SPECIFICS OF FAMILY DOCTORS' ACTIVITIES ON THE WAY TO THE SUCCESS OF COORDINATED REHABILITATION

Abstract. Our article focuses on the importance of timely and effective rehabilitation in the context of the global problem of stroke and its impact on health and society. Given that stroke is one of the leading causes of disability and mortality worldwide, our research aims to identify how rehabilitation processes can be improved through care coordination that encompasses various aspects of treatment and support for patients and their families.

The study, conducted within the framework of the GAJU 066/2022/S project, used a qualitative methodology to analyze the experience of family physicians in working with patients after stroke. The main method of data collection was semi-structured interviews. A total of 89 GPs participated in the study, divided into two groups: GPs who manage patients included in the project (7 experts in total) and 82 GPs from across the country who were willing to participate in the study. Participants were provided with detailed information about the study objectives and assured of anonymity. The interviews were analyzed using the ATLAS.ti software using open, axial, and selective coding.

The findings emphasize the importance of coordinated rehabilitation and interprofessional collaboration to maximize recovery of function after stroke. Critical factors include effective communication and interaction between team members, psychological support, and active family involvement in the rehabilitation
process. However, the study also identified challenges, such as limited access to rehabilitation services and lack of awareness of available resources and programs among patients and their families. Coordinated rehabilitation involving interprofessional cooperation is key to successful recovery of patients after stroke. Involving and supporting the patient's family and improving accessibility and awareness of rehabilitation services is an important aspect. The development of integrated care models is recommended to ensure more effective and patient-centered care.

**Keywords:** stroke, coordinated rehabilitation, interprofessional cooperation, recovery, family involvement, family doctors.

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**СПЕЦИФІКА ДІЯЛЬНОСТІ СІМЕЙНИХ ЛІКАРІВ НА ШЛЯХУ ДО УСПІХУ КООРДИНОВАНОЇ РЕАБІЛІТАЦІЇ**

**Анотація.** Наша стаття зосереджена на значенні своєчасної та ефективної реабілітації в контексті глобальної проблеми інсульту та його впливу на здоров'я і суспільство. З'ясовано, що оскільки інсульт є однією з головних причин інвалідності та смертності у всьому світі, наше дослідження спрямоване на те, щоб визначити, як можна поліпшити процеси реабілітації за допомогою координації допомоги, яка охоплює різні аспекти лікування та підтримки пацієнтів і їхніх сімей.

Дослідження, проведене у рамках проекту GAJU 066/2022/S, використовувало якісну методологію для аналізу досвіду сімейних лікарів при праці з пацієнтами після інсульту. Основним методом збору даних були напівструктуровані інтерв'ю. Загалом у дослідженні взяли участь 89 лікарів.
загальної практики, які були поділені на дві групи: лікарі загальної практики, які ведуть пацієнтів, включених у проект (загалом 7 експертів), та 82 лікарі загальної практики з усієї країни, які виявили бажання взяти участь у дослідженні. Учасникам було надано детальну інформацію про цілі дослідження та забезпечено анонімність. Інтерв'ю були проаналізовані за допомогою програмного забезпечення ATLAS.ti з використанням відкритого, осьового та селективного кодування.

Результати підкреслюють важливість координованої реабілітації та міжпрофесійної співпраці для максимального відновлення функцій після інсульту. Критичними факторами є ефективна комунікація та взаємодія між членами команди, психологічна підтримка та активна участь сім'ї у процесі реабілітації. Однак, дослідження також виявило проблеми, такі як обмежений доступ до реабілітаційних послуг та недостатня обізнаність пацієнтів та їхніх сімей про доступні ресурси та програми. Координована реабілітація з залученням міжпрофесійної співпраці є ключем до успішного відновлення пацієнтів після інсульту. Важливим аспектом є залучення та підтримка сім'ї пацієнта та покращення доступності та обізнаності про реабілітаційні послуги. Для забезпечення більш ефективної та орієнтованої на пацієнта допомоги рекомендується розробка інтегрованих моделей догляду.

Ключові слова: інсульт, координована реабілітація, міжпрофесійна співпраця, відновлення, залучення сім'ї, сімейні лікарі.

Introduction. Stroke constitutes a significant and escalating global health challenge. Murphy and Werring [12, p. 565] identify it as the leading cause of acquired disability in adults and the second leading cause of mortality in middle- and high-income countries. A rapid and effective response to this acute health event is critical, underscoring the "time is brain" principle [18]. This principle emphasizes the necessity of immediate assessment and treatment of stroke, as every minute of delay can result in further deterioration of brain function.

A pivotal aspect of post-stroke care is coordinated rehabilitation, which entails an interprofessional approach and is crucial for optimizing patient recovery. Coordinated rehabilitation facilitates patients in acquiring new skills, adapting to altered life circumstances, and regaining independence and self-sufficiency. Effective rehabilitation also aids patients in embracing change and finding joy and meaning in their lives.

