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The role of family in mobilization exercises for post-stroke patients in Southeast Asia: a scoping review

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ABSTRACT

Despite facing barriers such as a lack of information, healthcare support, and physical and emotional burdens, families have an important role in supporting stroke patients' mobilization through assistance in physical exercise, changes in body position, and activities of daily living. Mobilization exercises in stroke patients have been reviewed, but the role of the family in the exercise process has not been evaluated. Families are the primary caregivers supporting post-stroke patients over time. We aimed to identify literature related to mobilization exercises for post-stroke patients, including types, family roles, and barriers faced by families. We used the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Review framework to search PubMed, ScienceDirect, Clinical Key, Global Index Medicus, EBSCO, Scopus, ProQuest, Cochrane Library, Google Scholar, and Garuda from inception to May 1, 2023. Fourteen relevant primary studies were evaluated using inductive thematic analysis. The findings indicate that mobilization exercises include range of motion, ambulation, and daily activities. Families play a crucial role through active participation, motivation, and support. The main barriers are a limited understanding and a lack of information. These findings highlight the crucial role of families in post-stroke mobilization despite challenges. Enhancing family education and support may improve patient outcomes. However, further review is required to assess the effectiveness of family intervention to improve mobilization exercises. Therefore, a systematic review on this topic is recommended.

Introduction

Stroke is a non-communicable disease that is the second leading cause of death worldwide (1). More than 62% of strokes occur between the ages of 49 and 70, and 34% of these individuals experience death (2). The most significant increase in the incidence, morbidity, and mortality of ischemic stroke is highest at the regional level in areas such as North Africa, the Middle East, and Southeast Asia (SEA) (3), highlighting the importance of stroke prevention.

As many as 80% of post-stroke patients will experience hemiplegia or hemiparesis, resulting in impaired mobilization (4). In addition, limb weakness due to stroke can limit daily activities, making eating, dressing, and moving difficult (5).

Stroke sufferers may feel useless due to the lack of physical activity and inability to perform self-care, defined as a series of actions performed to maintain or promote health (6). As a consequence, post-stroke paralysis can burden families due to the required care (7,8). Thus, rehabilitation programs have an important role in improving activities of daily living in stroke patients. Appropriate rehabilitation programs can prevent neurological, structural, and functional disabilities after stroke, is mobilization, which aims to gradually increase the physical activity, strength, balance, coordination, and motor function of patients with a multidisciplinary medical team, including neurologists, rehabilitation physicians, nurses, physiotherapists, occupational therapists, social work assistants, psychologists, and patient families (9). Families assist with daily living activities and provide psychosocial support, which not only enhances patients' cognitive function but also contributes to improved outcomes and greater independence (10). Therefore, the family must play a role in the mobility exercise of stroke patients. Mobilization exercises prevent complications due to immobility, such as decubitus ulcers, joint stiffness, and respiratory problems. Stroke rehabilitation is crucial for patient recovery, with family support ensuring regular mobilization exercises (11). Their role in mobilization exercises is vital and cannot be ignored.

Few review articles explore the family's role in supporting mobilization exercises for post-stroke patients. One review discussed the contribution of nurses in stroke rehabilitation and showed that they maximize patient independence in performing daily activities (12). However, these two reviews do not discuss the role of the family in mobilization exercises in post-stroke patients. One study describes the diversity of support systems among family caregivers of stroke sufferers in Asia (13). However, it did not explain the role of families in mobilization exercises. A review study conducted in China suggests that family caregiving is not always perceived positively, has various needs, and can be a burden for caregivers who provide care due to extrinsic motivation (14). However, this review does not explain the role of family in mobilization exercises in post-stroke patients.

Therefore, we aim to explain the role of family for mobilization exercises with post-stroke patients, especially in SEA countries that include Brunei, Malaysia, Indonesia, Thailand, Singapore, the Philippines, Vietnam, Laos, Cambodia, Myanmar, and East Timor. By identifying the types of mobilization, barriers, and the role of family in the rehabilitation and mobilization process, we can better understand the challenges and support systems involved. These findings will provide valuable insights for designing future research and developing effective interventions to improve family participation in post-stroke rehabilitation.

Methods

This study protocol is registered in the Open Science Framework (osf.io/8e5hk). The Optional Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews were used to optimize reporting. We used the five stages to perform this review based on guidance for conducting scoping reviews (15).

Stage 1: Research questions

What role do families play in mobilization exercises for post-stroke patients in SEA?

SEA countries include Brunei, Malaysia, Indonesia, Thailand, Singapore, the Philippines, Vietnam, Laos, Cambodia, Myanmar, and East Timor.

Stage 2: Relevant studies and search terms

This review explores family participation in mobilization exercises performed by post-stroke patients, based on evidence from the scientific literature on SEA. Terms searched were: post-stroke or stroke or cerebrovascular accident and family role or family participation or family and mobility exercises or movement routines or activity drills.

An initial search retrieved titles, abstracts, and content to identify terms and keywords, including alternative words or synonyms, across languages and cultures.

The inclusion and exclusion criteria for the review were based on the context, concept, and population PCC model (Table 1). Studies were included if they focused on stroke patients, utilized qualitative or quantitative primary data, and were published in English or Bahasa Indonesia between 2014 and 2023. Articles that did not align with these criteria, such as those focusing on non-stroke patients or published in other languages, were excluded. This approach ensures a focused analysis relevant to the SEA population while acknowledging the limitation that studies from different linguistic contexts may not be fully represented.

