Evidence-Based Nursing Practice for Post-Stroke Anxiety and Depression Based on Guidelines

Lihua Li[1], Jingjing Du[2]

[1]College of Health Management, Shanghai Jian Qiao University, Shanghai 201306, China
[2]School of Nursing, Mudanjiang Medical University, Mudanjiang 157011, Heilongjiang, China

Abstract: *Objective:* To systematically retrieve clinical practice guidelines in Chinese and English concerning the identification and management of post-stroke anxiety and depression, extracting the best available evidence for clinical implementation; to conduct a clinical status survey to understand the effectiveness, feasibility, and appropriateness of implementing this best evidence in practice, analyze barriers, and provide a reference for developing evidence-based nursing practice protocols for guideline-based identification and management of post-stroke anxiety and depression. *Methods:* Systematically retrieved clinical practice guidelines on the identification and management of post-stroke anxiety and depression in Chinese and English from databases including CNKI, Wanfang, VIP, CBM, PubMed, and relevant guideline websites such as RNAO, NZGG, NICE, SIGN, the Chinese Centre for Evidence-Based Medicine, and Yimaitong between January 2010 and December 2024. Employed the AGREE II tool to systematically evaluate the quality of screened guidelines, forming the best evidence suitable for clinical implementation. Through purposive sampling, seven nursing staff from neurology and neurosurgery departments and six stroke patients at a tertiary hospital were selected for semi-structured interviews to understand the current clinical implementation of post-stroke anxiety and depression identification and management, alongside patients' psychological needs and experiences. Participatory observation was employed to examine departmental policies on stroke anxiety and depression care, identification and management practices, care documentation, and nursing staffing resources. *Results:* A literature search of relevant websites and databases yielded 1,088 articles. Following screening, six guidelines related to post-stroke anxiety and depression were ultimately included, excluding expert consensus and explanatory guidelines. Among these, three were international guidelines and three were domestic guidelines. Three project team members evaluated the guidelines using the AGREE II instrument, yielding ICC values of 0.901 ($P < 0.001$), 0.886 ($P < 0.001$), 0.811 ($P < 0.001$), 0.860 ($P < 0.001$), 0.834 ($P < 0.001$), and 0.905 ($P < 0.001$), respectively. All ICC values exceeded 0.75, indicating good inter-rater reliability. Among these, two guidelines achieved standardized scores exceeding 60% across all six domains, qualifying as Grade A quality. Two guidelines met ≥3 domains at ≥30% but had <60% in any domain, classifying as Grade B. Two guidelines had four domains below 30%, categorized as Grade C. Interview findings revealed a lack of established processes for identifying and managing post-stroke anxiety and depression within departments. Nursing staff demonstrated weak awareness and insufficient knowledge regarding the identification and management of post-stroke anxiety and depression. Patients commonly experienced anxiety and depression post-stroke, lacked key knowledge about stroke, and expressed a strong desire for nursing support. *Conclusion*: The included international guidelines on post-stroke anxiety and depression carried recommendations of Grade A and B, indicating overall high quality. In contrast, domestic guidelines carried recommendations of Grade B and

C, reflecting generally moderate quality. International guidelines offer more comprehensive and detailed recommendations for identifying and managing post-stroke anxiety and depression than domestic guidelines. Domestic guidelines still lag behind international counterparts in terms of practicality, scientific rigor, and thoroughness. Consequently, China should actively explore localizing high-quality international guidelines to provide clinical nursing staff with evidence-based guidance for identifying and managing post-stroke anxiety and depression, thereby enhancing nursing service quality and evidence-based decision-making. Evidence-based nursing practice, grounded in optimal evidence from evidence-based guidelines, incorporates patient needs and preferences, professional nursing judgement, and the clinical context of evidence application to form final recommendation items. This provides guidance for identifying and managing post-stroke anxiety and depression in clinical settings, serving as the prerequisite and safeguard for translating optimal evidence into clinical transformation and application.

