ORIGINAL RESEARCH

Development of an evaluation index system for the quality of clinical practice education in Master of Nursing Specialist Programs

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ABSTRACT

Objective: To establish an evaluation framework for clinical practice teaching quality in Master of Nursing Science (MNS) programs, providing an assessment tool for cultivating high-level nursing professionals.
Methods: Through literature review, semi-structured interviews, and two rounds of expert consultation, the ordinal ranking method was employed to calculate indicator weights.
Results: A final framework comprising 4 primary indicators, 13 secondary indicators, and 42 tertiary indicators was established, covering practice base structure and resources, teaching process and management, teaching effectiveness and evaluation, and feedback and improvement. Expert scoring indicated mean indicator importance > 4.0, coefficient of variation < 0.25, expert authority coefficient of 0.84, and statistically significant increases in Kendall's W value across rounds ($p < .05$), demonstrating the system's scientific rigor and stability.
Conclusions: This evaluation system is comprehensive in content and well-structured. It provides a quantitative basis for assessing the quality of clinical practice teaching, facilitating instructional improvements, and fostering competency development among MNS graduate students. It also serves as a reference for reforming domestic nursing graduate education and cultivating high-level talent.

Key Words: Clinical practice, Delphi, Master of nursing, Teaching quality, Teaching evaluation indicators

1. INTRODUCTION

As the aging population intensifies, the specialization, refinement, and integration of clinical nursing services continue to advance, creating an increasingly urgent demand for high-level, application-oriented nursing professionals. Nurses must not only possess advanced technical expertise but also demonstrate strong clinical reasoning, interdisciplinary collaboration, and evidence-based decision-making capabilities. This shift in competency requirements imposes higher-level, practice-oriented demands on nursing education models.[1] Against this backdrop, ensuring and evaluating educational quality has become a critical task for nursing education systems adapting to evolving clinical demands. Since its inception in the early 1990s, China's graduate nursing education has undergone significant structural reforms.[2] The formal establishment of the Master of Nursing Specialist (MNS) degree in 2010 marked a pivotal shift from academic-oriented to clinically applied professional education.[3,4] Subsequently,

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the State Council Academic Degrees Committee's Notice on Issuing the Setup Plan for 19 Professional Degrees Including Master of Nursing[5] further clarified the central role of clinical practice in MNS training. It emphasized establishing systematic practice teaching and evaluation mechanisms to cultivate nurses capable of advanced clinical practice, with a focus on enhancing their professional competence, clinical judgment, and practical problem-solving skills in real healthcare settings.[6]

As a pivotal component of MNS professional degree training and the primary pathway for translating educational objectives into professional competencies, the quality of clinical practice is regarded as a key indicator of MNS program effectiveness. However, the quality of practice-based professional education exhibits multidimensional characteristics, encompassing elements such as teaching resources, instructional processes, supervision mechanisms, learning experiences, and competency outcomes.[7] Unlike traditional academic instruction, clinical practice involves dynamic interactions among students, educators, clinical preceptors, and healthcare institutions. Assessing its quality solely through single outcome metrics or subjective evaluations proves inadequate, necessitating systematic and structured assessment methods. Despite growing attention to MNS educational quality in recent years, China's clinical practice education assessment remains fragmented and incomplete.[8] Addressing this issue, national macro-level policies have clearly outlined the direction. For instance, in 2018, the Ministry of Education and the National Health Commission jointly issued the "Notice on Establishing National Demonstration Centers for Clinical Teaching and Training," advocating for leveraging the synergistic advantages of medical education and research in university-affiliated hospitals. Through establishing demonstration centers, the initiative aims to promote exemplary leadership and radiate influence, thereby elevating the overall educational training standards and teaching quality of clinical practice teaching bases nationwide.[9] The 2020 "Guiding Opinions of the General Office of the State Council on Accelerating the Innovative Development of Medical Education" called for refining standards and admission systems for clinical teaching bases, while incorporating talent cultivation quality into performance evaluation frameworks to enhance teaching standardization and quality.[10] This series of policy documents has charted the course for reforming clinical teaching base evaluations and provided theoretical foundations and policy safeguards for developing teaching quality assessment systems. However, while institutions are gradually refining MNS clinical competency development mechanisms, practice bases lack unified, comprehensive clinical training protocols. Significant disparities persist in practice duration, content, teaching formats, and assessment methods, with clinical training often failing to reflect personalized MNS development.[11,12]