Table 1. Article eligibility criteria

Criterion	Element
Population	Post-stroke
Concept	The role of family in mobility exercises
Context	Research conducted in SEA, a sub-region of Asia consisting of eleven countries: Brunei, Malaysia, Indonesia, Thailand, Singapore, Philippines, Vietnam, Laos, Cambodia, Myanmar, and East Timor

SEA: Southeast Asia

Stage 3: Study selection

Study extraction from the databases

Figure 1 illustrates the process, screening results, and manuscript extraction criteria after the initial search based on the study inclusion and exclusion criteria. In summary, 751 relevant abstracts were collected from 10 databases, and 252 additional manuscripts were identified through Google Scholar. After duplicate articles were removed, 958 articles remained. Titles were then screened for relevance, narrowing the selection to 61 for further screening. Subsequently, full articles were read, and abstracts were reviewed.

A third search stage involved screening the reference lists of the selected articles by reading their full text. This process led to the exclusion of 47 articles because of irrelevance to stroke, not focusing on mobilization exercises, lacking a discussion of family roles, being unrelated to SEA countries, or for being categorized as literature reviews. Ultimately, 14 primary research studies met the inclusion criteria and were included in the analysis.

Database search

Using 10 databases is considered adequate to capture a wide range of relevant studies in Indonesian and English (PubMed, ScienceDirect, Clinical Key, Global Index Medicus,

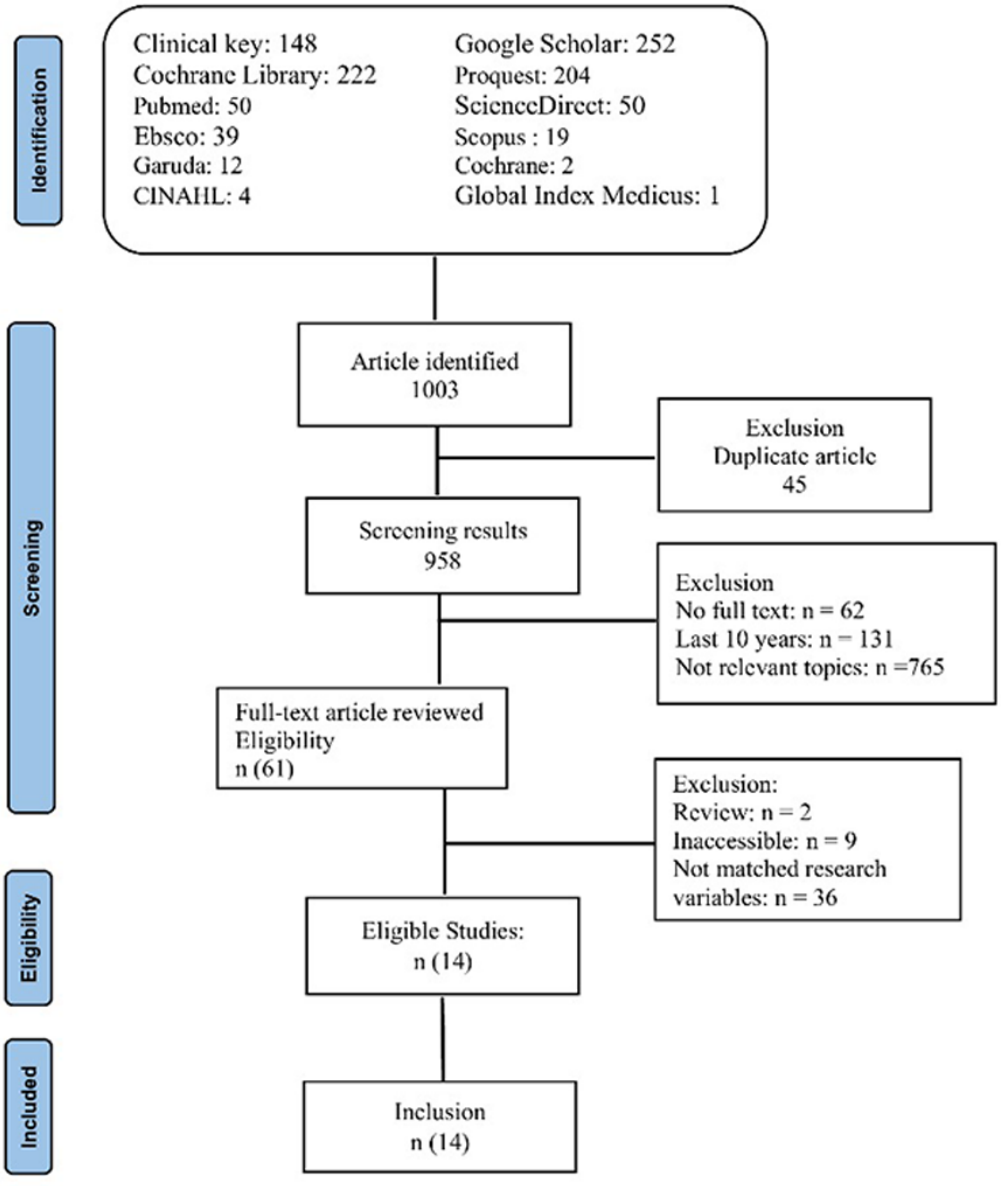

Figure 1. PRISMA-ScR flowchart of the study

PRISMA-ScR: Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews

EBSCO, Scopus, ProQuest, Cochrane Library, Google Scholar, and Garuda). Please refer to the supplementary file for details.

Study extraction constraints

All abstracts from the article search were downloaded into the Mendeley software reference manager, duplicates were removed, and then they were exported into the Rayyan software program (16). Rayyan is a web-based software designed for screening and analyzing articles in systematic reviews, featuring import, grouping, evaluation, and team collaboration tools (16). This application establishes clear boundaries between reviewers and the articles they screen-based on inclusion and exclusion criteria. Two reviewers sampled titles, abstracts, and full text, using the manual Joanna Briggs Institute method (17). There was a disagreement between the two reviewers on a small number of studies during the screening process. Specifically, out of the total number of screened articles, disagreements occurred in 34 articles. These differences were resolved through review discussions until a consensus was reached, ensuring full agreement at each sampling stage.