1. Introduction

Cerebrovascular disease primarily manifests as stroke, encompassing both ischemic and hemorrhagic forms. Characterized by sudden onset and rapid development of focal or diffuse cerebral dysfunction, stroke constitutes a group of cerebrovascular disorders resulting from organic brain injury [1]. It ranks among the world's leading causes of mortality and disability [2]. Over the past two decades, the establishment of stroke units in several developed countries has significantly improved acute stroke management, reducing mortality rates and relatively increasing the proportion of survivors with mild to moderate disability [3]. However, long-term follow-up by multidisciplinary teams has confirmed that stroke survivors frequently experience psychological distress and numerous neuropsychiatric disorders, leading to poor rehabilitation outcomes, disease recurrence, and diminished quality of life. Common post-stroke emotional disorders include post-stroke depression (PSD), post-stroke anxiety (PSA), post-stroke emotional incontinence (PSEI), post-stroke anger proneness (PSAP), and post-stroke fatigue (PSF) [4], with post-stroke anxiety and depression being the most prevalent.

Evidence-Based Nursing Practice (EBPN) represents the process whereby nursing staff prudently, explicitly, and judiciously integrate research findings with clinical experience and patient preferences when planning care activities to inform clinical decision-making [5], increasingly becoming a future trend in nursing development. Currently, the identification and nursing care of post-stroke anxiety and depression have not received sufficient attention from clinical nursing staff. Research on early assessment, screening, and nursing treatment strategies remains insufficiently systematic and comprehensive, and no evidence-based mechanisms have been established. This study aims to systematically evaluate relevant domestic and international guidelines on the identification and nursing care of post-stroke anxiety and depression, extracting the best available evidence. Through a survey of the current clinical situation, it seeks to understand the effectiveness, feasibility, and appropriateness of implementing the best evidence from these guidelines in clinical practice, identify barriers, and provide a reference for developing evidence-based nursing practice protocols for guideline-based identification and management of post-stroke anxiety and depression. This will enhance awareness of PSA and PSD within China's neurology field and advance the scientific and standardized clinical care of these conditions.

2. Research methods

2.1. Determination of evidence-based nursing practice issues

With the objective of utilizing optimal evidence, potential nursing practice transformation needs were identified through a two-month observation and implementation period within the neurology and neurosurgery departments of a Grade A tertiary hospital (provincial stroke center). Structured evidence-based questions were formulated using the PIPOST [5] framework. Following inclusion and exclusion criteria, electronic databases including CNKI, Wanfang, VIP, CBM, PubMed, and guideline-related websites such as RNAO, NZGG, NICE, SIGN, China Evidence-Based Medicine Centre, and Yimaitong. Guideline quality was assessed using the AGREE II (Appraisal of Guidelines for Research and Evaluation II) tool.

2.2. Investigation of current clinical practice

Based on optimal recommendation items, purposeful sampling was employed to select interview subjects, including clinical nurses and stroke patients. An investigation was conducted into departmental practices concerning post-stroke anxiety and depression care protocols, identification and management procedures, nursing documentation, and human resource allocation.

3. Research findings

3.1. Guideline retrieval results

Searches of relevant websites and databases yielded 1,088 publications. After screening, six guidelines related to post-stroke anxiety and depression were ultimately included [5–10]. These comprised three international guidelines [5,6,9] and three domestic guidelines [7,8,10]. The medical teams formulating these guidelines comprised authoritative international bodies and domestic neurological societies such as the Chinese Stroke Society. Four guidelines [5–8,10] constituted comprehensive stroke management guidelines, with post-stroke anxiety and depression forming a component section. The Chinese guideline [7] is primarily directed at post-stroke depression, while the Canadian [9] focuses on patients with post-stroke mood disorders, cognitive impairment, and fatigue. The content encompasses screening, assessment, treatment, prevention, and education for post-stroke anxiety and depression, constituting a systematic and comprehensive guide for the identification and management of these conditions. Three of these guidelines [8–10] employ evidence grading and recommendation strength criteria defined by their originating institutions, two [6,7] make no mention, and one [5] adopts SIGN standards.

