

A Review of Research on Core Competencies for Registered Nurses

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Abstract: Against the background of continuous transformation in global healthcare systems and the increasing complexity of nursing practice, the core competencies of registered nurses have attracted growing attention in nursing education, professional regulation, and workforce management. Clearly defining and systematically structuring nurse competencies is essential for ensuring safe, effective, and high-quality nursing care. Over the past two decades, a range of international organizations and national regulatory bodies have developed competency frameworks to articulate expectations for registered nurses across diverse clinical and organizational contexts. This review adopts an international perspective to synthesize and compare representative competency frameworks for registered nurses developed by the International Council of Nurses (ICN), the American Association of Colleges of Nursing (AACN), and the Nursing and Midwifery Council (NMC) in the United Kingdom. Key competency domains, structural characteristics, and underlying conceptual orientations of these frameworks are analyzed to identify areas of convergence and divergence. In addition, research on core competencies of registered nurses in China is reviewed, with particular attention to conceptual development, construction of evaluation instruments, and empirical applications in clinical and educational settings. The findings indicate substantial consistency across international competency frameworks in core domains such as clinical care, patient safety, communication and collaboration, and professional values. However, notable differences remain in the emphasis placed on leadership development, informatics, and digital competencies, and pathways for competency progression across career stages. International frameworks increasingly conceptualize competence as a dynamic and context-dependent construct, moving beyond static lists of skills toward integrated and developmental models of professional capability. Within the Chinese context, existing studies have largely focused on competency measurement and cross-sectional assessments, while research examining the structural relationships and developmental trajectories of nurse competencies remains limited. Emerging methodological approaches, including competency mapping and computer-assisted text analysis tools, offer new opportunities to integrate multidimensional competency elements and enhance the transparency of framework development. This review highlights the value of international comparison for informing the refinement of registered nurse competency frameworks and underscores the need for further research that combines international evidence with local healthcare contexts. The findings may provide a reference for advancing competency-based nursing education, improving regulatory standards, and supporting the sustainable development of the nursing workforce in China.

Keywords: Registered nurses; Core competencies; Competency frameworks; International comparison; Competency mapping

1. Introduction

With the rapid aging of the global population, the increasing burden of chronic diseases, and continuous transformations in healthcare delivery systems, nursing practice has become increasingly complex. The role of registered nurses has expanded beyond task-oriented clinical care to encompass patient safety, clinical judgment, quality improvement, inter-professional collaboration, and system-level engagement ^[1-2]. In this context, clearly defining the core competencies required of registered nurses and establishing systematic competency frameworks have become central concerns in nursing education, professional regulation, and workforce development.

Core competency frameworks for registered nurses aim to systematically describe the essential knowledge, skills, attitudes, and professional values required to perform effectively across diverse clinical contexts ^[3]. International organizations and regulatory bodies, including the International Council of Nurses (ICN), the American Association of Colleges of Nursing (AACN), and the Nursing and Midwifery Council (NMC) in the United Kingdom, have developed influential competency frameworks that provide guidance for nursing education reform and professional practice ^[1,4-6].

In recent years, competency mapping has emerged as a promising approach for integrating multidimensional competency elements and visualizing their structural relationships ^[7]. From an international perspective, reviewing the development of core competency frameworks and competency mapping research for registered nurses is essential for synthesizing global experience, identifying research gaps, and informing future development in different national contexts.

2. Conceptual development of core competencies for registered nurses

2.1. Evolution of the concept of nursing competence

The concept of nursing competence originates from competency-based education and emphasizes the ability of professionals to integrate multiple resources to perform effectively in real-world practice settings. Early studies often conceptualized nursing competence as a set of observable technical skills, focusing primarily on task completion and procedural accuracy ^[8]. However, such skill-based interpretations have proven insufficient in addressing the growing complexity of contemporary nursing practice.

Over the past two decades, international nursing research has increasingly conceptualized core competence as a holistic construct encompassing not only knowledge and technical skills, but also clinical judgment, ethical decision-making, communication, professional attitudes, and lifelong learning ^[1,4]. Recent concept analysis studies further emphasize that registered nurse competence is context-dependent, dynamic, and integrative in nature, highlighting the importance of situational understanding and professional reasoning in competence assessment ^[9].

2.2. From competency lists to competency continua

The ICN Nursing Care Continuum Framework represents a significant shift from static competency lists toward a developmental perspective, emphasizing the progressive acquisition of competencies across different career

stages ^[1]. Similarly, the AACN Essentials framework highlights competency development across educational and professional trajectories and underscores the importance of clinical judgment and systems thinking, as reinforced in its 2025 updates ^[4-5]. These developments reflect an international trend toward viewing registered nurse competence as a dynamic and evolving construct rather than a fixed set of skills.

