches must be tailored to individual needs. This requires a multidisciplinary team, involving doctors, physiotherapists, occupational therapists, speech therapists, among other health professionals, working together to develop a comprehensive and personalized rehabilitation plan (RIBEIRO *et al.*, 2018).

With regard to ongoing research and development in this field, technological innovation is also playing an important role in post-stroke rehabilitation. Devices such as robotic exoskeletons, virtual reality and cognitive training applications are being explored as complementary tools to improve rehabilitation outcomes (BRITO *et al.*, 2013).

Furthermore, this study highlighted that the fight against stroke in Brazil requires coordinated and integrated actions between governments, health institutions, health professionals, civil society and patients. It is necessary to join forces to promote awareness, prevention, appropriate treatment and rehabilitation of people affected by stroke, with the aim of improving quality of life, reducing sequelae and ensuring equal access to health services throughout the country (ABRAMCZUK *et al.* 2009).

In short, the results of this literature review show that mobility and communication are the most impaired daily activities in patients with stroke sequelae. The active participation of the family, together with the specialized intervention of the physiotherapist, plays a fundamental role in the rehabilitation of these patients. By offering emotional support, adapting the home environment, implementing personalized therapeutic strategies and providing appropriate training, the family and the physiotherapist work together to improve the quality of life and promote the functional independence of these individuals throughout the rehabilitation process (ALBUQUERQUE *et al.*, 2011).

5 CONCLUSION

In summary, the investigation of daily activities in patients with stroke sequelae has revealed the intricate complexity and far-reaching impact of these sequelae on the lives of affected individuals. The challenges faced by these patients in carrying out essential mobility, self-care and communication tasks transcend physical barriers, undermining personal independence and eroding quality of life.

In this context, therapeutic interventions have emerged as key players in the rehabilitation of these patients. Physical, occupational and speech therapies play an essential role in improving



functionality and fostering autonomy, allowing patients to resume their daily activities with greater independence and satisfaction.

The synergy between health professionals and caregivers emerges as a crucial element in providing the necessary support to patients, with a view to stimulating rehabilitation and improving quality of life. A patient-centered approach, attentive to individual needs and prioritizing the goals and preferences of each individual, is the foundation for achieving positive and lasting results.

In the bigger picture, the need for continuous research and innovation in the field of post-stroke rehabilitation is undeniable. Emerging technologies, such as virtual reality and neurostimulation, present exciting promises to intensify the effectiveness of traditional interventions, opening up new horizons for recovery and improving patients' quality of life.

Finally, this review highlights the importance of gaining an in-depth understanding of the vicissitudes faced by patients with stroke sequelae in their daily activities, emphasizing the pressing need for effective therapeutic interventions. By adopting a multidisciplinary, patient-focused approach, there is a tangible possibility of improving quality of life and promoting a more complete and satisfactory recovery for these resilient individuals.



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