Teaching quality assessment requires translating abstract educational objectives into observable, measurable indicators with clear logical structures. For clinical practice-oriented MNS education, the evaluation framework should not solely focus on training outcomes. Instead, it should systematically incorporate indicators such as practice base resources and support, clinical teaching and management processes, as well as graduate students' clinical competence and professional ethics. This approach reflects the holistic and complex nature of clinical training. Therefore, a well-designed indicator system lays a solid foundation for comprehensive, process-oriented quality assessment.[13] Currently, China's clinical practice training objectives for nursing master's programs are well-defined with continuously innovating models, yet evaluation systems remain weak, exhibiting issues such as limited methodologies, partial content coverage, and lack of standards.[14] Underlying these challenges are systemic issues including inadequate top-level design, disjointed institutional collaboration, and lagging faculty development,[15] collectively hindering the effective enhancement of students' advanced clinical competencies and job readiness. Most countries, including the UK, US, and Australia, have developed relatively mature clinical practice training models for MNS graduate programs through exploration and practice.[16–19] In the US, master's nursing programs undergo rigorous evaluations by authoritative accrediting bodies assessing curriculum design, faculty strength, and student outcomes, with clinical practice serving as a core component of these assessments.[20,21] The American Association of Colleges of Nursing (AACN) Core Competencies for Nursing Education[22,23] provides a unified national competency framework for nursing education at all levels. It explicitly mandates that master's graduates must possess core competencies in quality improvement and patient safety, evidence-based practice, health policy and advocacy, and interprofessional collaboration. All accredited master's programs must ensure their curriculum design and clinical practice enable students to achieve these core competency requirements.[21] The UK centers its approach on clinical preceptorship,[24] supplemented by key assessments through Objective Structured Clinical Examinations (OSCE). Australia achieves high standardization through nationally unified assessment tools, most notably the Australian Nursing Standards Assessment Tool (ANSAT).[16] Additionally, specialized clinical educators coordinate and evaluate students. While these models offer valuable methodological insights, they are deeply rooted in specific regulatory, cultural, and healthcare con-

texts. Therefore, directly adopting international standards may fail to account for the unique characteristics of China's MNS programs, including their educational objectives, clinical training arrangements, and integration within the national healthcare system. This underscores the necessity of developing a context-specific assessment framework that integrates international best practices with domestic educational realities. Consequently, this study aims to construct a clinical practice teaching quality evaluation index system for MNS graduate students tailored to China's cultural context, providing reference for reforming nursing graduate education and cultivating high-level talent in China.

2. Materials and Methods

2.1 Establishment of the research team

The research team comprised six members: one nursing management expert, four clinical nursing instructors, and one university nursing faculty member. Among them, two held senior professional titles and four held intermediate titles. The team's primary tasks included literature review, conducting interviews, preliminary development of the evaluation indicator system, expert consultation, and revising indicators based on expert feedback.

2.2 Literature review

In accordance with the research objectives, this study utilized databases including CNKI, China Biomedical Database, Wanfang Database, VIP Database, PubMed, Cochrane, and Web of Science. Keywords included"Master of Nursing Specialist," "Clinical Practice Base," "Teaching Quality," and "Indicator System," with the search period spanning from database inception to March 2025. The retrieved literature was screened, organized, and summarized,[6, 25–29] with a focus on analyzing domestic and international research on teaching quality in clinical practice bases for MNS graduate students. This provided relevant reference materials and theoretical foundations for the study.