Problem statement. Presently, the impact of coordinated rehabilitation on the reintegration of patients after cerebrovascular accidents (CVAs) into everyday life remains insufficiently explored and documented. Post-discharge, these patients require appropriate monitoring, primarily due to the absence of standardized procedures and unified evidence. Murphy and Werring [12, p. 563-564] highlight the inadequacy of monitoring, which brings about economic disadvantages and adversely affects the quality of life of discharged patients.
Rehabilitation departments and the professionals within them could play a crucial coordinating role, yet a health insurance code is lacking to ensure funding for this activity. Additionally, there is a need for comprehensive economic analyses comparing the costs of treatment with and without monitoring. The dearth of data complicates the effective implementation of coordinated rehabilitation across the Czech Republic. This leads to its reliance on funding from partial, sometimes peripheral, research projects with limited patient cohorts and varied clinical presentations following CVAs.

**Analysis of recent research and publications.** According to the Methodological Guideline "Care for Patients with Acute Stroke 2021" from the Ministry of Health of the Czech Republic, stroke is defined as a sudden brain disease caused by a disruption of blood supply to the brain. The prognosis of this disease is invariably uncertain and contingent upon the extent of brain tissue damage. Approximately 40% of patients succumb within one year of suffering a stroke [7]. Sacco et al. emphasize that this pathology is a significant cause of disability and death worldwide [14].

In the Czech Republic, stroke ranked second in mortality rates in 2020, with 74.77 deaths per 100,000 population [5]. Despite decreasing stroke mortality rates, the prevalence of individuals with sequelae from CVAs is rising due to aging and population growth [6]. Stroke remains one of the leading causes of death and disability globally. Since 2004, the WHO has designated stroke as a global epidemic.

**The purpose of the article** is to evaluate the effectiveness and coordination of rehabilitation services for stroke patients from the perspective of family physicians to identify key challenges and opportunities for improvement.

**Presentation of the main research material.** The economic burden associated with stroke is substantial. The World Stroke Organization (WSO) estimates global costs of stroke at 721 billion USD, representing 0.66% of global GDP [10, p. 808]. A significant portion of this burden (86% of deaths and 89% of DALYs) falls on low- and middle-income countries. Research by Angerová et al. indicates that the average hospitalization costs for stroke patients reach 114,489 CZK, with a daily average of 5,103 CZK, with costs for immobilized patients being 2.4 times higher than for self-sufficient patients [2, p. 379].

Rehabilitation post-stroke encompasses physiotherapy, occupational therapy, and speech therapy, which are critical components in restoring patients' functional abilities. According to Lee and Kim, these therapeutic methods can effectively enhance affected individuals' physical and cognitive skills, enabling them to regain independence and improve their overall quality of life [8].

Coordinated rehabilitation, involving interprofessional collaboration, is essential for reducing disability post-stroke. As Švestková asserts, coordinated rehabilitation is a systematic and comprehensive activity that maximally mitigates the direct consequences of long-term adverse health conditions that limit or prevent social reintegration [17, p. 23-24].
Research projects, such as the initiative funded by the University of South Bohemia in České Budějovice titled "Coordinated Rehabilitation in People after Stroke and its Continuity after Hospital Discharge" (GAJU 066/2022/S), are vital for acquiring data and developing standardized procedures that could be implemented at the national level. These initiatives can potentially enhance the quality of life for post-stroke patients and reduce the economic costs associated with their care.

This research delved into integrating coordinated care and rehabilitation in the continuum of care for stroke patients, spanning from pre-discharge to post-hospitalization phases. It specifically examined the roles of the patient, their family, and healthcare specialists in coordinated rehabilitation efforts, particularly emphasizing the patient's needs. Conducted under the GAJU 066/2022/S project, the ethics committee approved the study (Approval No: 6/2022).

**Research Approach:** Employing a qualitative methodology, the study centered on the firsthand experiences of patients post cerebrovascular accidents (CVAs)/strokes. Semi-structured interviews constituted the primary data collection method, facilitating in-depth insights from the caregivers.

**Participants:** Initially, a total of 89 general practitioners participated in the research, who were divided into two groups: general practitioners responsible for patients enrolled in the project (a total of 7 experts) and 82 general practitioners from across the Czech Republic who were willing to participate in the research. Before their involvement, all participants received detailed information about the study's objectives. To ensure confidentiality, interviews were anonymized through coding.

**Data Collection:** Semi-structured interviews aimed to elicit information on caregivers' demographics and their perspectives on coordinated rehabilitation services. The interview framework provided a guided structure while allowing participants the freedom to express their experiences openly.

**Data Analysis:** Analysis of interview data was conducted using ATLAS.ti software. Employing various coding techniques such as open, axial, and selective coding, the analysis aimed to capture the depth and nuances of caregivers' narratives, thereby revealing emerging themes and patterns.