Stage 4: Data

The data were extracted to obtain important information, such as the study location, research methods, objectives, and the role of the family in mobilization exercises (Table 2).

Stage 5: Thematic summary and key findings

Inductive thematic analysis identified key emerging themes based on Braun and Clarke's (18) work across multiple studies. Their method includes six phases: familiarization with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the report. This analysis required familiarization with each research finding and generated initial codes that were refined to arrive at the final themes reported in this article.

Results

Study characteristics

Of the 14 studies reviewed, 80% were conducted in Indonesia (19-30), one in Thailand (31), and one in Singapore (32). There were three qualitative (19,27,29,30) and eleven quantitative (19-27,29,30) research findings.

Types of mobilization exercises

Only two articles mentioned the type of mobilization exercises provided (24,29). These exercises were range of motion (ROM) exercises, which are carried out by the family of the post-stroke patients at home with guidance from healthcare workers, including filling out questionnaires, practicing active and passive movements, and evaluation with checklists to improve motor function and prevent complications (33) and exercises, such as ambulation, walking, and supporting the patient's daily activities occur for six months at home through a three-stage program: pre-education to provide knowledge about stroke; intervention with mobilization exercises assisted by family caregivers; and periodic monitoring and evaluation using the Barthel Index to increase the patient's functional capacity and reduce the family's care burden (29).

Family role

To identify the family's role in the mobilization exercise, different measurement tools were used. The most frequent questionnaire used is the Family Support Questionnaire (20,21,25-27), whereas some studies utilized interview guides to explore the family's role in mobilization exercise (19,31,32). Ten articles mentioned that the family actively participated in mobilization exercises (19,21-24,26,29-32), six articles mentioned that families provided motivation (20,22,23,25-27) to perform mobilization exercises that support the patient's recovery and independence, and two articles described coordination between families and healthcare workers (23,32). Three articles stated that families played a role in supervising, providing spiritual and psychological support, and assisting with physical activity while caring for stroke patients (20,23,28).

Barriers

This review article showed that the obstacles experienced by families include a lack of understanding about ROM exercises (24), mobilization (21,26,30,31), and ambulation and walking exercises (29). Family support in accompanying the patient's daily activities was limited (20,27) due to the family's lack of information (19).

Discussion

This review highlights that families play a key role in supporting post-stroke patients through mobilization exercises, motivation, and coordination with healthcare providers. However, the findings also reveal significant barriers, such as limited knowledge about exercises and reduced family engagement due to information gaps.

Types of mobilization exercises

The type of mobilization exercises carried out by the family for post-stroke patients includes ROM exercises, early mobilization, ambulation exercises, balance and coordination exercises, muscle strength exercises, and exercises that imitate daily activities (34). During the acute phase of stroke rehabilitation, early mobilization, positioning, functional mobility exercises, Activities of Daily Living (ADL) exercises, ROM, splinting, and bed mobility are important interventions (31).

Table 2. **Articles that explore the role of family in mobilization exercises.**

Author, year, Country	Objective	Research method	Sample	Measurement tool	Results	Recommendations	Family role in mobilization exercises	Barriers
Audia et al. (19), (2017), Indonesia	To explore the experience of caring for stroke patients among Banjar families, understanding the changes experienced by caregivers, and investigating the impact of caregiving activities on daily life and the need for support.	Quantitative with descriptive research.	6 family members	Interview guide exploring family experiences in caring for stroke patients	Home care for post-stroke patients was primarily provided by spouses, children, or siblings, involving daily assistance, exercise support, spiritual needs, treatment management, and socialization. Challenges included patient non-compliance, emotional changes, and the need for immediate response to patient demands.	Providing information, education and structured homeward planning, family caregivers can face the challenges that exist while caring for stroke patients.	Providing passive movement assistance and provide spiritual support after a stroke at home.	The challenges faced by families in caring for stroke patients include physical, emotional, social, and spiritual changes, as well as a lack of information and support from health services.
Tyagi et al. (32), (2021), Singapore	To describe caregiver support systems for stroke survivors in Singapore, highlighting different caregiver identities.	Qualitative with semi-structured interviews	61 respondents : 35 family members 26 stroke survivors	Interview guide	This study identified four key themes in stroke survivors' caregiving support: cultural influences, caregiver support systems, caregiving disruptions, and relationship dynamics. Spousal caregivers preferred direct support from family, while adult child caregivers tended to rely on distributed support with paid care workers.	Future research should explore caregiver identity in support systems and develop strategies for enhancing family-centered care in stroke rehabilitation.	Providing physical assistance and coordinate with health workers.	-
Karunia (20), (2016), Indonesia	To analyze the relationship between family support and independence in performing ADL after stroke.	Quantitative with cross-sectional design	47 stroke patients and family members	Barthel Index Questionnaire and Family Support Questionnaire	Most post-stroke respondents (aged 43-61, male, unemployed) received strong family support, enhancing their independence. Chi-square analysis showed a significant relationship between family support and ADL independence ($p = 0.018$, $\alpha = 0.05$), but no association with age, sex, or occupation. Families should foster a supportive environment and encourage activities that promote independence.	Future research should explore specific family interventions that can further optimize patient recovery and independence, considering different socio-de	Creating a supportive environment, motivate patients, help with basic needs, and provide positive reinforcement.	Lack of family support prevents post-stroke patients from achieving independence in daily activities.

