

Stroke

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April 2026

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1. Stroke preventive strategies and long-term cognitive function: A population-based study

Authors: Chang, Wenling;Obaid, Majed;Wolfe, Charles D. A.;Marshall, Iain;Hbid, Youssef;Bhalla, Ajay;O'Connell, Matthew DI and Douiri, Abdel

Publication Date: 2026

Journal: Journal of the Neurological Sciences 485, pp. 125765

Abstract: Objectives: Limited data exist on the impact of secondary stroke prevention and on cognitive function after stroke. This study aims to investigate whether post-stroke care strategies protect cognitive function up to ten-year.; Materials and Methods: Data were collected between 1995 and 2018 from the population-based South London Stroke Register (SLSR, n = 6504). Multivariable Poisson regression models with robust standard errors and confounders were constructed to evaluate adjusted relative risks (aRRs) between cognitive impairment and different treatment strategies; before, at acute care or after stroke. Use multiple imputation to manage the missing data.; Results: The prevalence of cognitive impairment was 29% (confidence interval (CI) 26-32). 5-years after stroke, in ischemic stroke patients with a history of atrial fibrillation (AF), there was a reduced risk of cognitive impairment of 50% associated with antihypertensive (aRR:0.5, 0.27-0.91), 77% with statin (aRR:0.23, 0.06-0.91) and 82% with anticoagulant (aRR:0.18, CI 0.05-0.64). In ischemic stroke patients with no history of AF, the reduced risk was 26% (aRR:0.74, 0.57-0.95) with antihypertensive and 19% (aRR:0.81, 0.64-1.03) with statin. All these protective associations tend to diminish over time up to ten years after stroke. When clinically indicated, a combined treatment of these were strongly associated with a reduced risk of cognitive impairment. Small risk reduction was observed between cognitive impairment and acute stroke unit admission (aRR:0.96, 0.93-0.98).; Conclusions: Consistent use of combined treatments is associated with better cognitive function up to 10 years post-stroke. These findings suggest that optimizing medication

management could help reduce the risk of long-term cognitive decline. (Copyright © 2026 The Authors. Published by Elsevier B.V. All rights reserved.)

2. Effect of repetitive transcranial magnetic stimulation on balance function in patients with stroke: A systematic review

Authors: Chen, Ningling; Xu, Shuo; Zou, Yilong; Chen, Shaofan; Luo, Xiuja; Zhang, Zhengcong; Chen, Tingting; Zou, Huijie; Xu, Xiaofen and Jiang, Haoqing

Publication Date: 2026

Journal: Journal of Back & Musculoskeletal Rehabilitation 39(3), pp. 727–743

Abstract: Background: Repetitive transcranial magnetic stimulation (rTMS) is a noninvasive and painless technique used to modulate central nervous system activity. It has shown promise in improving motor, swallowing, speech, and cognitive functions in patients after stroke. However, limited research has focused on its effect on post-stroke balance, and stimulation parameters remain inconsistent. Objective: To systematically evaluate the efficacy of rTMS on balance function in stroke patients by analyzing stimulation parameters, target sites, and clinical outcomes from recent RCTs, and to identify optimal evidence-based protocols for post-stroke balance rehabilitation. Methods: The PubMed, Embase, Cochrane Library, and Web of Science databases were systematically searched for RCTs. Eighteen RCTs were included. All included studies demonstrated high methodological quality (PEDro scores ≥ 6). Results: The primary motor cortex (M1) and cerebellum were the most frequently targeted stimulation sites. Most studies employed low-frequency rTMS (LF-rTMS) or iTBS. Across the included studies, rTMS demonstrated improvements in balance (BBS), lower-limb motor function (FMA-LE) and gait parameters compared with control groups ($P < 0.05$). Effect sizes varied depending on stimulation site and parameters. Clinical improvements were sustained across multiple assessment domains. Some studies reported a greater reduction in pdBSI in the rTMS group (mean difference: -0.12 , 95% CI: -0.22 to -0.02 , $P = 0.026$) and a smaller increase in MEP amplitude (mean difference: $8.5 \mu\text{V}$, 95% CI: 0.9 to $16.1 \mu\text{V}$, $P = 0.028$). Conclusion: Current evidence suggests that rTMS targeting M1 or cerebellum may effectively improve balance in stroke patients. Preliminary evidence supports either (1) LF-rTMS to the unaffected M1 or (2) cerebellar iTBS as potentially effective protocols. However, further high-quality trials are needed to establish standardized treatment parameters.