2.3 Semi-structured interviews

From March to June 2025, experts in nursing education, nursing management, and clinical nursing were selected using purposive sampling for interviews. Inclusion criteria: (1) Intermediate or higher professional title; (2) Engaged in clinical, teaching, management, or research work in hospitals or higher education institutions; (3) Five or more years of professional experience; (4) Experience in supervising MNS graduate students. Interview topics included: What elements should be included in evaluating the quality of clinical practice teaching for MNS graduate students? What are the key factors affecting the quality of clinical practice teaching for MNS graduate students? What key elements and core components should high-quality clinical practice teaching possess? Responses were elaborated upon to supplement the program's relevant content. Ultimately, seven experts were interviewed. All possessed teaching experience with MNS students and held intermediate or higher professional titles, including 2 PhDs and 5 Master's degree holders; 6 females and 1 male; 4 with 10-20 years of experience and 3 with $\geq$ 20 years.

2.4 Drafting the preliminary indicator framework

Based on literature analysis and interview findings, the research team preliminarily defined the scope and characteristics of evaluating clinical practice teaching quality for MNS students. This framework encompasses four dimensions: practice base structure and resources, practice teaching process and management, practice teaching outcomes and evaluation, and practice teaching feedback and improvement. It comprises 4 primary indicators, 12 secondary indicators, and 45 tertiary indicators.

2.5 Development of expert consultation questionnaire

An expert consultation questionnaire was formulated based on the aforementioned indicator system, comprising three sections: (1) Letter to Experts: Outlining research objectives, consultation content, questionnaire instructions, submission deadline, and contact information. (2) Expert Opinion Consultation Form: Presenting specific indicator details, importance ratings, and expert feedback/suggestions. Importance was assessed using a 5-point Likert scale. Scores range from 1 (Not at all important) to 5 (Very important), with higher scores indicating greater scientific validity, rationality, and feasibility. A dedicated comments section allows experts to add, delete, or modify items. (3) Expert Information: Includes age, specialty, professional title, educational background, years of experience, familiarity with the consultation content, and basis for judgment.

2.6 Expert consultation

Experts in nursing education, nursing management, and clinical nursing were selected for consultation. Selection criteria: (1) Intermediate or higher professional title; (2) Bachelor's degree or higher; (3) At least 5 years of experience in graduate nursing education management, clinical nursing, or nursing education; (4) Familiarity with this research topic, possessing deep theoretical knowledge and extensive practical experience regarding the consulted issues; (5) Informed consent and demonstrated enthusiasm for this study.

2.7 Expert correspondence

Questionnaires were distributed electronically, with each round requiring completion within 10 days. After collect-

ing the first-round responses, quality checks ensured data completeness and validity. The indicator system was revised based on expert feedback, leading to the second-round questionnaire. Following the return of the second-round questionnaire, expert ratings and suggestions were again collated and summarized. After two rounds of expert consultation, opinions converged, concluding the consultation process. Indicator selection criteria: importance score mean > 4.0 points, coefficient of variation (CV) < 0.25.[30]

2.8 Statistical methods

Excel2021 and SPSS26.0 software were used to organize and statistically analyze the expert consultation results. Count data are presented as frequencies and percentages, while measurement data are expressed as mean ± standard deviation. The positive expert coefficient was represented by the valid questionnaire return rate. Expert authority was indicated by the authority coefficient (Cr), calculated as the arithmetic mean of the judgment basis coefficient (Ca) and familiarity coefficient (Cs). The degree of expert opinion coordination was measured using the CV and Kendall's coefficient of concordance (W). The preference ranking method was employed to calculate indicators and weights.[31] The significance level was set at α = .05.

3. Results

3.1 Expert profile

This study consulted a total of 15 experts in the nursing field. The experts' ages were primarily distributed between 40 and 49 years old, with most holding master's degrees or higher. Sixty-six point seven percent had over 10 years of professional experience in their field, and seventy-three point three percent held senior professional titles. Their professional backgrounds spanned clinical nursing, nursing education, and nursing management, as detailed in Table 1.

3.2 Expert reliability

3.2.1 *Expert positive coefficient*

Two rounds of expert consultation yielded 15 distributed questionnaires, all of which were returned, resulting in 15 valid responses. Both the return rate and validity rate were 100%. In the first round, 8 experts provided feedback, representing a 53% feedback rate. In the second round, 3 experts offered suggestions, reflecting a 20% feedback rate. This indicates a convergence in expert opinions.