Table 2. Continued

Author, year, Country	Objective	Research method	Sample	Measurement tool	Results	Recommendations	Family role in mobilization exercises	Barriers
Putri Utami et al. (23), (2023), Indonesia	To know the relationship between family involvement in home physiotherapy programs and daily activities (ADL) in post-stroke patients at home.	Quantitative with cross-sectional design	15 family members	Family involvement questionnaire	There was a relationship between family involvement in the Physiotherapy home program and ADL in post-stroke patients.	To enhance family member involvement in physiotherapy home programs to improve the independence of post-stroke patients in performing activities of daily living (ADL).	Assisting patients in improving physical abilities, managing mental health, providing instrumental assistance, motivating them, ensuring adherence to rehabilitation programs, acting as an intermediary between patients and medical services, and assisting with home exercises without physiotherapy.	-
Sari et al. (24), (2023), Indonesia	To know the relationship between knowledge, self-efficacy, and family skills in performing a healthy range of motion in post-stroke patients.	Qualitative with a cross-sectional study approach.	55 family members	Range of Motion (ROM) Exercise Knowledge Questionnaire Self-efficacy questionnaire in performing ROM exercises ROM skill observation checklist	There was a significant relationship between family knowledge ($r = 0.613$, $p = 0.00$) and self-efficacy ($r = 0.497$, $p = 0.00$) with family skills in performing range of motion exercises. Community nurses should enhance interventions and home visits for post-stroke families.	Community nurses should provide health education and range of motion training to empower families in post-stroke care, supporting long-term rehabilitation and improving patient outcomes.	Actively participating in ROM exercises to aid recovery and optimize the patient's health skills.	Family lacks knowledge
Setyoadi et al. (25), (2018), Indonesia	To know the relationship between family support and the independence of stroke patients at the rehabilitation center	Qualitative with a cross-sectional study approach.	57 family members	Family support questionnaire and barthel index	Statistical analysis showed significant value = 0.00 whereas its sig value $<\alpha = 0.05$ These numbers show a strong connection between family support with independence, which means that there is a correlation between family support and stroke patients independence.	Increasing its role in providing education about the importance of family support for family members of stroke patients because the family plays an important role in the recovery process.	Supporting and motivating patients to perform mobilization exercises for recovery and independence.	

Table 2. Continued

Author, year, Country	Objective	Research method	Sample	Measurement tool	Results	Recommendations	Family role in mobilization exercises	Barriers
Utaisang et al. (31), (2021), Thailand	To seek understanding of stroke family caregivers in relation to care experiences	Qualitative with phenomenological study	16 family members	Interview guide	The experiences of family caregivers of stroke patients included lack of knowledge, challenges of distance, limited family support, and minimal access to health services.	A specific program should be developed to prepare caregivers for stroke patient care, incorporating social support, stress relief, and relationship-building activities.	Providing care to stroke patients and conducting mobilization exercise guidance	Families lack specialized knowledge, skills, patience, and understanding, leading to stress, anxiety, fatigue, and other health problems.
Nugraha (26), (2018), Indonesia	To know family support in motivating patients to mobilize	Quantitative with descriptive research.	54 family members	Family Support Questionnaire	There was a significant relationship between family support and the ability of post-stroke patients to perform ADL at Persahabatan Hospital, Jakarta with a p value=0.001.	Nurses play a crucial role in educating families on providing informational, emotional, and instrumental support to enhance post-stroke patient independence in ADL.	Motivating post-stroke patients to perform mobilization exercises by providing support, helping patient independence, and increasing patient motivation to exercise.	Some families also lack an understanding of post-stroke recovery procedures.
Wardhani and Martini (27), (2015), Indonesia	To know the relationship between stroke patient characteristics and family support with rehabilitation compliance.	Qualitative with a cross-sectional study approach.	22 family members	Family support questionnaire and rehabilitation compliance questionnaire	Family support can affect the compliance of stroke patients in undergoing rehabilitation.	To enhance rehabilitation compliance through family support, healthcare provider involvement, and socioeconomic considerations.	Supporting families in improving patient compliance and motivation during the rehabilitation process.	Lack of family support for stroke patients.
Agustiani et al. (28), (2023), Indonesia	To explore the family's experience in caring for non-hemorrhagic stroke patients in depth.	Qualitative research with a descriptive phenomenological approach	5 family members	Interview guide	Experience in treating patients was to be more patient and sincere, but also feel sad, sad and surprised by the illness suffered by patients. Family support was also provided to their family members including spiritual, psychological and social support. Families also experienced obstacles or obstacles in caring for stroke patients including time or busyness and daily activities. Families have knowledge of what the patient needs as well as the concept of strokes.	Family knowledge during caring for non-hemorrhagic stroke patients, namely increasing knowledge of what patients need, management or care that can be given to patients, and the concept of stroke.	Supervising, providing spiritual and psychological support, and assisting with physical activities while caring for stroke patients.	-