3. Optimal Strategy of Resistance Training Combined With Other Rehabilitation Interventions for Lower-Limb Dysfunction in Stroke Patients: A Systematic Review and Network Meta-Analysis

Authors: Chen, Siduo; Li, Kaiqi; Zheng, M.M.; Aojie; Liang, Weidong; Liu, Pengcheng; Sun, Shirui and Guo, Liang

Publication Date: 2026

Journal: American Journal of Physical Medicine & Rehabilitation 105(5), pp. 428–438

Abstract: Objective: Stroke frequently results in lower-limb dysfunction, severely limiting independence. This study compared the effectiveness of resistance training alone and resistance training combined with other rehabilitation modalities in improving poststroke lower-limb function. Design: A systematic review and Bayesian network meta-analysis were

conducted following PRISMA guidelines. Randomized controlled trials involving resistance training alone or in combination with other therapies versus daily care or resistance training alone were included. The primary outcomes were balance, lower-limb motor function, and walking ability. Results: Forty-seven trials with 2448 participants were analyzed. Resistance training combined with electrical stimulation therapy produced the greatest improvements in balance and lower-limb motor function, while resistance training combined with stretching training showed the best enhancement in walking ability. Surface Under the Cumulative Ranking Curve rankings indicated resistance training plus electrical stimulation therapy as most effective for balance (91.13%) and lower-limb motor function (79.70%), and resistance training plus stretching training for walking ability (96.34%). Conclusions: Resistance training remains fundamental in stroke rehabilitation. Integrating resistance training with targeted adjunctive training particularly electrical stimulation therapy or stretching training yields superior therapeutic outcomes and supports individualized, evidence-based strategies for optimizing lower-limb recovery after stroke. 4. **Collaborative artificial intelligence for the diagnosis and management of acute ischemic stroke**

Authors: Fan, Zhiqiang;Chen, Qian;Lu, Wang;Yao, Zhu;Yang, Shijie;Zhao, Hongting and Cao, Hua

Publication Date: 2026

Journal: Annals of Medicine 58(1), pp. 2594356

Abstract: Background: Acute Ischemic Stroke (AIS) remains a critical global health challenge that requires continuous improvement in diagnostic strategies. Timely and accurate diagnosis is essential for effective reperfusion therapies such as intravenous thrombolysis and mechanical thrombectomy, whose clinical benefits rapidly diminish with treatment delays. Artificial Intelligence (AI) offers promising potential to enhance diagnostic accuracy and clinical decision-making in AIS. However, data fragmentation and strict privacy regulations limit the development of robust AI systems. Objectives: We aim to provide a perspective-style review that explores how collaborative AI can reshape AIS diagnostics by overcoming data access barriers, fostering cross-institutional model development, and improving diagnostic equity.; Methods: We analysed current challenges in developing AIS-related AI tools, particularly the limitations caused by restricted data sharing across healthcare institutions. The study highlights collaborative AI approaches, such as federated learning and privacy-preserving computation, which enable decentralised model training while maintaining patient confidentiality. Relevant literature and recent developments in clinical AI collaboration were reviewed.; Results: Collaborative AI enables multiple institutions to contribute to model training without exposing raw patient data. This approach improves data diversity, model generalizability, and fairness across healthcare settings. Evidence from multi-centre studies suggests that collaborative AI frameworks can produce more accurate and ethically compliant diagnostic models compared to isolated development efforts.; Conclusions: Collaborative AI presents a transformative pathway for AIS management by balancing data utility and privacy protection. It supports the creation of trustworthy, scalable, and inclusive diagnostic systems. As healthcare systems increasingly adopt digital solutions, collaborative AI provides a foundation for equitable and privacy-conscious innovation in stroke care.