3.2.2 *Expert authority coefficient*

Cr is represented by Ca and Cs and calculated using the formula Cr = (Cs + Ca)/2. A coefficient greater than 0.70 is generally considered acceptable for reliability. In this study, the authoritative coefficient from expert consultation was 0.84, with Ca at 0.95 and Cs at 0.73, indicating the reliability of the established evaluation indicators.

Table 1. Expert profile (n = 15)

Characteristics	N (%)
Gender	
Male	4 (26.7)
Female	11 (73.3)
Age (years)	
30-39	5 (33.3)
40-49	6 (40.0)
50-59	4 (26.7)
Education Level	
Bachelor	2 (13.3)
Master	12 (80.0)
Doctor	1 (6.7)
Professional title	
Intermediate	4 (26.7)
Associate senior	5 (33.3)
Senior	6 (40.0)
Years of experience (years)	
5-10	5 (33.3)
10-19	4 (26.7)
20-29	5 (33.3)
≥30	1 (6.7)
Work direction	
Clinical nursing	13
Nursing management	9
Nursing education	6

3.3 The degree of concentration and coordination of expert opinions

In the first round of expert consultation, the CV for importance ratings across all items ranged from 0 to 0.20; In the second round of expert consultation, the CV for each item's importance rating ranged from 0.00 to 0.19, all $\leq$ 0.25, indicating high consistency among expert opinions. The Kendall's coefficient of concordance (W) for expert consultation was 0.19 and 0.20 ($p < .001$), respectively, suggesting good coordination among experts (see Table 2).

3.4 Results of the expert inquiry

Following the first round of expert consultation, based on expert feedback and statistical analysis of indicators, the subcommittee discussed and made modifications to certain secondary and tertiary indicators through consolidation, deletion, and addition. The indicators were adjusted as follows: - Added one secondary indicator, "Instructor Teaching Capa-

bility and Quality," along with its corresponding two tertiary indicators; Added three additional tertiary indicators, such as "Implementation of Humanistic Care for Graduate Students and Living Supports like Housing and Meal Subsidies" and "Level of Support for Graduate Students' External Study and Academic Exchange Opportunities"; and "Targeted Guidance on Communication, Collaboration, Team Leadership, and Management Skills." The items "Judgment," "Response Ability," and "Prevention and Control Ability" under Core Clinical Competencies were consolidated into a single item. The items "Self-Identification" and "Intention to Practice" under Graduate Subjective Perception and Satisfaction were merged into one item. The wording of four tertiary indicators was revised.

Table 2. The results of the degree of coordination among experts

Indicators	Round 1				Round 2			
	W	χ^2	*df*	*P*	*W*	χ^2	*df*	*P*
Primary Indicators	0.267	12.000	3	.007	0.283	12.750	3	.005
Secondary Indicators	0.128	21.158	11	.032	0.152	27.330	12	.007
Tertiary Indicators	0.200	132.034	44	< .001	0.198	121.640	41	< .001
Total	0.191	171.665	60	< .001	0.204	177.124	58	< .001

Following the second round of expert consultation, incorporating expert recommendations, no modifications were made to the first-level or second-level indicators. Three third-level indicator descriptions were revised. The final clinical practice teaching quality evaluation indicator system for MNS professional degree students comprises 4 first-level indicators, 13 second-level indicators, and 42 third-level indicators. The weighting of each indicator is shown in Table 3.

4. Discussion

4.1 Scientific validity of the quality evaluation index system for clinical practice instruction in Master of Science in Nursing Programs

This study employed a systematic research methodology comprising literature analysis, semi-structured interviews, and expert correspondence to progressively construct an evaluation index system for the quality of clinical practice teaching in MNS graduate programs. All 15 experts participating in the correspondence hailed from tertiary-level Class A hospitals or higher nursing institutions, with most possessing over 10 years of professional experience and holding intermediate-level or higher professional titles. Their expertise spanned clinical nursing, nursing education, and nursing management, ensuring strong representativeness. Both rounds of expert consultation questionnaires achieved a 100% valid response rate, indicating high engagement among experts. The authority coefficient of the consulted experts was 0.84, suggesting they possessed strong judgmental basis and familiarity with the evaluation content, thereby enhancing the credibility of the research findings. The second round of responses revealed that all indicator importance scores exceeded 4.0 points, with coefficients of variation below 0.25. Kendall's coefficient of concordance increased progressively across rounds ($p < .05$), demonstrating statistically significant improvement. This indicates strong consensus among experts regarding indicator importance, confirming the scientific validity and stability of the indicator system. Therefore, the clinical practice teaching quality evaluation indicator system for master's degree nursing students developed in this study possesses sound scientific validity and reliability, providing a basis for subsequent evaluation applications.

