Post-Print Summary of Best Evidence for Self-Management in Stroke Patients with Motor Dysfunction

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Abstract

Background Self-management can meet the long-term rehabilitation needs of stroke patients and their families; however, there is currently a lack of relevant evidence, and no scientific, standardized self-management protocols exist in clinical practice. Objective To evaluate and summarize the best evidence for self-management in stroke patients with motor dysfunction. Methods A systematic search was conducted of PubMed, Cochrane Library, Web of Science, Embase, CINAHL, CNKI, Wanfang Data Knowledge Service Platform, VIP, Chinese Biomedical Literature Database, American Heart Association/American Stroke Association (AHA/ASA), World Stroke Organization (WSO), Chinese Stroke Association, Guidelines International Network (GIN), Scottish Intercollegiate Guidelines Network (SIGN), National Guideline Clearinghouse (NGC), and Yimaitong to retrieve relevant research evidence on self-management for stroke patients with motor dysfunction. Literature types primarily included guidelines, expert consensus, systematic reviews, quasi-experimental studies, and randomized controlled trials. The search timeframe was from database inception to July 2022. Two researchers independently evaluated the quality of retrieved literature using the 2017 Appraisal of Guidelines for Research and Evaluation (AGREE II) instrument and the 2016 literature evaluation criteria developed by the JBI Evidence-Based Health Care Center, extracted evidence, graded evidence quality, and summarized the best evidence for self-management in stroke patients with motor dysfunction. Results A total of 36 articles were included, comprising 9 guidelines, 4 expert consensus statements, 5 systematic reviews, 5 quasi-experimental studies, and 13 randomized controlled trials. These were synthesized into 6 domains: organizational management, assessment, exercise guidance, health education, psychosocial support, and monitoring and follow-up, yielding 34 pieces of best evidence. Conclusion The evidence summarized in this study for self-management in stroke patients with motor dysfunction

encompasses 6 domains: organizational management, assessment, exercise guidance, health education, psychosocial support, and monitoring and follow-up. Healthcare professionals should integrate actual clinical contexts, select optimal evidence based on individual patient conditions and needs, deliver personalized self-management interventions, improve patients' motor function and self-management capabilities, and promote disease recovery.

Full Text

Summary of Best Evidence for Self-Management of Patients with Motor Dysfunction After Stroke

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Abstract
Background: Self-management addresses the long-term rehabilitation needs of stroke patients and their families. However, current evidence remains limited, and no scientific, standardized self-management protocols exist in clinical practice. **Objective:** To evaluate and summarize the best evidence for self-management in stroke patients with motor dysfunction. **Methods:** We systematically searched PubMed, Cochrane Library, Web of Science, Embase, CINAHL, CNKI, Wanfang Data, VIP, Chinese Biomedical Literature Database (CBM), American Heart Association/American Stroke Association (AHA/ASA), World Stroke Organization (WSO), Chinese Stroke Association, Guidelines International Network (GIN), Scottish Intercollegiate Guidelines Network (SIGN), National Guideline Clearinghouse (NGC), and Yimaitong for relevant research evidence on self-management in stroke patients with motor dysfunction. Literature types included guidelines, expert consensuses, systematic reviews, quasi-experimental studies, and randomized controlled trials. The search timeframe spanned from database inception to July 2022. Two researchers independently evaluated literature quality using the 2017 Appraisal of Guidelines for Research and Evaluation (AGREE II) tool and the 2016 JBI Evidence-Based Health Care Center' s literature evaluation criteria, extracted evidence, graded its quality, and summarized the best evidence for self-management in these patients. **Results:** A total of 36 studies were included, comprising 9 guidelines, 4 expert consensuses, 5 systematic reviews, 5 quasi-experimental studies, and 13 randomized controlled trials. Evidence was summarized across six domains: organization and management, assessment, exercise guidance, health education, psychosocial support, and monitoring and follow-up, yielding 34 evidence-based recommendations. **Conclusion:** The evidence summarized in this study covers six aspects of self-management for stroke patients with motor dysfunction.