Table 2. Continued

Author, year, Country	Objective	Research method	Sample	Measurement tool	Results	Recommendations	Family role in mobilization exercises	Barriers
Dharma et al. (29), (2018), Indonesia	To know the effect of a caregiver empowerment program based on an adaptation model (CEP-BAM) on functional capacity and quality of life of post-stroke patients.	Quantitative with a quasi-experimental design.	80 family members	Questionnaire Barthel Index and Stroke-Specific Quality of Life Scale (SSQoL)	There was a significant improvement in functional capacity and quality of life in the intervention group compared to the control group six months post-intervention.	To develop an assessment tool to measure family support in adaptive training and to evaluate its effectiveness in caring for stroke patients with complex conditions.	Training with exercises such as ambulation, walking, joint exercises, and basic daily activities such as bathing, toileting, dressing, and eating to help patients with mild to moderate disabilities after stroke.	Lack of knowledge and awareness of families regarding ambulation training and walking in stroke patients
Atmojo, (30), (2020), Indonesia	To determine the family knowledge level regarding the prevention of post-stroke pressure sores.	Quantitative with descriptive method.	15 family members	Questionnaire	Majority of the respondent were male and majority age were 60. The level of family knowledge about the prevention of post-stroke pressure sores is very low, this will increase the risk of pressure sore while the patient is treated at home.	-	Performing consistent mobilization every 2-3 hours.	Lack of family knowledge and awareness to mobilize
Vellyana D and Rahmawati A. (21), (2021), Indonesia	To determine the relationship between family support and early mobilization in post-stroke patients to support increasing the degree of health and reducing morbidity in post-stroke patients.	Quantitative with cross-sectional design	24 family members	Family support questionnaire and mobilization implementation questionnaire	There was a relationship between family support and the implementation of early mobilization in post-stroke patients at Pringsewu Hospital.	-	Educating and supporting post-stroke patients in early mobilization, thus contributing to the patient's overall health and well-being.	Families lack knowledge about post-stroke mobilization.
Sihombing (22), (2023), Indonesia	To know the relationship between the effectiveness of therapeutic communication by nurses and a decrease in family behavior in mobilizing stroke patients.	Quantitative with cross-sectional design	30 family members	Family mobilization action questionnaire, nurse role questionnaire, family behavior questionnaire	The therapeutic communication of nurses carried out as a nursing intervention in the mobilization of stroke patients provided a significant relationship to the decrease in the level of family members attitudes towards mobilizing stroke.	To prepare a Standard Operating Procedure (SOP) for mobilizing stroke patients as a guide for family members in helping to mobilize patients.	Assisting with movement during the acute and rehabilitation phases, maintaining a positive attitude, and providing the necessary for motivation.	-

Recommendations for mobilization programs for post-stroke patients include various exercises adjusted to the rehabilitation phase and patient condition, such as active and passive ROM exercises performed 2-3 times a day for 15-20 minutes, aimed at increasing joint flexibility and preventing contractures (35). Ambulation and walking exercises performed 3-5 times a week help restore walking and balance abilities through assistive devices such as walkers (36). Patients also need to be trained in ADL, such as eating, dressing, and using the toilet. These activities are carried out every day to encourage independence (37). In addition, aerobic and water-based exercises, such as brisk walking or shallow pool exercises performed three to four times a week, can improve motor function and cardiovascular health (38). Thus, involving the family in rehabilitation through regular assistance and exercise can accelerate patient recovery and improve the functional capacity, quality of life, and independence of post-stroke patients. Therefore, the implementation of a multifaceted rehabilitation program that integrates ROM exercises, ambulation, joint exercises, and daily functional activities has the potential to optimize neuromuscular recovery, improve functional capacity, and facilitate the reintegration of post-stroke patients into daily life more effectively than rehabilitation approaches that focus on one aspect alone. Implementing a comprehensive rehabilitation program that includes these interventions improves post-stroke patient management. It can potentially increase long-term disability prevention, optimize neuromuscular function recovery and functional capacity, and accelerate the reintegration of patients into daily routines. This multifaceted approach may improve patients' quality of life by facilitating independence, lowering the risk of complications secondary to prolonged immobilization, and maximizing the potential of brain neuroplasticity to support optimal recovery of function. Additionally, this strategy is intended to improve the efficiency of rehabilitation programs by integrating various aspects of care in one holistic approach, promoting the development of structured and comprehensive rehabilitation protocols, and emphasizing the importance of rehabilitation interventions from the acute phase to optimize long-term recovery in stroke patients.

Family role

Findings from the review indicate that the family's role is crucial in rehabilitating post-stroke patients. They provide physical and spiritual support, as well as coordination with healthcare providers, which helps patients improve their physical abilities and ensure compliance with rehabilitation, especially in carrying out mobilization exercises.

Family support plays a crucial role in the rehabilitation and quality of life of stroke patients. Family support, encompassing emotional, appreciative, instrumental, and informational aspects, creates a sense of security for patients, while providing essential physical and psychological comfort to help them cope with illness and treatment processes (39). The family support system, as the most important resource for stroke patients, directly impacts their quality of life. Given the high incidence of stroke in Indonesia and its associated disabilities, it plays a crucial role in rehabilitation by improving patients' overall well-being and functional abilities (40).

Family members play an essential role in assisting with self-care activities, providing motivation, and facilitating daily exercises that contribute to the patient's recovery. Stroke patients often face significant physical and emotional challenges, requiring continuous encouragement and a supportive environment to participate actively in rehabilitation. By ensuring that basic needs such as security, emotional support, and self-confidence are met, families help create a positive atmosphere that enhances the patient's willingness to engage in recovery efforts. Additionally, the involvement of healthcare professionals in guiding families on effective caregiving strategies further strengthens the rehabilitation process, improving the overall well-being and functional abilities of stroke patients.

Family can provide emotional support, motivation, and practical assistance in daily activities and mobilization exercises. Motivation and a supportive environment can increase the patient's enthusiasm and compliance with the rehabilitation program. Regular mobilization exercises and physical activity also help maintain and improve the functional abilities of post-stroke patients. Coordination and cooperation between family, healthcare providers, and patients are important to achieve optimal results in the rehabilitation process. Healthcare providers can offer education and exercise about proper care for chronic diseases (41,42), including exercise for stroke patients to families. The family can partner in the rehabilitation process, providing important information about the patient's condition and helping implement rehabilitation programs at home.

Meanwhile, patients need to be actively involved in the rehabilitation process and comply with recommendations from healthcare workers, and receive support from their families. Therefore, there is a need to improve education and training for family members about the care and rehabilitation of stroke patients at home. Families must gain adequate knowledge and skills to provide appropriate support and assistance. Exercise can include mobilization exercise techniques, stress management, effective communication, and motivational strategies. Strengthening community health support and services is also necessary to assist families in caring for stroke patients. These services can include home visits by healthcare workers, online consultations, or resource centers that provide families with the information and tools they need to care for stroke patients. Raising public awareness of the need for rehabilitation and social support for stroke patients is important. Educational and advocacy campaigns can be conducted to destigmatize and increase public understanding of the conditions faced by stroke patients and the importance of family support and involvement in the rehabilitation process. The development of affordable and accessible rehabilitation programs and facilities is also needed within health facilities and the community. This change will

make it easier for patients and families to access the needed rehabilitation services and encourage active participation in rehabilitation programs. Close collaboration between health workers, patients, and families in designing rehabilitation programs is essential.