5. **Accurate identification and early warning of cognitive impairment after stroke**

Authors: Fangfang, Zhu;Juan, Li;Wei, Yang;Min, Feng and Zhongwu, Sun

Publication Date: 2026

Journal: Journal of Clinical Neuroscience : Official Journal of the Neurosurgical Society of Australasia 149, pp. 112024

Abstract: Background: Reliable markers for predicting the progression of post-stroke cognitive impairment (PSCI) are currently lacking.; Objective: To identify predictive markers of PSCI in multiple dimensions and build an early warning model.; Methods: This was a prospective, observational cohort study. We enrolled 214 patients with acute ischaemic stroke (AIS) and followed up for 6 months, with cognitive function assessed at the end of the follow-up period. A total of 203 AIS patients completed follow-up. Data were analysed according to demographic, clinical, and imaging parameters. A nomogram model was established using binary logistic regression and evaluated using AUROC, internal Bootstrap calibration, and clinical decision curve analysis. Multiple linear regression was used to quantify the predictive ability of PSCI predictors.; Results: Logistic regression indicated that age (1.10 1.05-1.15, $P < 0.001$), white matter hyperintensities (WMH) (2.68 1.30-5.54, $P = 0.008$) and NIHSS score (1.73 1.32-2.25, $P < 0.001$) were independent risk factors for PSCI in patients with AIS at 6 months. This nomogram model was robust and had a good potential utility. Multiple linear regression analysis showed that age, NIHSS score, and WMH severity were independently and inversely associated with MoCA score. After adjustment, each 1-year increase in age was associated with a 0.15-point lower MoCA score; each 1-point higher NIHSS score with a 0.40-point lower MoCA score; and each higher WMH severity grade with a 0.87-point lower MoCA score.; Conclusion: The nomogram model effectively identified stroke survivors at high risk of PSCI and may be a potential tool to guide clinicians in early stratification and decision-making. It must be emphasized that the proposed nomogram represents only an internally validated derivation model, which requires further validation. (Copyright © 2026. Published by Elsevier Ltd.)

6. Exploring key risk factors for loss to follow-up after hospitalization for acute stroke

Authors: Kummer, Benjamin R.;Hwang, Soonmyung A.;Agarwal, Parul;Morozov, Masha;Davy, Connor M.;Tosto-Mancuso, Jenna and Dangayach, Neha S.

Publication Date: 2026

Journal: Journal of Clinical Neuroscience : Official Journal of the Neurosurgical Society of Australasia 148, pp. 111951

Abstract: Background: A significant proportion of stroke patients are lost to follow-up (LTFU) after discharge, which may increase risks of morbidity, mortality, and unnecessary hospitalization. We aimed to identify predictors of post-discharge LTFU in acute stroke patients from a large academic hospital system.; Methods: Using the American Heart Association's Get With the Guidelines registry, we conducted a retrospective analysis of acute stroke patients hospitalized at the Mount Sinai Hospital from January 2016 to December 2020. Our primary outcome was post-discharge LTFU (i.e. no ambulatory encounters within 12 months post-discharge). We used the least-absolute square and shrinkage operator (LASSO) for variable selection, then used multiple logistic regression to model the association of selected predictors with our primary outcome.; Results: We identified 2,597 patients, of whom 878 (33.8%) were LTFU. Patients LTFU were more likely to be male (52.9% vs. 47.4%, $p = 0.0088$), admitted for intracerebral hemorrhage (12.1% vs. 8.9%, $p = 0.0047$), discharged to skilled nursing facilities (19.8% vs. 17.0%, $p < 0.001$), and transferred from another hospital (48.0% vs. 40.7%, $p = 0.0030$). These patients were more likely to have a discharge modified Rankin Scale (mRS) score of 4-5 (35.2% vs. 30.2%, $p = 0.0060$) and had a higher mean discharge NIHSS score

(6.1 vs. 4.9, $p < 0.001$). In the adjusted analysis, patients who self-paid (adjusted odds ratio (aOR) 3.8, 95%CI 1.3-11.4), were discharged to acute care facilities (aOR 5.3, 95%CI 1.5-18.4), or had a mRS of 5 (aOR 2.4, 95%CI 1.0-5.7) had significantly increased odds of LTFU. Patients with Medicare coverage (aOR 0.60, 95%CI 0.40-0.92), discharge to inpatient rehabilitation (aOR 0.54, 95%CI 0.34-0.86), family history of stroke (aOR 0.37, 95%CI 0.18-0.76) had significantly decreased odds of LTFU.; Conclusions: In this study, we identified clinical characteristics and discharge dispositions associated with LTFU after stroke. (Copyright © 2026. Published by Elsevier Ltd.)