3. International core competency frameworks for registered nurses

3.1. International council of nurses (ICN)

The ICN framework adopts a global perspective and defines core competencies across domains, including accountability, ethical and legal practice, clinical care, leadership, quality improvement, and continuing professional development ^[1]. By emphasizing the continuum of nursing competence, the framework provides a foundational reference for national competency standards and supports international comparability.

3.2. AACN core competency framework (United States)

The AACN Essentials framework identifies ten core domains of nursing practice, including knowledge for nursing practice, person-centered care, population health, quality and safety, informatics and healthcare technologies, professionalism, and leadership development ^[4]. The framework emphasizes outcomes-based education and alignment between educational preparation and clinical practice, making it one of the most comprehensive competency frameworks currently available.

3.3. Competency standards in the United Kingdom and Singapore

The NMC Standards of Proficiency for Registered Nurses emphasize regulatory accountability, patient safety, professional conduct, and public protection ^[6]. In contrast, the Singapore Nursing Board competency framework further highlights professional autonomy and continuous quality improvement ^[10]. These differences illustrate how national healthcare systems and sociocultural contexts influence the prioritization of competency domains.

3.4. Commonalities and differences across international frameworks

Comparative studies suggest substantial convergence across international competency frameworks in core domains such as clinical care, patient safety, communication, and professionalism ^[7]. However, variations remain in areas such as leadership, informatics, and cultural competence, underscoring the importance of contextual adaptation in competency mapping.

4. Methodological advances in core competency research

4.1. Application of the Delphi technique

The Delphi method is widely used in the development of nursing competency frameworks and evaluation indicators. A recent scoping review indicates that while Delphi studies contribute to expert consensus building, considerable variability exists in expert selection, number of rounds, and criteria for indicator retention ^[11]. This methodological heterogeneity limits comparability across studies and highlights the need for greater standardization.

4.2. Integration of clinical judgment models

The Clinical Judgment Measurement Model developed by the National Council of State Boards of Nursing (NCSBN) emphasizes cognitive processes involved in clinical decision-making^[12–13]. The integration of clinical judgment models into competency research represents a shift from task-oriented evaluation toward the assessment of reasoning and decision-making processes, aligning with contemporary understandings of nursing competence.

5. Research status of core competencies for registered nurses in China

5.1. Main research directions

Research on core competencies of registered nurses in China has expanded rapidly in recent years, focusing primarily on conceptual clarification, development of evaluation instruments, and empirical assessment of competency levels^[14–16]. Many studies draw on international frameworks such as those proposed by ICN and AACN, while adapting indicators to local clinical contexts^[17].

5.2. Characteristics and limitations of domestic research

Empirical studies indicate that registered nurse competence is associated with education level, clinical experience, training opportunities, and organizational support^[18]. However, domestic research remains predominantly cross-sectional and measurement-oriented, with limited exploration of competency structure, developmental pathways, and system-level integration. Emerging competencies such as leadership, informatics, and inter-professional collaboration require further attention.

6. Competency mapping and emerging research trends

Recent studies have explored the use of competency mapping and knowledge mapping techniques to structurally integrate core competencies and visualize their interrelationships^[7, 19]. These approaches offer potential benefits for curriculum planning and competency evaluation. However, existing applications remain largely exploratory, and their effectiveness in clinical management and educational decision-making has yet to be fully validated.

Overall, competency mapping represents a promising but still developing direction in registered nurse competency research rather than a mature methodological paradigm.

7. Limitations and future directions

Despite growing interest, research on registered nurse core competencies continues to face challenges related to conceptual consistency, methodological rigor, and practical application. Future studies should strengthen longitudinal designs to examine competency development over time and promote localized validation of international frameworks. Integrating competency mapping approaches with real-world clinical and educational outcomes may further enhance their practical value.

8. Conclusion

International research demonstrates substantial convergence in core competency domains for registered nurses,

particularly in clinical care, professionalism, leadership, and clinical judgment. Competency mapping provides a useful conceptual tool for integrating these domains. Systematic international comparison combined with context-sensitive adaptation is essential for advancing registered nurse competency research and practice.

Funding

The fourth phase of the Employment Education Project for Matching Supply and Demand by the Ministry of Education: Project Name: Construction of a Competency Map for Medical, Healthcare, and Nursing Professionals in the Hainan Free Trade Port and Enhancement of Human Resources, Project Number: 2024122020142.

Disclosure statement

The authors declare no conflict of interest.

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