3.2. AGREE II evaluation results

ICC Consistency Test: The ICC values for all six guidelines exceeded 0.75, indicating good consistency among the three project team members' evaluations. The AGREE II assessment of the Scottish [5] and Canadian [9] guidelines yielded standardized scores >60% across all six domains, achieving Grade A quality. The UK [6] and China [8] guidelines had ≥3 domains scoring ≥30% but <60% in any domain, achieving Grade B quality. Two Chinese [7,10] guidelines had standardized scores below 30% in four domains, receiving Grade C quality ratings, and are not currently recommended for use. See **Table 1**.

Table 1. AGREE II evaluation results for included guidelines

Included guidelines	Standardized score (%) per domain						Number of domains with standardized score ≥ 60%	Number of domains with standardized score ≤ 30%	Overall guideline quality
	Scope and purpose	Participants	Rigor	Clarity	Applicability	Independence			
Scotland	96.30	87.04	70.99	75.00	83.33	66.67	6	0	A
United Kingdom	85.19	53.70	16.05	56.94	33.33	5.56	1	2	B
China	33.33	3.70	5.56	13.89	0	38.89	0	4	C
China	59.26	62.96	48.15	43.06	19.44	44.44	1	1	B
Canada	94.44	87.04	85.19	94.44	77.78	100	6	0	A
China	81.48	48.15	26.54	26.39	11.11	8.33	1	4	C

3.3. Optimal recommendation items

Following the completion of the guideline's quality and applicability assessment through systematic review and panel deliberation, 17 recommended items suitable for implementation in the selected clinical departments were ultimately screened and formulated, as presented in **Table 2**.

Table 2. Final recommended items for post-stroke psychological management

Field	Serial number	Final recommendation item content	Recommendation level
Screening	1	All stroke patients should undergo post-stroke depression screening if medically indicated	Grade B recommendation
	2	Given the increasing prevalence of stroke, consider implementing anxiety screening for stroke patients.	Grade B recommendation
	3	Screening should be conducted by trained professionals using validated anxiety and depression screening tools	Grade B recommendation
	4	For stroke patients with language impairments, appropriate methods should be selected for anxiety and depression screening	Grade C recommendation
Assessment	1	Screening of stroke patients indicates a high risk of depression; prompt assessment by healthcare professionals with expertise in depression diagnosis, management, and follow-up is warranted	Grade C recommendation
	2	Stroke assessment should include depression risk factors, particularly a history of depression.	Grade C recommendation
Treatment	1	Patients with mild depressive symptoms or diagnosed with mild depression may initially be managed with a "watchful waiting" approach	Grade B recommendation
	2	Should depression persist or worsen and interfere with clinical outcomes, pharmacological treatment should be considered and initiated.	Grade B recommendation
	3	Psychotherapy should be employed as an adjunctive treatment for post-stroke depression, combined with antidepressant medication.	Grade A Recommendation
	4	During the initial phase of post-stroke depression treatment, maintenance therapy may be considered based on individual circumstances	Grade C recommendation
	5	Regular monitoring of treatment response for post-stroke depression is warranted, including assessment of changes in depression severity, review of potential adverse effects, and updating of ongoing management plans.	Grade C recommendation
	6	Treatment response for post-stroke depression should be monitored, with regular review of the management plan, vigilance for potential adverse reactions, adherence to medication, and the possibility of symptom recurrence.	Grade A recommendation
	7	Anxiety frequently co-occurs with depression and may also manifest in stroke patients without clinical depression. Pharmacological treatment is justified for stroke patients presenting with significant anxiety, with or without clinical depression.	Grade C recommendation
	8	Psychotherapy for post-stroke anxiety may be considered as an adjunct to pharmacological treatment.	Grade C recommendation
	9	Problem-solving therapy (i.e., cognitive behavioral therapy) has demonstrated efficacy for post-stroke anxiety	Grade B recommendation
Prevention	1	Problem-solving therapy (i.e., cognitive behavioral therapy) has been demonstrated to be effective for the preventive treatment of post-stroke depression	Grade B recommendation
Education	1	Stroke patients and their families should receive information and education regarding the potential emotional impact of stroke	Grade C recommendation

4. Clinical status survey

4.1. Challenges for nurses: Excessive workload, staff shortages, and inadequate knowledge in managing post-stroke anxiety and depression

Nurses face excessive workloads, limited human resources, and inadequate knowledge regarding the identification and management of post-stroke anxiety and depression.