7. Stroke Care and Outcomes Among Patients Experiencing Homelessness: A Systematic Review and Meta-Analysis

Authors: McKay, Jennifer Michelle; Semir, Mihad; Giorgio, Katherine; Sedaghat, Sanaz; Olson, Brooke; Murray, Anne M.; Winkelman, Tyler; Vickery, Katherine Diaz and Sabayan, Behnam

Publication Date: 2026

Journal: Neurology Open Access 2(2)

Abstract: Introduction: Homelessness is associated with an increased risk of stroke, likely secondary to uncontrolled vascular risk factors and poor access to preventive care and chronic disease management. Its specific impact on acute stroke care and outcomes remains poorly understood. In this study, we conducted a systematic review and meta-analysis to summarize the available evidence.; Methods: We searched PubMed, EMBASE, PsycINFO, Scopus, and Web of Science from 2000 to 2024 without language or geographical restrictions. Original observational studies of adults with acute stroke experiencing homelessness were included. Studies in animals and children, and studies without clear characterization of housing status and stroke outcomes were excluded. We compared post-stroke mortality, use of cerebrovascular diagnostics and therapeutics (including intravenous thrombolysis IVT], mechanical thrombectomy, and vessel imaging), discharge destinations, and length of hospital stay between patients experiencing homelessness (PEH) and housed patients. We conducted a meta-analysis by pooling relative risk effect size.; Results: Titles and abstracts of 1,598 articles were screened by two independent reviewers, and 80 studies were selected for full-text review. Seven studies comprising 620,327 (86.5% male, 54.5 average age) PEH and 3,035,234 (52.7% male, 57.4 average age) housed patients were included in the systematic review. Studies included in the meta-analysis were conducted in the United States. All seven studies were rated as moderate to high quality. Pooled analysis did not reveal differences in in-hospital mortality between PEH and housed patients (risk ratio RR]; 1.10 95% confidence interval CI] 0.82-1.48). PEH with ischemic stroke were receiving IVT less frequently compared to housed individuals (RR 0.86, 95% CI 0.77-0.97). Two studies reported on discharge destinations, both indicating that PEH were more likely to be discharged to self-care or leave against medical advice.; Conclusions: Patients experiencing homelessness with stroke were less likely to receive IVT and more often discharged without support. Further research is needed to identify long-term stroke outcomes and address disparities of post-stroke care to improve outcomes in PEH with stroke.; Registered: Prospero (Registration No. CRD42024582119).

8. Prestroke Frailty and Functional Outcomes After Inpatient Stroke Rehabilitation: A Retrospective Cohort Study

Authors: Michail, Ramez; Yavarizadeh, Bahareh and Mountain, Anita

Publication Date: 2026

Journal: American Journal of Physical Medicine & Rehabilitation 105(5), pp. 420–427

Abstract: Objective: Stroke is a leading cause of long-term disability, often requiring inpatient rehabilitation. Frailty, characterized by reduced physiological reserve and vulnerability to stressors, is associated with poorer outcomes. This study examined the association between prestroke frailty and functional recovery during inpatient rehabilitation. Design: Retrospective cohort study of 224 stroke patients admitted between 2020 and 2022; 206 were included in the analysis. Prestroke frailty was assessed using the Clinical Frailty Scale, and rehabilitation outcomes were measured using Functional Independence Measure gain and efficiency. Associations were evaluated using Spearman correlations and linear regression. Results: Of 206 patients, 42.7% were female and 75.7% were aged ≥ 60 . Functional Independence Measure gain and efficiency did not differ significantly across Clinical Frailty Scale categories ($P > 0.05$). Clinical Frailty Scale was not correlated with Functional Independence Measure gain ($r = -0.07$, $P = 0.316$) or efficiency ($r = 0.02$, $P = 0.755$). Admission and discharge Functional Independence Measure scores differed across Clinical Frailty Scale categories ($P = 0.041$ and $P = 0.002$). Conclusions: Although patients with higher prestroke frailty had lower functional scores at admission and discharge, functional improvement and efficiency did not differ significantly. However, the small number of patients with moderate to severe frailty (6.8%) may have limited the ability to detect a difference.

9. Physical exercise promotes white matter repair after ischemic stroke

Authors: Mu, Yating; Yang, Xiaofeng; Feng, Yifeng; Zhang, Liying; Xu, Jinghui; Li, Mingyue; Wu, Rui; Li, Shiyang; He, Xiaofei; Zuo, Zejie and Hu, Xiquan