Barriers

In this review, a lack of family knowledge about the rehabilitation process for post-stroke patients was noted, especially regarding mobilization and recovery procedures, and support for mobilization exercises to foster independence in daily activities.

Lack of family knowledge can hinder the patient's adaptation to their new stroke rehabilitation process (43). Increased family knowledge can facilitate effective adaptation for patients and families. Implementing health education programs can improve family readiness to care for stroke patients (44). Physiological adaptation interventions and ROM exercises effectively enhance patient independence, but family knowledge about these techniques is lacking (45). Strategic steps are needed to overcome the obstacles in post-stroke patient rehabilitation by developing a structured education program for families consisting of identifying needs, compiling material on mobilization, providing ongoing support, and conducting regular evaluations (46).

In contrast, to overcome obstacles from a lack of family knowledge in post-stroke patient rehabilitation, strategic steps are needed, such as structured education to increase family understanding of mobilization techniques, recovery procedures, and the importance of their support, along with practical exercises by physiotherapists to provide direct skills. Providing guides, instructional videos, or mobile applications can make it easier for families to assist patients (47). In addition, regular consultations with medical personnel and community-based programs, such as support groups, can strengthen the family's role. This approach aims to increase the effectiveness of family support, speed recovery, and encourage patient independence (48). Telerehabilitation-based stroke education programs, such as the Stroke Education Program, have increased knowledge, independence, and mobilization among post-stroke patients and their families by integrating technology-based distance exercise into the rehabilitation process (49). Comprehensive interventions aimed at families of stroke patients are a crucial component of a holistic rehabilitation strategy. Improved family health literacy, particularly in aspects of post-stroke management, has the potential to be a catalyst in optimizing rehabilitation outcomes.

Furthermore, integrating the family as an active partner in the multidisciplinary rehabilitation team can improve the continuity of care and accelerate the patient's recovery. Thus, developing a comprehensive educational program targeted at the patient's family is a priority, focusing on improving understanding of mobilization techniques, ROM exercises, and post-stroke recovery procedures. Implementing interventions that involve the whole family can improve the effectiveness of care and support the family's adaptation to their new role as caregivers. Integrating cultural approaches in educational programs to ensure relevance and acceptance in the patient's socio-cultural context is also important. Establishing community-based support groups for families of stroke patients can facilitate the exchange of knowledge and experience. From a policy perspective, developing national guidelines that emphasize the importance of family involvement in the stroke rehabilitation process is crucial. Overall, it emphasizes the importance of a holistic and family-focused approach in optimizing recovery and improving the quality of life of post-stroke patients.

This review provides a focused analysis of family involvement in mobilization exercises for post-stroke patients in SEA, an area with limited existing research. The use of both qualitative and quantitative studies enhances the comprehensiveness of the findings. Furthermore, the systematic approach to study selection and thematic analysis strengthens the validity and reliability of the review. However, we acknowledge that using only two languages (English and Indonesian) is a limitation of this review. As a result, relevant articles in other languages that may have met the inclusion and exclusion criteria were not analyzed. In addition, the review is limited to studies published between 2014 and 2023, which may exclude relevant older research.

Conclusion

Although few studies detail the type and role of family in exercise for post-stroke patients, most emphasize active participation and family support as key factors for successful rehabilitation. Family involvement in providing motivation, spiritual and psychological support, and physical activity assistance is significant for consistent mobilization exercises that improve patients' independence and quality of life. However, a lack of family knowledge and awareness was a major barrier. Therefore, the development of comprehensive, family-focused educational programs and national guidelines that emphasize family involvement, integrate cultural approaches into interventions, and establish community-based support groups are important. Thus, effective coordination of the family with healthcare professionals is important in developing mobilization exercise programs that suit the individual patient's condition.

Thus, a holistic approach involving active family participation, ongoing motivational-psychological support, and coordination with healthcare professionals is key to successful mobilization exercises and post-stroke recovery.

Footnotes

Authorship Contributions

Concept: N.N., A.M.I, A.S., Design: N.N., A.M.I, A.S., Data Collection or Processing: N.N., Analysis or Interpretation: N.N., A.M.I., A.S., N.A.A., Literature Search: N.N., Writing: N.N., A.M.I., N.A.A.