4.2 Comprehensiveness of the quality evaluation index system for clinical practice instruction in Master of Science in Nursing Programs

Following two rounds of expert consultation, the MNS graduate clinical practice teaching quality evaluation index system was finalized, comprising 4 primary indicators, 13 secondary indicators, and 42 tertiary indicators. The constructed index system is comprehensive and systematic. The 4 primary indicators include "Practice Base Structure and Resources," "Practice Teaching Process and Management," "Practice Teaching Effectiveness and Evaluation," "Feedback and Improvement of Practical Teaching." Among these, "Structure and Resources of Practical Bases" and "Process and Management of Practical Teaching" carry the highest weight of 0.375, aligning with the clinical nursing practice teaching quality evaluation indicator system developed by Nie et al.[32] based on the "structure-process-outcome" theoretical model. This weighting structure reflects experts' strong emphasis on structural safeguards and process management, forming the core content of the MNS graduate clinical practice teaching quality evaluation indicator system.

Table 3. Clinical practice teaching quality evaluation indicators and weighting for master of science in nursing graduate students

Primary indicator	Weight	Secondary indicator	Weight	Tertiary indicators	Weight
1. Structure and resources of the practice base.	0.375	1. 1 Base qualifications and scale.	0.059	1.1.1Alignment between hospital grade, key specialties, and graduate training directions.	0.040
				1.1.2 Number of open beds at the base.	0.005
				1.1.3 Policy support for graduate student training at the base.	0.031
		1.2 Teaching resource allocation and support.	0.107	1.2.1 The number of disease categories, case volume, and complexity at the practice base meet the requirements of the graduate training program.	0.010
				1.2.2 Coverage of specialized teaching facilities and equipment, including simulation training centers and skills training labs.	0.003
				1.2.3 Implementation of humanistic care for graduate students and living support measures including housing and meal subsidies.	0.024
				1.2.4 Availability of library resources and specialized databases	0.007
				1.2.5 Rationality of specialized teaching fund allocation and utilization.	0.040
				1.2.6 Support level for graduate students' external study and academic exchange opportunities.	0.040
		1.3 Qualifications and structure of the mentor Team.	0.107	1.3.1 Clarity of mentor qualification certification and selection criteria.	0.015
				1.3.2 Reasonableness of mentor team academic background, professional titles, work experience, and student-to-mentor ratio.	0.019
				1.3.3 Implementation status of collaborative mentoring by on-campus and off-campus mentors.	0.001
		1.4 Mentor teaching competence and quality.	0.107	1.4.1 Mentor participation in training and competency enhancement.	0.040
				1.4.2 Mentor research and teaching Output.	0.031
2 Practical Teaching process and management .	0.375	2.1 Practical training plan and content.	0.059	2.1.1 Alignment of rotation schedule with graduate training objectives.	0.040
				2.1.2 Duration of clinical rotations and department assignments.	0.040
				2.1.3 Arrangement of clinical nursing procedures and specialized skills practice.	0.031
				2.1.4 Schedule for research presentations and academic seminars.	0.047
		2.2 Teaching methods and implementation.	0.036	2.2.1 Frequency, standardization, and diversity of teaching activities.	0.007
				2.2.2 Dynamic adjustment of teaching plans and implementation.	0.012
				2.2.3 Guiding graduate students in evidence-based nursing practice and cultivating critical thinking.	0.024
		2.3 Process management and supervision.	0.107	2.3.1 Implementation of teaching plans and achievement of educational objectives.	0.031
				2.3.2 Mentor performance, guidance quality, and research supervision capability oversight.	0.012
				2.3.3 Dynamic tracking of graduate students' learning process and clinical practice performance.	0.015
3. Practical teaching outcomes and evaluation.	0.063	3.1 Core clinical competencies.	0.107	3.1.1 Mastery of professional knowledge and key operational skills.	0.024
				3.1.2 Ability to independently perform clinical nursing tasks competently.	0.045
				3.1.3 Clinical judgment and nursing risk management capabilities.	0.010
		3.2 Research and teaching competencies.	0.148	3.2.1 Clinical evidence-based nursing competency: applying research evidence to practice.	0.045
				3.2.2 Research funding application and proposal writing competency.	0.031
				3.2.3 Frequency and quality of clinical practice-related activities (e.g., mini-lectures, health education).	0.019
		3.3 Comprehensive professional competencies.	0.018	3.3.1 Humanistic care and communication coordination skills.	0.019
				3.3.2 Team collaboration, organizational management, and leadership potential.	0.002
				3.3.3 Professional development and lifelong learning capabilities.	0.040
		3.4 Graduate students' subjective perceptions and satisfaction levels.	0.006	3.4.1 Satisfaction with clinical practice arrangements and training programs.	0.010
				3.4.2 Satisfaction with clinical supervisor guidance and research training.	0.015
				3.4.3 Nursing professional identity and career development aspirations.	0.019
4. Practical teaching feedback and improve-ment.	0.188	4.1 Evaluation and feedback system.	0.107	4.1.1 Scientific and comprehensive evaluation framework.	0.031
				4.1.2 Timely and effective feedback of evaluation results.	0.040
				4.1.3 Graduate career development tracking feedback mechanism.	0.005
		4.2 Continuous improvement mechanism.	0.036	4.2.1 Implementation of teaching improvement measures based on evaluation feedback.	0.031
				4.2.2 Regular teaching quality discussions and exchanges between institutions and training bases.	0.024
				4.2.3 Regular training and competency enhancement system for clinical teaching faculty.	0.031