Publication Date: 2026

Journal: Neural Regeneration Research 21(6), pp. 2397–2406

Abstract: JOURNAL/nrgr/04.03/01300535-202606000-00053/figure1/v/2026-02-11T151048Z/r/image-tiff White matter injury is a key factor impacting stroke recovery. Physical exercise can promote white matter repair. Immune cells, especially regulatory T (Treg) cells, contribute to strengthening white matter integrity, yet little is known about the underlying mechanism. To examine this, we established a transient middle cerebral artery occlusion male mouse model. We found that physical exercise elevated brain Treg cells, thereby enhancing neurological recovery, reducing neuroinflammation, promoting myelin debris clearance, and accelerating white matter repair. Depletion of Treg cells caused a decrease in these positive effects of physical exercise. Mechanistically, the rise in osteopontin triggered by physical exercise is dampened when Treg cells are depleted. In addition, Treg-conditioned medium reduced oxygen-glucose deprivation/re-oxygenation-induced microglial inflammation and enhanced phagocytosis, which could be blocked by osteopontin antibodies. Importantly, although Treg infusion could mimic the protective effects of physical exercise, osteopontin blockade partially countered the effects of physical exercise and Treg cells. Finally, our sequencing data revealed a marked upregulation of C-X-C motif chemokine ligand 12 (CXCL12) mRNA expression subsequent to physical exercise, which was confirmed at the protein level. Stimulation of Treg cells with stroke brain lysates increased C-X-C motif chemokine receptor 4 (CXCR4) expression, indicating a potential role for the CXCL12-CXCR4 axis in recruiting Treg cells. These findings suggest that physical exercise promotes white matter repair after ischemic stroke by Treg cells. (Copyright © 2025 Neural Regeneration Research.)

10. Post-stroke insomnia and the risk of post-stroke cognitive impairment and dementia: A large retrospective cohort study

Authors: Muhtar, Muhammad Solihuddin;Chirakalwasan, Naricha;Chiu, Hsiao-Yean;Pongpitakmetha, Thanakit;Hsu, Min-Huei;Chen, Pin-Yuan;Al-Nouman, Huda;Thato, Ratsiri and Hasan, Faizul

Publication Date: 2026

Journal: Sleep Medicine 143, pp. 108929

Abstract: To evaluate the association between post-stroke insomnia (PSI) and the incidence of post-stroke cognitive impairment (PSCI), dementia, and all-cause mortality compared to stroke survivors without insomnia. We analyzed electronic health record data from the TriNetX Global Collaborative Network (119 healthcare organizations). Adults diagnosed with stroke between January 1, 2004, and September 30, 2017, were included. Patients with pre-existing insomnia were excluded. Patients were categorized as having PSI if diagnosed with insomnia after the index stroke, or as a non-insomnia comparator if no sleep disorder was recorded. Propensity score matching was used to balance baseline characteristics. The primary outcome was PSCI. Secondary outcomes included all-cause dementia, Alzheimer's disease, and all-cause mortality. Cox proportional hazard models were used to estimate hazard ratios (HRs) with 95% CIs. After propensity score matching, 35,144 patients were included in each cohort (PSI and non-insomnia). During follow-up, patients with PSI had significantly higher risks of PSCI (HR, 1.29; 95% CI, 1.24-1.34), all-cause dementia (HR, 1.30; 95% CI, 1.23-1.37), and Alzheimer's disease (HR, 1.28; 95% CI, 1.13-1.45) compared to the non-insomnia group. The risk of all-cause mortality was not different between the groups. Multivariable Cox model analyses revealed stronger associations of PSI with PSCI, dementia, and Alzheimer's disease in older adults, females, and those with diabetes, musculoskeletal diseases, hypertensive diseases, digestive disorders, specific head injuries, antidepressant use, NSAID use, and non-opioid analgesics use. In this large cohort study, PSI was associated with a significantly increased risk of cognitive decline, including PSCI, dementia, and Alzheimer's disease. These findings suggest that systematic screening and management of insomnia should be integrated into post-stroke care pathways to potentially mitigate long-term cognitive deterioration. (Copyright © 2026 Elsevier B.V. All rights reserved.)