N1: "Our nursing assessment form includes an item on the patient's psychological state, but we generally do not ask directly. We can observe the patient's psychological state through assessing other items." N3: "Our department admits over 100 patients each month. We are overwhelmed with tasks like administering injections, changing dressings, and following medical orders. We simply do not have time to screen for anxiety or depression. Even if a patient has psychological issues, we cannot resolve them; we can only provide health education. Besides, there are doctors for that! Doctors conduct daily rounds and will manage such cases." N4: "Our department currently does not screen all admitted stroke patients for anxiety or depression, nor do we have screening tools. Moreover, implementing such tools incurs costs, which I believe patients would find unacceptable." N7: "We occasionally gain knowledge on this subject during lectures, but our daily workload—merely executing medical orders and caring for patients—already leaves us overwhelmed."

4.2. Departmental lack of post-stroke anxiety and depression identification and management protocols

Observation of the pilot neurology ward at a provincial tertiary-level Class A hospital revealed that although the department houses a stroke center, its current protocols lack specific systems for identifying and managing post-stroke anxiety and depression. Inpatients with stroke do not undergo screening for these conditions; instead, when patients exhibit significant anxiety or depression, a psychiatrist is consulted for guidance on medication. Nursing documentation concerning post-stroke anxiety and depression is minimal, with only basic psychological assessments in nursing evaluation forms and special care records emphasizing "providing admission education and safety guidance."

4.3. Patients' limited knowledge of stroke-related conditions and significant psychological burden

P1: "I don't understand why I got this illness so young, having to rely on others daily and being unable to do anything myself." P2: "I often feel deeply agitated, dreading the burden I place on my family. I constantly feel like a liability. I desperately wish to recover quickly so I don't hold them back – I just want to stop troubling them." P4: "My mood is perpetually agitated because I constantly yearn to recover swiftly, yet the rehabilitation journey remains painfully protracted." P5: "I wish nurses could provide more guidance on disease-specific recovery, as I'm uncertain what actions I can currently undertake." See **Table 3**.

Table 3. Key barriers to departmental guideline implementation and action strategies

No.	Baseline review barriers	Action strategy
1	Department lacks effective post-stroke anxiety and depression screening tools (including scales for patients with language impairments)	Consult guidelines to recommend and implement validated screening tools
2	The department lacks a recognized process for identifying and managing post-stroke anxiety and depression	Develop a post-stroke anxiety and depression identification and management protocol based on guidelines and departmental circumstances; implement the new protocol in clinical practice

Table 3 (Continued)

No.	Baseline review barriers	Action strategy
3	Nurses lack relevant knowledge regarding the identification and management of post-stroke anxiety and depression	Conduct targeted training for nursing staff on relevant knowledge, developing a Post-Stroke Anxiety and Depression Identification and Management Knowledge Handbook based on clinical guidelines
4	Nurses face excessive workloads with limited human resources	Optimize nursing processes, allocate human resources rationally, and utilize nursing postgraduates to facilitate evidence-based change
5	Patients lack knowledge about stroke-related conditions	Conduct educational lectures and peer support groups; develop a Health Education Handbook on Anxiety and Depression for Stroke Patients based on clinical guidelines

5. Discussion

5.1. Significance of identifying barriers to scientifically evaluating the quality of post-stroke anxiety and depression guidelines