Specifically, within the structure and resources of practice bases, high weighting is concentrated on "qualifications and structure of the mentor team," "teaching capabilities and quality of mentors," and "allocation and safeguarding of teaching resources." This profoundly reflects that enhancing the quality of clinical practice teaching requires leadership from a mentor team possessing high-level clinical competence, teaching skills, and research literacy. This must be complemented by adequate dedicated teaching funding and academic exchange support to provide the necessary platform and resources for MNS graduate students to transform into practice-oriented innovative talents. Relevant studies also indicate that clear mentor qualification certification, reasonable student-to-faculty ratios, and systematic mentor training are prerequisites for ensuring clinical teaching quality.[33,34] Therefore, it is recommended that nursing educators and practice teaching bases refine clinical mentor admission, certification, and evaluation mechanisms based on the "Mentor Team Qualifications and Structure" criteria to enhance the overall capabilities of the mentor team. Concurrently, strengthen the dedicated management of teaching funds, prioritizing support for clinical teaching development and academic exchanges to safeguard advanced practice and innovative activities. In practice teaching processes and management, the high weighting emphasizes refined management of the training process. This ensures that "Practice Plans and Content" align deeply with MNS practice competency development goals. Through "Process Management and Supervision," dynamic monitoring and timely feedback are provided on teaching implementation and graduate learning progress. This reflects a shift from outcome-oriented evaluation to a quality management model emphasizing continuous processes. Sun Huiqun's[35] research further confirms that diverse formative assessments—including teaching rounds and case reports—are crucial for effectively evaluating and advancing clinical competency development. Concurrently, the evaluation of practical teaching outcomes integrates core clinical competencies, research-teaching capabilities, comprehensive professional ethics, and graduate subjective experiences, embodying a student-centered philosophy. Among these, "research and teaching competencies" carry the highest weighting, with particular emphasis on the vital role of "clinical evidence-based nursing competencies." This indicates that MNS graduate clinical practice teaching quality evaluation places greater emphasis on evidence-based nursing competencies as the core, focusing on cultivating their ability to integrate evidence to solve complex clinical problems and develop teaching and research capabilities. This highlights the difference in evaluation focus between graduate and undergraduate clinical practice teaching.[28] Recommendations include strengthening evidence-based nursing competency development in MNS clinical practice education by integrating PICO question formulation, literature retrieval, evidence evaluation, and application into practical instruction and assessment. Organizing graduate students to participate in evidence-based or quality improvement projects guided by clinical problems promotes the integration of research and practice. Teaching competency training should be enhanced through involvement in clinical teaching, case presentations, and health education design. Additionally, "Practice Teaching Feedback and Improvement" carries significant weight. This indicator utilizes a scientific evaluation system to gather feedback and drive continuous teaching refinement, thereby contributing to the sustained enhancement of clinical practice teaching quality for MNS graduate students.