11. From hands-on to family-on: Task-Shifting manual therapy techniques in post-stroke neuroplasticity - A retrospective comparative analysis of the Cogni-Famille protocol

Authors: Npochinto Moumeni, Ibrahim;Abdel-Nasser, Njikam;Bristher Horlister, Tchuidjio Ketchogué;Temgoua, Michael and Mapoure, Yakouba Njankouo

Publication Date: 2026

Journal: Journal of Bodywork & Movement Therapies 46, pp. 168–180

Abstract: Manual therapy techniques have demonstrated efficacy in post-stroke rehabilitation through neuroplastic mechanisms, yet accessibility remains limited by specialist availability. Family-centered task-shifting approaches may democratize manual therapy delivery while amplifying therapeutic intensity. Objective: To evaluate the effectiveness of structured family training in manual therapy techniques for post-stroke recovery through the innovative Cogni-Famille protocol, with primary outcome measured by Montreal Cognitive Assessment (MoCA)

score changes and functional independence (Barthel Index). Retrospective comparative cohort study analyzing 13 post-stroke patients receiving family-delivered manual therapy training (25-h structured program, March 2024–June 2025) versus 13 historical controls receiving conventional therapy (December 2022–January 2024). Significant improvements in MoCA scores ($+5.8 \pm 2.1$ vs $+2.1 \pm 1.3$ points, $p < 0.001$, effect size 2.1), functional independence (85 % vs 46 %, $p = 0.02$), Zarit caregiver burden reduction (-18.3 ± 4.7 vs -6.2 ± 3.1 , $p < 0.001$), and Modified Ashworth Scale spasticity improvement (-2.1 ± 0.8 vs -0.7 ± 0.6 , $p < 0.001$). Task-shifting model achieved 94 % family certification rate with zero serious adverse events. Cost reduction of 68 % (742€ vs 2310€, $p < 0.001$). Structured family training in manual therapy techniques achieves superior outcomes through neuroplastic amplification via intensive, culturally-adapted delivery. This model offers scalable solutions for global stroke rehabilitation while maintaining safety and therapeutic effectiveness.

12. Understanding the relationship between post-stroke cognitive impairments and depression: The role of loneliness

Authors: Overman, Margot Juliëtte;Vohora, Reena and Demeyere, Nele

Publication Date: 2026

Journal: Journal of Affective Disorders 403, pp. N.PAG

13. The role of physiotherapists in acute post-stroke neurorehabilitation: qualitative perspectives from clinicians and stroke unit managers

Authors: Pérez-De La Cruz, Sagrario

Publication Date: 2026

Journal: International Journal of Qualitative Studies on Health and Well-Being 21(1), pp. 2634880

Abstract: Purpose: The aim of this study was to explore and compare the perspectives of both physiotherapists and medical managers regarding the professional role and clinical contributions of physiotherapy within stroke units.; Method: A qualitative study was conducted involving ten physiotherapists and five medical managers from stroke units. Participants shared their professional experiences concerning work performance and the perceived impact of physiotherapy on patient care.; Results: Thematic analysis identified four key areas for physiotherapists: specific training, professional functions, treatment modalities, and the relevance of professionalism and empathy. For medical managers, the analysis focused on their perception of physiotherapy work, their understanding of factors that enhance treatment, and assigned functions. The findings reveal a lack of standardized treatment protocols (non-heterogeneity) and emphasize the need for strong interpersonal professional relationships and high standards of professionalism.; Conclusions: The observed heterogeneity in practices leads to inconsistencies in patient care. Furthermore, there is a notable gap in medical managers' understanding of the specific clinical scope and technical interventions provided by physiotherapists. These findings highlight the need for coordinated rehabilitation programs and a clearer definition of the physiotherapist's role in acute stroke units to ensure equitable and comprehensive care.

14. From Hospital to Home: A Qualitative-Multidimensional Analysis of Stroke Survivors' Perspectives During the Transition from Hospital to Home

Authors: Rago, Cristiana;Figura, Mariachiara;Veronese, Mayra;Curcio, Felice;Virgolesi, Michele;Vellone, Ercole;Alvaro, Rosaria and Pucciarelli, Gianluca

Publication Date: May ,2026

Journal: Journal of Cardiovascular Nursing 41(3), pp. 229–236

Abstract: Background: Stroke recovery is a complex process, with the transition from hospital to home representing a critical yet underexplored phase in patient care. Aim: Our aim was to explore stroke survivors' perspectives during transition from hospital to home. Methods: A qualitative study was conducted. Interviews with stroke survivors were collected to explore their transition experiences. Data were analyzed using an innovative multimethod approach, which combines quantitative statistics and informatic software to categorize themes and visualize relationships among latent dimensions. Findings: Four key themes emerged from the data: "experience," "predischarge preparedness," "support," and "challenges." Participants expressed mixed feelings of relief and anxiety, highlighting the need for structured discharge planning and comprehensive support. Predischarge preparedness was identified as essential for reducing stress and facilitating reintegration into daily life. Support from family and healthcare providers was critical for emotional and physical recovery, with continuous support enhancing quality of life. Participants faced challenges, including mobility issues, pain, and emotional distress, impacting their ability to perform daily tasks and leading to feelings of dependence. Conclusions: This study underscored the importance of a multidisciplinary approach that integrates effective predischarge preparation, continuous medical care, and emotional support to improve quality of life for stroke survivors. Our findings highlighted the need to develop targeted care strategies that address the multifaceted needs of stroke survivors during their transition from hospital to home.