Healthcare professionals should select the best evidence based on individual patient circumstances and needs, providing personalized self-management interventions to improve motor function and self-management capacity, thereby promoting recovery.

[**Keywords**] Stroke; Motor dysfunction; Self-management; Exercise; Health education; Social support; Evidence-based nursing; Evidence summary

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1. Methods

1.1 Formulation of the Evidence-Based Question

Using the PIPOST framework [8], we constructed our evidence-based question as follows: (1) **Population:** Stroke patients with motor dysfunction; (2) **Intervention:** Self-management interventions including assessment, rehabilitation guidance, health education, and follow-up; (3) **Professionals:** Healthcare providers, patients, or family members; (4) **Outcomes:** Motor function, self-management ability, self-care capacity, and quality of life; (5) **Setting:** Hospital, community, or home; (6) **Type of evidence:** Guidelines, expert consensuses, systematic reviews, quasi-experimental studies, and randomized controlled trials.

1.2 Search Strategy

We searched using English terms including "stroke/apoplexy/cerebrovascular accident/cerebral stroke/ischemic stroke/ischaemic stroke/cerebral ischemia/brain ischemia/cerebral infarction/hemorrhagic stroke/cerebral hemorrhage/intracerebral hemorrhage stroke/cerebrovascular disorders/cerebrovascular diseases/cerebrovascular occlusions,""movement disorders/dyskinesias/dysfunction/functional disorders/hemiplegias/monoplegias/paralysis/motor function/limb function," and "self-management/self regulation/self governance/self-care/self administration/self-direction/self rehabilitation." Chinese search terms included "卒中/脑卒中/中风/缺血性脑卒中/脑梗死/出血性脑卒中/脑出血/脑溢血/脑血管意外/脑血管障碍/脑血管疾病," "运动障碍/功能障碍/偏瘫/瘫痪/运动功能/肢体功能," and "自我管理/自我护理/自我照护/自我指导/自我康复." We searched PubMed, Cochrane Library, Web of Science, Embase, CINAHL, CNKI, Wanfang, VIP, CBM, AHA/ASA, WSO, Chinese Stroke Association, GIN, SIGN, NGC, and Yimaitong from database inception to July 2022.

1.3 Inclusion and Exclusion Criteria

Inclusion criteria: (1) Study population: Stroke patients with motor dysfunction; (2) Study content: Involving self-management; (3) Literature type: Guidelines, expert consensuses, systematic reviews, quasi-experimental studies, and randomized controlled trials (latest versions for guidelines); (4) Language: Chinese or English. **Exclusion criteria:** (1) Abstracts, study protocols, and

conference papers; (2) Guideline interpretations or translations of foreign guidelines; (3) Unavailable full text, duplicate publications, and low-quality literature.

1.4 Literature Quality Evaluation

We used the 2017 AGREE II tool [9] to evaluate guidelines. This instrument comprises six domains with 23 items scored on a 1–7 scale, with recommendation grades determined by domain scores. Other literature types were evaluated using the 2016 JBI Evidence-Based Health Care Center' s literature evaluation criteria [10], with responses of "yes," "no," "unclear," or "not applicable." Two researchers independently conducted quality evaluations, with disagreements resolved through discussion or consultation with a third researcher. When conflicts existed between different evidence sources, we prioritized domestic evidence, evidence-based sources, high-quality evidence, and the most recently published authoritative literature.

1.5 Evidence Summarization and Grading

Based on literature type, we used the JBI Evidence-Based Health Care Center' s 2014 evidence pre-grading and recommendation level system [11] to classify evidence into levels 1–5 (highest to lowest). Using the FAME structure and recommendation strength grading principles, we determined recommendation strength as Grade A or B.

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2. Results

2.1 Basic Characteristics of Included Literature

The initial search yielded 3,428 relevant articles. After screening, 36 articles were ultimately included [6-7,12-45], comprising 9 guidelines [6-7,12-18], 4 expert consensuses [19-22], 5 systematic reviews [23-27], 5 quasi-experimental studies [28-32], and 13 randomized controlled trials [33-45]. The literature screening process is shown in Figure 1 [Figure 1: see original paper], and the basic characteristics of included literature are presented in Table 1 .