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References

1. WHO. The top 10 causes of death. 2024.
2. World Stroke Organization. Global Stroke Fact Sheet 2022 Purpose : Data sources : World Stroke Organ 2022;13:1-14.
3. Ding Q, Liu S, Yao Y, Liu H, Cai T, Han L. Global, regional, and national burden of ischemic stroke, 1990-2019. *Neurology.* 2022;98(3):e279-e290.
4. Penerapan latihan range of motion (Rom) pada kekuatan otot ekstremitas dengan penderita stroke di wilayah binaan Puskesmas Gunung Pati Semarang [In Indonesian]. *Jurnal Rumpun Ilmu Kesehatan*. 2021;1(3):28-44.
5. Irwan AM, Kato M, Hardianto Y, Syahrul S, Bakri I, Shogenji M, et al. Sensor monitoring to determine daily physical functioning among post-stroke older people in a home setting: pilot study. *Philippine Journal of Nursing*. 2024;94(2):25-35.
6. Sjattar EL, Megawati I, Irwan AM, Majid S. Development of supportive-educative range of motion exercise for post-stroke patients: a pilot study. *HHCMP.* 2022;34:92-100.
7. Singarimbun RJ. Relationship between family health behavior with ımproving patient functional capacity post stroke in the Dwikora area. *J Adv Med Pharm Sci.* 2023;2:14-18.
8. Yuliana S, Yu E, Rias YA, Atikah N, Chang HJ, Tsai HT. Associations among disability, depression, anxiety, stress, and quality of life between stroke survivors and their family caregivers: an actor-partner interdependence model. *J Adv Nurs.* 2023;79(1):135-148.
9. Marliana L, Septianingrum Y, Wijayanti L, Sholeha U, Hasina SN. Rehabilitasi pasca stroke ditinjau dari fungsi motorik : a systematic review. *J Keperawatan.* 2023;15:681-692.
10. Usman S, Irwan AM, Arafat R. Family involvement in low-salt diet for hypertensive older adults. *Work with Older People*. 2023;27:1–14.
11. Silalahi RD. Peran Perawat Dalam Tindakan Rehabilitatif Pasien Pasca Stroke Di Rumah Sakit 2020.
12. Tanlaka EF, McIntyre A, Connelly D, Guitar N, Snobelen N. The role and contributions of nurses in stroke rehabilitation units: an integrative review. *West J Nurs Res.* 2023;45(8):764-776.
13. Tyagi S, Luo N, Tan CS, Tan KB, Tan BY, Menon E, et al. Qualitative study exploring heterogeneity in caregiving experiences post-stroke in Singapore. *BMJ Open*. 2023;13(3):e055988.
14. Lu Q, Mårtensson J, Zhao Y, Johansson L. Needs of family members caring for stroke survivors in China: a deductive qualitative content analysis study by using the caregiver task inventory-25. *BMC Geriatr.* 2022;22(1):96.
15. Peters MD, Godfrey CM, Khalil H, McInerney P, Parker D, Soares CB. Guidance for conducting systematic scoping reviews. *Int J Evid Based Healthc*. 2015;13(3):141-146.
16. Ouzzani M, Hammady H, Fedorowicz Z, Elmagarmid A. Rayyan—a web and mobile app for systematic reviews. *Syst Rev.* 2016;5:210.
17. Peters MDJ, Godfrey C, McInerney P, Munn Z, Tricco AC, Khalil. Scoping reviews. *JBI Evid Synth.* 2020.
18. Appalasamy JR, Joseph JP, Seeta Ramaiah S, Md Zain AZ, Quek KF, Tha KK. Video Narratives Intervention Among Stroke Survivors: Feasibility and Acceptability Study of a Randomized Controlled Trial. *JMIR Aging*. 2020;3(2):e17182.
19. Audia L, ivana T, Maratning A. Pengalaman keluarga Suku Banjar dalam merawat pasien stroke di Banjarmasin. *J Keperawatan Suaka Insa.* 2017;2(2):1-10.
20. Karunia. E. Association between family support and post-stroke activity of daily living autonomy. *Jurnal Berkala Epidemiologi*. 2016;4(2);213-224.
21. Vellyana D, Rahmawati A. Family support for early mobilization of post-ischemic stroke patients. *The Indonesian Journal of Health.*2021;11(2):94-99.
22. Sihombing RJ. Perilaku Keluarga dan peran perawat dengan tindakan keluarga dalam melakukan mobilisasi pasien stroke [In Indonesian]. *JIK (Jurnal Ilmu Kesehatan)*. 2023;7(1):138-142.
23. Putri Utami K, Rizky Rinanda Nur Fauziyah A, Faradilla Rahim A. The relationship between family involvement in physiotherapy home programs and activity daily living in post-stroke patients. *KnE Medicine*. 2023;3(2):129-135.
24. Sari CWM, Nofrel V, Lukman M. Correlation between knowledge and self-efficacy with family skills in exercising range of motion for post-stroke. *J Multidiscip Healthc.* 2023;16:377-384.
25. Setyoadi S, Nasution TH, Kardinasari A. Family support in improving independence of stroke patients. *Jurnal Ilmu Keperawatan (Journal Nursing Science).* 2018;6:96-107.
26. Nugraha A. Dukungan keluarga dalam memotivasi pasien untuk melakukan mobilisasi pasca stroke di rumah sakit umum daerah (rsud) Dr. Slamet Kabupaten Garut. 2018.
27. Wardhani IO, Martini S. The Relationship between Stroke Patients Characteristics and Family Support with Compliance Rehabilitation. *Jurnal Berkala Epidemiologi.* 2015;3(1):24-34.
28. Agustiani S, Deschara A, Maryana M. Pengalaman keluarga dalam merawat pasien stroke. *Jurnal Penelitian Perawat Profesional*. 2023;5(2):677-690.
29. Dharma KK, Damhudi D, Yardes N, Haeriyanto S. Increase in the functional capacity and quality of life among stroke patients by family caregiver empowerment program based on adaptation model. *Int J Nurs Sci*. 2018;5(4):357-364.
30. Atmojo DS. Family Knowledge in post-stroke pressure wound prevention in the working area of the Balowerti Health Center, Kediri. *Jurnal Kesehatan Pasak Bumi Kalimantan*. 2020;3(2):15-19.
31. Utaisang A, Pearkao C, Junsevg K, Sangsaikaew A, Boonkong D, Korcharoenyos C. Experiences of family members in caring of stroke patients: a case study in the border provinces of the upper Northeast of Thailand. *Nursing in Internal Medicine*. 2021;9:172-179.
32. Tyagi S, Luo N, Tan CS, Tan KB, Tan BY, Menon E, et al. Support system diversity among family caregivers of stroke survivors: a qualitative study exploring Asian perspectives. *BMC Geriatr*. 2021;21(1):594
33. Musrah AS, Pratiwi A, Suranta Ginting D, Nurhanifah D, Anshari M. Education on the role of family to increase knowledge in preventing attacks in post-stroke patients. *Abdimas Polsaka.* 2024;3:20-25.