**Research Limitations:** It is crucial to recognize the inherent limitations of qualitative research. The generalization of findings is not feasible due to their qualitative nature. Additionally, the subjective element introduced by combining insights from multiple interviews was mitigated through rigorous coding discussions with field experts, minimizing individual biases' influence.

Despite the severity of stroke, patient monitoring during the first year post-stroke in primary care is significantly limited. Primary care is expected to provide prevention, diagnosis, treatment, health assessment, and counseling. It also ensures coordination and linkage with other healthcare providers to ensure holistic patient care (Basic Information for Health Care Utilization, n.d.). The complexity of medical practice may lead to severe conditions such as stroke receiving less attention.
than seemingly equally important issues [13]. Eighty-nine general practitioners participated in the research, divided into two groups: general practitioners responsible for patients enrolled in the project (a total of 7 experts) and 82 general practitioners from across the Czech Republic willing to participate. Distance Limitations During interviews with the first group, it was found that some practitioners (1 GP, 4 GP) do not have distance limits for patient visits. In comparison, others (2 GP, 3 GP, 5 GP, 6 GP, 7 GP) mentioned limits of up to 20 kilometers. The second group of informants confirmed the existence of travel limits "within 20 minutes" (14 GP, 83 GP), set according to contracts with health insurance companies (49 GP, 18 GP). Some respondents emphasized the absence of limits (11 GP, 87 GP), stating that home visits are mandatory for general practitioners' work under Act No. 372/2011 Coll. [22].

Barriers to care after stroke. Practitioners have identified several problems faced by patients after CVAs. The main categories include:
1. Lack of social security
2. Lack of family cooperation
3. Impaired self-sufficiency
4. Speech disorders
5. Mobility disorders
6. Psychological disorders
7. Cognitive disorders
8. Lack of follow-up care
9. Availability of rehabilitation

Thorough follow-up of patients after stroke is essential to identify physical, cognitive, and neuropsychiatric complications that are significant contributors to disability and reduced quality of life [15, p. 61].

Collaboration between general practitioners and other professionals is standard through telephone and email consultation (3 GP). Professionals in the latter group reported collaboration with neurologists, speech therapists, physiotherapists, internists, and home care services (39 GP, 64 GP, 79 GP). General practitioners are often the first point of contact with the health system, highlighting their crucial role in post-CMP care [20, p. 120; 15, p. 62].

The analysis of the responses identified that the main limitations were a lack of services and specialists, time constraints, and limitations from insurance companies. Practitioners emphasized the need for better public awareness and accessibility to rehabilitation (8 GP, 13 GP, 16 GP).

In conclusion, practitioners recommend a proactive approach by patients, seeking information, continuing rehabilitation, and patience. Communication with the patient's family and involvement in the treatment and rehabilitation is also essential [16].

One of the main themes in the interviews was the lack of social security for patients after a stroke. Practitioners stated that the lack of financial support and social
services can make recovery difficult. "Lack of social security - both organisationally and materially" (1 GP).

Another significant problem was the non-cooperation of the patient's family. Family members often need more information or are not sufficiently involved in the treatment process. "The patient's mobility, cooperation, family support, barriers at home, willingness to cooperate and, on the medical side, long waiting times and overload of specialists are limitations" (31 GP).

CVAs often leads to impaired self-sufficiency, making it difficult for patients to carry out normal daily activities. "Difficulty with self-care in the home environment, acceptance of new situations, loss of self-sufficiency and workability, limited mobility and stability, limited ability to communicate, and inability to navigate new medications" (5 GP).

Speech disorders are another common consequence of CMP that requires specialized care, often from a speech therapist. "Unavailability of outpatient neurological care, lack of comprehensive centers with speech therapists, occupational therapists, physiotherapists" (1 GP).

Mobility disorders are one of the most common and incapacitating consequences of stroke. "New guidelines and hygiene rules stipulate that GP surgeries are barrier-free - i.e., a two-crew transport service or family can be used to transport a patient, even fully recumbent, anywhere... but we often prefer to go to the patient's place of residence to visit the patient's flat - it is quicker, cheaper and easier than reuniting the family and transporting the patient - whether via the transfer service" (16 GP).

Stroke often causes psychological disorders, including depression and anxiety, which require professional care. "Minimal options given my expertise. Lack of rehabilitation staff who can provide physiotherapy in a home setting" (13 GP).

CVAs can also lead to various cognitive impairments that make it difficult for patients to return to everyday life. "Very few options, basically I do not even know what is available at RHB and other centers for these patients, I am time constrained to do anything with the patient other than refer them somewhere" (27 GP).