2.2 Quality Evaluation of Included Literature

2.2.1 Guidelines All nine included guidelines [6-7,12-18] underwent quality evaluation, with detailed results shown in Table 2 .

2.2.2 Expert Consensuses All four expert consensuses [19-22] scored "yes" on all items except item 6 ("whether viewpoints contradict previous ones"), which scored "no." Overall quality was high, and all were included.

2.2.3 Systematic Reviews All five systematic reviews [23-27] were included. Three studies [23,26-27] scored "yes" on all items, while two [24-25] scored "unclear" on item 9 ("whether potential publication bias was assessed") but "yes" on all other items, indicating high overall quality.

2.2.4 Quasi-Experimental Studies All five quasi-experimental studies [28-32] were included. Li Huiyan' s study [30] scored "yes" on all items. Three studies [29,31-32] scored "unclear" on item 8 ("whether outcome measures were reliable") but "yes" on all other items. Chen et al.' s study [28] scored "unclear" on item 3 ("whether groups received identical interventions except for the one being tested") and item 6 ("whether complete follow-up was conducted with appropriate measures for attrition") but "yes" on all other items, indicating high overall quality.

2.2.5 Randomized Controlled Trials All 13 randomized controlled trials [33-45] were included. Three studies [34,37,39] scored "unclear" on items 2 ("allocation concealment"), 4 ("blinding of participants"), 5 ("blinding of interventionists"), 6 ("blinding of outcome assessors"), and 11 ("reliability of outcome measurement"), but "yes" on all other items. Three studies [33,35-36] scored "unclear" on items 2, 4, 5, and 6 but "yes" on all other items. Zhuang Lei' s study [38] scored "unclear" on items 2, 4, 5, and 11 but "yes" on all other items. Harris et al.' s study [40] scored "no" on item 4 but "yes" on all other items. Two studies [41,45] scored "no" on items 4 and 5 but "yes" on all other items. Chin et al.' s study [43] scored "unclear" on items 4 and 5 but "yes" on all other items. Two studies [42,44] scored "unclear" on item 2 and "no" on items 4 and 5, but "yes" on all other items. Overall quality was acceptable.

2.3 Evidence Summarization and Grading

Through content analysis and synthesis of included literature, we summarized evidence across six domains: organization and management, assessment, exercise guidance, health education, psychosocial support, and monitoring and follow-up, yielding 34 evidence-based recommendations (Table 3).

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3. Discussion

3.1 Organization and Management

Stroke rehabilitation is a long-term process. After acute hospital treatment, patients return to community or home settings for continued rehabilitation. Stroke patients should receive formal treatment and rehabilitation guidance from multidisciplinary rehabilitation teams. Research shows that multidisciplinary team collaboration effectively promotes limb function recovery, improves self-management behaviors, and reduces readmission and disability rates [46-47]. Guidelines indicate that core multidisciplinary stroke rehabilitation teams

should comprise physicians, nurses, physical therapists, and rehabilitation assistants who regularly receive professional knowledge and self-management skills training [6-7,12,14]. Caregivers play a crucial role in stroke rehabilitation; patients and their caregivers should jointly participate in rehabilitation, decision-making, and self-management plan development to better facilitate patient self-management.

3.2 Assessment

Guidelines recommend comprehensive assessment within 24 hours post-stroke using standardized tools to evaluate disease status and functional impairments, enabling personalized care and rehabilitation planning [16]. The lengthy rehabilitation process requires long-term care and professional guidance, and patients' self-management behaviors critically influence disease progression [48]. However, studies show that self-management behaviors and self-efficacy among Chinese stroke patients remain low [49-50]. Self-efficacy refers to an individual's confidence in their ability to complete specific tasks [7]. Guidelines recommend providing self-management support based on patients' self-efficacy levels to help them acquire necessary knowledge and skills for post-stroke life management [6]. Therefore, targeted assessment tools should be used to develop personalized self-management plans based on comprehensive evaluations, thereby improving motor function, rehabilitation confidence, and self-care capacity.