15. Robotic rehabilitation and intelligent algorithms improving the performance skills of stroke patients: a scoping review

Authors: Rustamzadeh, Omid;Hosseini, Seyed Ali;Tanha, Rastegar Rahmani and Akbarfahimi, Nazila

Publication Date: 2026

Journal: Journal of Bodywork and Movement Therapies 46, pp. 308–331

Abstract: Background: This scoping review highlights major advances and persisting gaps in robotic and AI-driven rehabilitation for stroke, evaluating their impact on hand strength, dexterity, and ROM, and offering clinicians practical, updated guidance.; Methods: Studies that focused on robotic-assisted technologies (RATs) in upper limb rehabilitation for stroke survivors (2014-2024) were included. Study designs unrelated to stroke, animal studies, and conference abstracts were excluded. Systematic searching in PubMed, Web of Science, Scopus, and Google Scholar employed robotic rehabilitation, AI, hand function, and stroke recovery-related terms. Data extraction encompassed intervention type, duration of treatment, dosage of therapy, outcome measures, cost-effectiveness, and patient satisfaction. Types of robotic rehabilitation: end-effector robots, exoskeletons, soft robotic gloves (SRGs), brain-computer interfaces (BCIs), and AI-enhanced virtual reality (AIVR).; Results: These devices can augment motion, grip strength, and functional independence, especially in chronic and subacute stroke patients. Therapies are made fine-grained by algorithms to balance challenge and engagement, thus lightning therapists' burdens. Conventional energy sources may offer a

more attractive option at shorter timelines and with reasonably predictable availability. Models that can be done at home enhance adherence at that higher level, though usability appears high for most models. Still, challenges with setup and independence for participants remain.; Conclusion: Robotic rehabilitation has a significant impact on motor function (MF) among stroke patients. Despite this, obstacles such as cost, accessibility, and long-term efficacy need even more research. Therapy dose optimization, adaptive AI integration, and cognitive-emotional outcome assessment are all areas of gaps in robotic rehabilitation that still need to be addressed. (Copyright © 2025. Published by Elsevier Ltd.)

16. Respiratory-swallow coordination training using bimodal signal biofeedback for patients with post-stroke dysphagia: a randomized controlled trial

Authors: Wang, Lian;Qiao, Jia;Wei, Zhenhai;Liu, Xiaoqin;Wei, Xiaomei and Dou, Zulin

Publication Date: 2026

Journal: Annals of Medicine 58(1), pp. 2607218

Abstract: Objective: The purpose was to investigate the effects of respiratory-swallow coordination training with bimodal signal biofeedback on swallowing function in patients with post-stroke dysphagia.; Methods: Post-stroke dysphagia Patients were randomly assigned to either the control group or the experimental group. The control group received conventional rehabilitation, while the experimental group underwent additional respiratory-swallow coordination training based on biofeedback. The training protocol consisted of three phases, conducted at an intensity of 30 min/day, 6 days/week, for two consecutive weeks. Outcome measures included the Functional Oral Intake Scale (FOIS) score, the Rosenbek Penetration-Aspiration Scale (PAS) score, respiratory-swallow coordination, and videofluoroscopic swallowing study temporal and kinematic parameter. Assessments were conducted at baseline, post-treatment, and at a one-month follow-up.; Results: Thirty patients were enrolled. Both groups showed significant improvement in FOIS scores from baseline to both two-week post-treatment and one-month follow-up ($p < 0.001$). Compared to the controls, the experimental group demonstrated significantly greater FOIS scoreimprovement at both post-treatment and follow-up ($p < 0.001$). The proportion of patients with a ≥ 2 -point increase in FOIS scores was significantly higher in the experimental group than in the control group at both post-treatment ($p < 0.01$) and one-month follow-up ($p < 0.01$). After two weeks of treatment, the percentage of PAS scores ≥ 6 was significantly lower in the experimental group than in the control group ($p < 0.001$). Additionally, the percentage of optimal respiratory-swallow pattern was significantly higher in the experimental group than in the control group ($p < 0.001$).; Conclusion: Bimodal signal biofeedback-based respiratory-swallow coordination training can effectively improve respiratory-swallow coordination and swallowing function in patients with post-stroke dysphagia.