Through systematic retrieval of relevant English and Chinese guidelines on post-stroke anxiety and depression published between 2010 and 2024, six guidelines were included based on inclusion and exclusion criteria: three international and three domestic guidelines. Expert consensus guidelines or explanatory guides [11]. The AGREE II guideline quality assessment tool was employed to evaluate guideline quality. The search results revealed a scarcity of guidelines addressing post-stroke anxiety and depression globally, with most being comprehensive stroke guidelines. Only one guideline specifically targeting post-stroke affective disorders was identified. Quality assessment revealed higher-grade international guidelines, with the Scottish and Canadian guidelines achieving standardization scores exceeding 60% across all six domains. These guidelines demonstrated rigorous scientific development, providing detailed and comprehensive recommendations for identifying and managing post-stroke anxiety and depression, exhibiting strong internal validity and external applicability. Domestic guidelines exhibited lower quality ratings, with most domains scoring below 30%. Their development processes often omitted consideration of target populations' preferences and values, external review of drafts, and assessment of potential benefits, adverse effects, and risks when formulating recommendations. This indicates a gap in guideline development and implementation compared to international standards, highlighting an urgent need to enhance scientific rigor and thoroughness. On one hand, China should localize high-quality international guidelines to guide the scientific and standardized practice of clinical healthcare, thereby enhancing the quality of healthcare services. On the other hand, efforts should be strengthened to promote evidence-based concepts and multidisciplinary team collaboration among healthcare professionals, leading to the development of clinical practice guidelines tailored to China's national context.

5.2. Guidance significance for identifying and managing post-stroke anxiety and depression

Guidelines indicate that the identification and management of post-stroke anxiety and depression should be integrated throughout the entire nursing process. This emphasizes teamwork among the patient, family, nursing staff, physicians, and community, requiring the establishment of effective communication mechanisms to jointly identify the patient's risk areas, reach consensus on treatment and rehabilitation goals, and implement appropriate management strategies. Firstly, education and training should be strengthened for medical and nursing staff in the initial department regarding the identification, assessment, and management of post-stroke anxiety and depression. Secondly, timely and appropriate consultation with mental health specialists is essential for accurate assessment

and diagnosis of anxiety and depression severity, alongside providing guidance for ongoing care and treatment. Finally, dynamic monitoring of stroke patients experiencing or not experiencing anxiety and depression is required, alongside optimizing care strategies to prevent the onset and recurrence of post-stroke anxiety and depression.

6. Research conclusion

6.1. International and Chinese guidelines on post-stroke anxiety and depression: Comparative findings and recommendations for localization

Current international guidelines on post-stroke anxiety and depression included in this review carry Grade A and B recommendation levels, indicating overall high quality. In contrast, domestic Chinese guidelines carry Grade B and C levels, reflecting generally moderate quality. Comparative analysis of guideline recommendations reveals that international guidelines offer more comprehensive and detailed guidance on identifying and managing post-stroke anxiety and depression than their Chinese counterparts. Domestic guidelines still exhibit certain gaps in terms of practicality, scientific rigor, and thoroughness compared to international standards. Accordingly, China should actively explore the localization of high-quality international guidelines to provide clinical nursing staff with evidence-based guidance for identifying and managing post-stroke anxiety and depression. This will promote the scientific, standardized, and humanized delivery of nursing services, thereby enhancing service quality and evidence-based decision-making.

6.2. Employing qualitative methods to identify implementation barriers and inform action plans

In the current situation survey, employing a combined approach of semi-structured interviews and participatory observation to identify barriers to guideline implementation enables more targeted action plans and implementation strategies, while also fostering self-reflection among clinical nursing practitioners. Whilst Wang *et al.* employed qualitative research for clinical status surveys in developing evidence-based practice protocols for perineal injury prevention and repair in women with normal deliveries, such methodologies remain rarely reported in stroke-related anxiety and depression studies.

7. Limitations and future directions

7.1. Study limitations: Selection bias, subjective appraisal, and suggestions for rigor

This study exclusively included evidence-based guidelines published in Chinese or English, excluding expert consensus documents, explanatory guidelines, and guidelines in minor languages, potentially introducing selection bias. Additionally, the AGREE II tool is a subjective evaluation instrument, introducing inherent subjectivity in guideline quality assessments. The evaluation did not trace the quality of references underpinning guideline recommendations, lacking an internal validity assessment. Future studies could incorporate expert consensus and explanatory guidelines alongside those in lesser-used languages to broaden the scope, while tracing reference quality to ensure scientific rigor in guideline evaluation.