34. Amin A, Arafat R, Rachmawaty R. Physical activity in stroke patients: a scoping review. *J Community Empower Heal.* 2021;4(1):1-8.

35. Nasim N, Nani D. Effect of range of motion exercise on extremity joint muscle strength in ischemic stroke patients a literature review. *J Keperawatan Komprehensif (Comprehensive Nursing Journal)*. 2024;10(2)166-174.

36. Dupuis F, Ginis KAM, MacKay C, Best KL, Blanchette V, CherifA, et al. Do exercise programs improve fitness, mobility, andfunctional capacity in adults with lower limb amputation? Asystematic review on the type and minimal dose needed. *Arch Phys Med Rehabil*. 2024;105(6):1194-1211.

37. Gwiazdowska M. Activities of daily living training in a strokepatient based on applied behaviour analysis. *Postep Psychiatr Neurol.* 2023;32(4):234-241.

38. Hayuningrum CF, Fatimah DN, Pisesi M, Lathifatul M.Pengaruh pemberian terapi latihan hydroterapi terhadapkeseimbangan pasien stroke; literatur review. *Physio Move Journal.* 2023;2:29-38.

39. Zhachrani NF, Muchsin AH, Tammasesse J. Relationshipbetween family support and quality of life in stroke patients.*Journal La Medihealtico*. 2024;5(4):565-572.

40. Laenaya Fatika L, Listyarini AD, Septiani E, Aprilia FP, Widiyawanti F, Fatikasari F. Support system keluarga padapasien stroke. *J Kesehat Dan Kedokt.* 2024;3:13-17.

41. Irwan AM, Balabagno AO. Factors related to self-care among older persons of Makassarese Tribe, Indonesia. *Philipp J Nurs*. 2014;84:24–30.

42. Zuraida E, Irwan AM, Sjattar EL. Self-management education programs for patients with heart failure: a literature review. *Cent Eur J Nurs Midwifery.* 2021;12(1):279-294.

43. Apriliasanty I, Yuswatiningsih E, Maunaturrohmah A. Hubungan tugas keluarga dengan proses adaptasi pasien stroke yang mengalami gangguan mobilitas fisik. *J Keperawatan*. 2021;18:31-42.

44. Mustikasari M. Implementasi healt education dalam meningkatkan kesiapan keluarga merawat pasien ptroke. *J Keperawatan Indones*. 2020;10:48-53.

45. Bhayangkara MA, Rokhayati A, Sukarni S, Tarjuman T. Gambaran pengetahuan keluarga pasien tentang latihan range of motion (rom) pada pasien stroke: systematik literature review. *Jurnal Kesehatan Siliwangi*. 2020;1(1):144-155.

46. Deepradit S, Powwattana A, Lagampan S, Thiangtham W. Effectiveness of a family-based program for post-stroke patients and families: a cluster randomized controlled trial. *Int J Nurs Sci*. 2023;10(4):446-455.

47. Firmawati E, Setyopanoto I, Pangastuti HS. Mobile healthapplication to support family caregivers in recurrent strokeprevention: scoping review. *Open Access Maced J Med Sci*. 2022;9:142-151.

48. Rahma Rufaida Susetyo. Literatur Review Peran DukunganKeluarga pada Pasien Pasca Stroke dalam Latihan Rehabilitasi Medik. *Detect J Inov Ris Ilmu Kesehat.* 2023;1:107-116.

49. Syafaah N, Pitaloka D, Basuki HO, Arifin MF. Peningkatankemandirian dan mobilisasi penderita pasca stroke melaluiStroke Education Program (SEP) berbasis telerehabilitationpada paguyuban stroke di Tuban. *Jurnal SOLMA*. 2024;13(1):471-479.

Supplementary File: Keywords for databases

No.	Database	Keywords	Article	Access Date
1	PubMed	((((Post-stroke) OR (stroke)) OR (cerebrovascular accident (CVA))) AND ((((Family role) OR (family participation)))) OR (family))) AND (((mobility exercises) OR (movement routines)) OR (activity drills))	50 Articles	May 1, 2024
2	Garuda	Mobilization of stroke patients	12 Articles	May 1, 2024
3	ScienceDirect	Post-stroke OR stroke OR cerebrovascular accident (CVA) AND family role OR family participation OR family AND mobility exercises OR movement routines OR activity drills	50 Articles	May 1, 2024
4	Clinical Key	Post-stroke OR stroke OR cerebrovascular accident (CVA) AND family role OR family participation OR family AND mobility exercises OR movement routines OR activity drills	391 Articles	May 1, 2024
5	Global Index Medicus	Post-stroke OR stroke OR cerebrovascular accident (CVA) AND family role OR family participation OR family AND mobility exercises OR movement routines OR activity drills	1 Article	May 1, 2024
6	EBSCO	Post-stroke OR stroke OR cerebrovascular accident (CVA) AND family role OR family participation OR family AND mobility exercises OR movement routines OR activity drills	39 Articles	May 1, 2024
7	Scopus	Post-stroke OR stroke AND family AND mobility AND exercises	19 Articles	May 1, 2024
8	Proquest	Post-stroke OR stroke OR cerebrovascular accident (CVA) AND family role OR family participation OR family AND mobility exercises OR movement routines OR activity drills	204 Articles	May 1, 2024
9	Cochrane Library	Post-stroke OR stroke OR cerebrovascular accident (CVA) AND family role OR family participation OR family AND mobility exercises OR movement routines OR activity drills	222 Articles	May 1, 2024
10	Google Scholar	Post-stroke OR stroke OR cerebrovascular accident (CVA) AND family role OR family participation OR family AND mobility exercises OR movement routines OR activity drills and Indonesia	252 Articles	May 1, 2024