17. Systematic Review and Meta-Analysis of Post-Stroke Delirium Risk Prediction Models

Authors: Yu, Qiushuang;Han, Liu;Guo, Hong;Yang, Sijia;Fan, Xueyan;Yuan, Haisheng;Niu, Tao;Li, Chunfeng and Zhang, Dahua

Publication Date: 2026

Journal: Journal of Advanced Nursing (John Wiley & Sons, Inc.) 82(5), pp. 4750–4765

Abstract: Aim: To systematically review published studies on the post stroke delirium risk prediction models; and to provide the evidence for developing and updating the clinically available prediction models. Design: Systematic review. Data Sources: Systematically searched studies on 10 databases, which were conducted from inception to 9 January 2025. The studies of post-stroke delirium risk prediction models were included. Methods: Extracted the data from the selected studies. The Prediction Model Risk of Bias Assessment Tool checklist was used to evaluate the risk of bias of the models. The meta-analysis of model performance and common predictors was performed by Revman 5.4 and Medcalc. Results: A total of 12 studies were included, and 21 risk prediction models for post-stroke delirium were constructed. The combined effect size of area under the receiver operating characteristic curve was 0.84. All studies were found to have a high risk of bias and good applicability. Meta-analysis showed: National Institutes of Health Stroke Scale score, age, neutrophil-to-lymphocyte ratio, neglect, visual impairment and atrial fibrillation were independent predictors of post-stroke delirium. Conclusion: The included studies all found to have a high risk of bias; future studies should focus on adopting more scientifically rigorous study designs and following the standardised reporting guidelines to enhance extrapolation and facilitate its clinical application. Implications for the Profession: This review may promote clinical healthcare workers to develop and update clinically available prediction models, thereby establishing risk prediction models with strong clinical utility. Impact: This study presents the first systematic evaluation of delirium risk prediction models in stroke patients, thereby facilitating the choice, use and develop of the clinical usable post stroke delirium risk prediction models. Reporting Method: This review adhered to the PRISMA guidelines. Patient or Public Contribution: No patient or public contribution. Review Registration: RD42024620360 (PROSPERO According to JAN Guidelines).

18. Gender Differences in the Prevalence and Correlates of Post-Stroke Depression Among Older Stroke Survivors: Findings From a National Survey in China

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Abstract: Background: Post-stroke depression (PSD) is a common neuropsychiatric complication in stroke survivors. However, gender differences in the prevalence and correlates of PSD are underexplored. This study examined gender differences in PSD prevalence and their demographic and clinical correlates among older stroke survivors.; Methods: Data from a large national survey conducted in China during 2017-2018 were analyzed. Depressive symptoms were measured using the 10-item Center for Epidemiologic Studies Depression Scale. Univariate and multivariate analyses examined the demographic and clinical correlates of PSD by gender.; Results: A total of 1123 older stroke survivors (65 years of age or above), including 578 males (51.5%) and 545 females (48.5%), were included. The overall PSD prevalence was 34.28% (95% CI = 31.52%-37.15%), with significantly higher prevalence in females (38.71%; 95% CI: 34.62%-42.96%) compared to males (30.10%; 95% CI: 26.42%-34.05%). In males, engaging in recent physical exercise (OR: 0.604; 95% CI: 0.389-0.936; $p = 0.024$) was associated with a lower PSD risk, while more activity limitations (OR: 1.727; 95% CI: 1.131-2.639; $p = 0.011$) and severe anxiety (OR: 1.455; 95% CI: 1.334-1.586; $p < 0.001$) were associated with higher risk. In females, recent physical exercise (OR: 0.370; 95% CI: 0.235-0.581; $p < 0.001$) was linked to lower PSD risk, while heart disease (OR: 1.698;

95% CI: 1.136-2.539; $p = 0.010$) and severe anxiety (OR: 1.516; 95% CI: 1.372-1.674; $p < 0.001$) were associated with higher risk.; Conclusion: This study highlights the gender differences in PSD prevalence and correlates among older Chinese stroke survivors. Tailored interventions are needed to address PSD, with future research focusing on targeted screening and intervention. (© 2026 John Wiley & Sons Australia, Ltd.)