7.2. Implications of guideline recommendations: Multidisciplinary scope and the call for nursing research

The guidelines encompass recommendations for screening, assessment, treatment, prevention, and health education

concerning post-stroke anxiety and depression. Some items fall within the scope of medical responsibilities, while the majority pertain to collaborative healthcare provision. with a minority falling within the scope of specialist nursing responsibilities. As the guideline recommendations are derived from primary research and systematic reviews, this underscores the need for nursing staff to actively engage in primary research within clinical practice to advance scientific inquiry and innovation in post-stroke anxiety and depression care.

7.3. Methodological limitation: Single-center sample and need for multicenter studies

Interview subjects were selected from a single tertiary hospital only, resulting in limited representativeness. Future studies should consider multi-center, large-sample research.

Disclosure statement

The authors declare no conflict of interest.

References

[1] Kleindorfer DO, Towfighi A, Chaturvedi S, et al., 2021, 2021 Guideline for the Prevention of Stroke in Patients With Stroke and Transient Ischemic Attack: A Guideline From the American Heart Association/American Stroke Association. Stroke, 52(7): e364–e467.

[2] GBD 2019 Stroke Collaborators, 2021, Global, Regional, and National Burden of Stroke and Its Risk Factors, 1990–2019: A Systematic Analysis for the Global Burden of Disease Study 2019. The Lancet. Neurology, 20(10): 795–820.

[3] Hoh BL, Ko NU, Amin-Hanjani S, et al., 2023, 2023 Guideline for the Management of Patients With Aneurysmal Subarachnoid Hemorrhage: A Guideline From the American Heart Association/American Stroke Association. Stroke, 54(7): e314–e370.

[4] Mead GE, Sposato LA, Sampaio Silva G, et al., 2023, A Systematic Review and Synthesis of Global Stroke Guidelines on Behalf of the World Stroke Organization. International Journal of Stroke: Official Journal of the International Stroke Society, 18(5): 499–531.

[5] Bogenschutz KM, Fisher DS, Wright GW, et al., 2025, Acute Ischemic Stroke: A Guideline-Based Overview of Evaluation and Management. JAAPA: Official Journal of the American Academy of Physician Assistants, 38(5): 13–20.

[6] Strbian D, Tsivgoulis G, Ospel J, et al., 2024, European Stroke Organisation and European Society for Minimally Invasive Neurological Therapy Guideline on Acute Management of Basilar Artery Occlusion. European Stroke Journal, 9(4): 835–884.

[7] Heran M, Lindsay P, Gubitz G, et al., 2024, Canadian Stroke Best Practice Recommendations: Acute Stroke Management, 7th Edition Practice Guidelines Update, 2022. The Canadian Journal of Neurological Sciences. Le Journal Canadien Des Sciences Neurologiques, 51(1): 1–31.

[8] Green TL, McNair ND, Hinkle JL, et al., 2021, Care of the Patient With Acute Ischemic Stroke (Posthyperacute and Prehospital Discharge): Update to 2009 Comprehensive Nursing Care Scientific Statement: A Scientific Statement From the American Heart Association. Stroke, 52(5): e179.

[9] Wang YJ, Li ZX, Gu HQ, et al., 2022, China Stroke Statistics: An Update on the 2019 Report from the National Center for Healthcare Quality Management in Neurological Diseases, China National Clinical Research Center for Neurological Diseases, the Chinese Stroke Association, National Center for Chronic and Non-Communicable Disease

Control and Prevention, Chinese Center for Disease Control and Prevention and Institute for Global Neuroscience and Stroke Collaborations. Stroke and Vascular Neurology, 7(5): 415–450.

[10] Liu L, Li Z, Zhou H, et al., 2023, Chinese Stroke Association Guidelines for Clinical Management of Ischaemic Cerebrovascular Diseases: Executive Summary and 2023 Update. Stroke and Vascular Neurology, 8(6): e3.

[11] Mancin S, Sguanci M, Andreoli D, et al., 2024, Nutritional Assessment in Acute Stroke Patients: A Systematic Review of Guidelines and Systematic Reviews. International Journal of Nursing Studies, 158: 104859.