In summary, this indicator system comprehensively covers the core elements of clinical teaching while emphasizing the distinctive features and key components of MNS graduate training. It demonstrates strong systematic coherence and targeted relevance, providing clear and quantifiable criteria for evaluating and enhancing the quality of clinical practice instruction for MNS graduate students.

4.3 The application value of an evaluation index system for clinical practice teaching quality in Master of Science in Nursing Programs

Research indicates that the overall clinical practice capabilities of MNS graduate students require improvement.[36] While scholars have developed evaluation frameworks for these capabilities, categorizing assessments primarily across dimensions such as knowledge, attitude, skills, research, teaching, and management, such frameworks have failed to fully integrate clinical practice with research competencies.[37–39] Drawing on relevant teaching evaluation experiences domestically and internationally, this study has developed a practical tool for actual teaching assessment. This system assists training institutions in analyzing the effectiveness of each stage of clinical practice, identifying deficiencies in areas such as rotation scheduling, teaching quality, and assessment methods. It provides a basis for adjusting teaching plans and optimizing practical content. In its evaluation design, evidence-based nursing elements are integrated into competency assessment, emphasizing the application of evidence-based thinking throughout clinical practice. This approach combines research training with clinical operations, better aligning with clinical demands for advanced nursing competencies. Furthermore, the system establishes specific requirements for clinical practice aligned with core competency development for nurses. It clarifies progressive training objectives from foundational clinical competencies to

advanced specialty practice skills, offering reference points for institutions to refine their training programs. Subsequent empirical research can validate the system's operational feasibility and applicability, with ongoing adjustments based on practical implementation to enhance its guidance value.

5. Conclusion

This study developed an evidence-based nursing-centered clinical practice teaching quality evaluation system for MNS graduate students through literature analysis, semi-structured interviews, and two rounds of expert consultation. The system comprises 4 primary indicators, 13 secondary indicators, and 42 tertiary indicators. It encompasses practice base structure and resources, teaching process and management, teaching effectiveness and evaluation, as well as feedback and improvement. This framework comprehensively covers core elements of clinical practice while emphasizing MNS graduate students' research, teaching, and evidence-based capabilities. Expert evaluations confirmed the indicators' scientific rigor, stability, and high consistency. This framework provides a quantitative basis for assessing clinical practice teaching quality, guiding instructional improvements and graduate competency development, and offering reference and support for cultivating high-level nursing talent. However, this study has not yet validated the framework's validity and practicality. Future research should therefore focus on testing its reliability and validity, while continuously refining and optimizing the framework through flexible adaptation in clinical practice to ensure its practical feasibility.

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Authors contributions

Lin He provided research supervision and reviewed and revised the manuscript. Xiaoli Zhong contributed to the study conception and design, and also reviewed and revised the manuscript. Chenxi Wu offered research guidance. Fang Yang assisted with English editing and manuscript revision. Xinyu Li conducted data analysis and interpreted the results. Ying Han, Qishou Zheng, and Lin Xia were responsible for data collection and manuscript drafting. Jijun Wu provided research supervision and reviewed and revised the manuscript. All authors reviewed and approved the final version of the manuscript.

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The authors declare no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Informed consent

Obtained.

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The Publication Ethics Committee of the Association for Health Sciences and Education. The journal's policies adhere to the Core Practices established by the Committee on Publication Ethics (COPE).

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The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Data sharing statement

No additional data are available.

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