3.3 Exercise Guidance

Most stroke survivors experience motor dysfunction that limits daily activities and reduces quality of life. Research indicates that stroke patients demonstrate poor disease management and rehabilitation self-management behaviors. Mobilizing their motivation to manage their condition and improve motor dysfunction is key to stroke treatment and rehabilitation [51]. Wang Xinglei's study [35] found that exercise self-management can improve patients' motor function levels. Patients should be guided to actively engage in rehabilitation exercises, controlling exercise frequency and intensity while emphasizing disease self-monitoring and scientific rehabilitation. The World Health Organization recommends initiating physical activity and rehabilitation training 48 hours post-stroke if vital signs are stable and neurological symptoms are not progressing, while avoiding high-intensity activities within 24 hours. The Chinese Clinical Guidelines for Cerebrovascular Disease Management [16] suggest that early out-of-bed rehabilitation can begin 24 hours post-stroke for mild to moderate stroke patients. Given varying degrees of limb motor dysfunction, targeted exercise management should be provided based on individual patient conditions and needs, progressing from early supine and sitting training to upper and lower limb functional exercises, with patients and caregivers participating throughout the treatment and rehabilitation process to enhance disease management capacity.

3.4 Health Education

Studies show that health education improves stroke knowledge and self-management levels [53]. Guidelines recommend providing diverse, individualized health education throughout all stages of stroke care and rehabilitation to help patients establish health beliefs and improve self-management behaviors [14]. Unhealthy lifestyles represent the primary modifiable risk factor for stroke [54], making lifestyle management education essential. Research shows that medication adherence among Chinese stroke patients is generally low and declines over time, yet improving adherence is crucial for stroke prevention [55]. Therefore, targeted health education and guidance should be provided based on different treatment regimens, patient needs, and cultural backgrounds to improve treatment adherence and foster healthy lifestyles.

3.5 Psychosocial Support

The sudden onset of stroke and resulting functional impairments often cause significant psychological stress, affecting patients' physical and mental health and impeding recovery [56]. Stroke patients' psychological needs may vary over time and across settings; healthcare providers should promptly assess psychological and emotional states of patients and caregivers, providing appropriate support and education [12]. Peer support has proven to be a simple yet effective group self-management intervention that facilitates experience sharing and enhances motivation. Guidelines recommend creating support systems for patients and caregivers through monthly face-to-face or online group meetings [15]. Research suggests psychological interventions may be necessary when indicated, including counseling and guidance on improving mood through increased social interaction, exercise, music therapy, or other psychosocial interventions [7].

3.6 Monitoring and Follow-up

Self-monitoring is a crucial component of self-management, playing an important role during exercise training. Guidelines recommend various self-monitoring methods such as functional exercise diaries, rehabilitation journals, self-management manuals, and rehabilitation training plan contracts [6,29-31,38]. Follow-up provides timely information and support to help patients and caregivers actively participate in decision-making and manage long-term post-stroke effects. Guidelines suggest considering alternative communication and support methods for individualized patient follow-up [13]. While traditional follow-up occurs through outpatient visits and home visits, internet technology has enabled online follow-up methods, allowing hospitals to maintain close contact with stroke patients and families via WeChat, QQ, cloud-based follow-up platforms, and other digital tools [57].

Conclusion

Effective self-management can improve motor function and enhance long-term disease management skills in stroke patients. This study summarized 34 evidence-based recommendations across six domains: organization and management, assessment, exercise guidance, health education, psychosocial support, and monitoring and follow-up. These findings provide an evidence base for clinical self-management practice. Healthcare professionals should consider individual patient circumstances and actual clinical contexts when applying this evidence, developing personalized self-management plans based on patients' needs, preferences, and motor dysfunction status. By adjusting rehabilitation training frequency, intensity, and content, clinicians can integrate best evidence with clinical practice to enhance rehabilitation outcomes.

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Note: Figure translations are in progress. See original paper for figures.