Practitioners highlighted that inadequate aftercare is one of the main problems faced by patients following a stroke. "Lack of rehabilitation after CVAs, lack of education of the patient and family, investigation of the cause of CVAs – in an outpatient setting - is often a lie, and the etiology of CVAs is not fully investigated, the hospital leaves it to the outpatient component - i.e., the GP, family and service" (3 GP).

One of the most frequently cited issues was the availability of rehabilitation. "Lack of social security – both organisationally and materially" (1 GP). "Unavailability of outpatient neurological care, lack of comprehensive centers with speech therapists, occupational therapists, physiotherapists" (1 GP). "Unavailability of home rehabilitation – direct payment from the client, which is economically unaffordable for most of my patients" (8 GP).
Collaboration and coordination between professionals are crucial for successfully rehabilitating patients after a stroke. "No problems, I coordinate the services provided, refer to specialists, recommend further follow-up" (3 GP). "We refer to a rehabilitation institute based on specialist referral, otherwise mostly with home care for rehabilitation at home" (6 GP).

Practitioners also emphasized that this cooperation is often in the form of "telephone and email consultation" (3 GP), also by referral: "By referral from the hospital or rehabilitation department. We continue home rehabilitation to restore the patient's self-sufficiency - verticalization, common things within self-care - dressing, eating, toileting" (6 GP).

The results point to several key issues that affect the delivery of care to patients after stroke. The main constraints are lack of services and specialists, time constraints, and restrictions from insurance companies. Practitioners emphasized the need for better public awareness and access to rehabilitation. Close monitoring of patients after stroke is essential to identify physical, cognitive and neuropsychiatric complications that are major contributors to disability and reduced quality of life. Understanding these factors and addressing them can greatly improve the care of patients after stroke.

CVAs is a severe medical condition that requires comprehensive rehabilitation coordination to restore physical, cognitive, and social function. Our study provided important insights into the challenges and opportunities associated with rehabilitation coordination, consistent with previous research [4, p. 103-104; 1, p. 273; 3, p. 199]. One of the key findings is the need for effective interprofessional collaboration between different healthcare professionals, which is essential for providing comprehensive and continuous care.

As Aquino et al. [3] and Lewinter & Mikkelsen [9] noted, our study highlights gaps in the availability and coordination of rehabilitation services. These gaps can cause significant difficulties in the recovery process. We highlight the need to improve systems for providing information, support to families, and access to rehabilitation services. Interestingly, our study also identified new avenues for promoting the exchange of experiences and education between patients and their families, which could be a potential area for future innovation and improvement in stroke care.

Ongoing research highlights the need to consider its limitations, particularly regarding stakeholder representation. Although valuable data was obtained, there is a significant gap in the perspectives of patients and their families. Future research should prioritize expanding the sample to provide a more comprehensive understanding of all stakeholders involved. This highlights the need for a more inclusive research approach. In addition, future research should explore the potential for integrating new technologies and digital tools that can improve access to rehabilitation services and promote greater patient engagement in the recovery process [19].
It is also important to emphasize that rehabilitation coordination requires close collaboration between healthcare professionals and the active participation of patients and their families. Research shows that family and social environment support is essential for patients' recovery from stroke. Future strategies should emphasize strengthening this support and ensuring that families are adequately informed and equipped to provide this care.

In addition, the study found differences in perceptions and experiences between healthcare professionals and patients and their families, highlighting the need for improved communication and understanding. This mismatch can lead to misunderstandings and frustrations, making effective rehabilitation difficult. Therefore, future interventions should include strategies to improve communication and understanding between different parties involved in the rehabilitation process.

Finally, our study highlights the importance of continuing education for healthcare professionals on rehabilitation coordination. Due to new technologies and treatment approaches, professionals must have up-to-date knowledge and skills to provide the best possible care to patients after a stroke. This should include regular training, interdisciplinary seminars, and exchanging best practices among professionals.

In summary, our findings confirm that the coordination of stroke rehabilitation is a complex process that requires close collaboration, an interdisciplinary approach, and the active participation of patients and their families. Future research and practice should continue to look for innovative solutions to overcome current challenges and optimize rehabilitation care for stroke patients.

**Conclusions.** Based on the data obtained, the following conclusions can be drawn:

1. Rehabilitation coordination is an integral part of the effective recovery of patients after cerebral incidents. An interdisciplinary approach involving a wide range of specialists ensures comprehensive care and optimal rehabilitation outcomes.

2. Lack of accessibility of rehabilitation services, especially in the home, and lack of awareness of available resources and programs among patients and their families is a serious problem that needs to be addressed immediately to ensure continuity and effectiveness of care after discharge from the hospital.

3. It is essential to ensure coordinated and effective patient-centered care and interdisciplinary cooperation and communication between all participants in the rehabilitation process, including healthcare professionals, patients, and their families.

**Prospects for further research in this area** – reviewing the standards and challenges of wartime in the field of family physician practice.
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Література:


