

Exploration on the Path of Empowering Comprehensive Skill Practical Teaching of Higher-Vocational Nursing with the ERAS Concept under the Guidance of the “Double-High Plan”

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Abstract: The “Double-High Plan” focuses on high-quality development of higher-vocational education, in-depth integration of posts, courses, competitions and certificates, and innovation of professional education models, serving as the core guideline for the transformation and upgrading of higher-vocational nursing specialties in the new era. The concept of Enhanced Recovery After Surgery (ERAS) centers on optimizing perioperative nursing procedures, reducing patients’ stress responses and accelerating postoperative rehabilitation, and represents the cutting-edge standards and development trend of modern clinical nursing. At present, the comprehensive-skill practical teaching of higher-vocational nursing is confronted with problems such as teaching content lagging behind clinical practice, fragmented skill training, insufficient integration of humanistic quality and professional skills, and weak post-course connection, which make it difficult to meet the post requirements of clinical precision nursing. Taking the opportunity of specialty construction reform under the “Double-High Plan”, this study fully integrates the ERAS concept into the practical teaching system for comprehensive skills of higher-vocational nursing. Teaching reform practices are carried out through paths including reconstructing modular teaching content, innovating the virtual-real integrated training mode, building an education platform integrating posts, courses, competitions and certificates, and improving the multi-dimensional evaluation system. The practical results show that this reform mode can effectively improve nursing students’ comprehensive nursing skills, clinical thinking competence and post adaptability, facilitate the high-quality construction of higher-vocational nursing specialties, and provide a referable reform paradigm for practical teaching innovation in higher-vocational nursing.

Keywords: Double-High Plan, ERAS Concept, Higher-Vocational Nursing, Comprehensive Skills, Practical Teaching, Teaching Path.

1. Research Background and Significance

1.1 Research Background

As a major strategic deployment for quality improvement, merit cultivation and value-empowerment of vocational education in China, the “Double-High Plan” clearly requires higher-vocational colleges to focus on specialty group construction, deepen industry-education integration, align with cutting-edge industry technologies and post standards, reconstruct talent training systems, and cultivate high-quality technical and skilled talents. As a core specialty among medicine and health disciplines in higher-vocational education, nursing is critical for supporting the Healthy China Strategy and making up for the shortage of primary health-care and nursing talents [1]. Its teaching quality is directly related to the level of clinical nursing services and the quality of medical rehabilitation. With the iterative upgrading of modern surgical medical technologies, the Enhanced Recovery After Surgery (ERAS) concept has been widely applied in multiple clinical fields including surgery, obstetrics and gynecology, and orthopedics, forming a standardized, precise and whole-process perioperative nursing system and becoming a core competence requirement for clinical nursing posts.

At this stage, most higher-vocational colleges still adopt traditional teaching modes for practical teaching of

comprehensive nursing skills. Teaching content centers on conventional basic nursing operations, failing to incorporate cutting-edge nursing specifications of ERAS such as preoperative health education, intraoperative cooperation, postoperative analgesia, early mobilization and nutritional support. Training projects are fragmented with single scenarios; more emphasis is laid on mechanical skill operation, while the integrated cultivation of clinical thinking, whole-process nursing and humanistic care is neglected. Meanwhile, teaching standards are disconnected from new clinical post standards for ERAS and the requirements of vocational skill level certificates for nursing. Consequently, graduates struggle to rapidly adapt to modern precision nursing posts after employment, with problems such as outdated skills, obsolete concepts and long post adaptation cycles, which restrict the talent training quality of higher-vocational nursing specialties and the construction effectiveness of “Double-High” specialties [2]. Against this backdrop, exploring the reform path for practical teaching of comprehensive higher-vocational nursing skills empowered by the ERAS concept has become an inevitable choice for quality improvement and upgrading of higher-vocational nursing specialties.

1.2 Research Significance

Theoretical Significance: This study deeply integrates the cutting-edge clinical ERAS nursing concept with practical teaching of higher-vocational nursing, breaks the inherent

framework of traditional nursing practical training teaching, enriches the theoretical system of higher-vocational nursing teaching reform under the background of the “Double-High Plan”, improves the nursing education theory of post-course integration and medicine-education collaboration, and provides theoretical references for medicine-health higher-vocational specialties to carry out teaching reform by aligning with clinical cutting-edge technologies.

Practical Significance: By reconstructing the practical teaching system and embedding standardized ERAS nursing procedures into the whole process of comprehensive skill training, this study can effectively solve the disconnection between nursing practical training and clinical posts, between skills and thinking, as well as between operations and humanities in higher-vocational nursing education [3]. It comprehensively enhances nursing students’ comprehensive nursing competence and clinical adaptability. Moreover, it helps higher-vocational nursing specialties fulfill quality-improvement tasks of the “Double-High Plan”, build practical-training education characteristics matching modern clinical demands, and deliver high-quality, professional and modern nursing technical talents for medical institutions.

2. Existing Problems in Practical Teaching of Comprehensive Higher-Vocational Nursing Skills

2.1 Teaching Content Lags behind Clinical Frontiers with Insufficient Integration of the ERAS Concept

Current textbooks and teaching syllabi for comprehensive-skill practical training in higher-vocational nursing are updated belatedly. Teaching content focuses on traditional perioperative nursing and basic nursing operations, emphasizing conventional postoperative nursing and symptomatic management of complications. Core ERAS components including precise preoperative assessment, individualized health education, optimized preoperative fasting and drinking protocols, intraoperative temperature protection, early postoperative oral intake, early ambulation and multi-modal analgesia are not covered. Teaching content falls out of step with the mainstream clinical enhanced-recovery nursing mode. Students receive no exposure to standardized ERAS nursing procedures at school and lack awareness of modern precision nursing concepts, making it hard for them to adapt to new technologies and specifications for clinical posts.

2.2 Fragmented Practical-Training Modes and Inadequate Cultivation of Clinical Thinking

Traditional practical teaching for comprehensive nursing skills mainly consists of repeated training of individual skills under the single “demonstration-imitation-practice” mode. Skills such as vital sign monitoring, wound care, pipeline nursing and rehabilitation guidance are trained in isolation. There is a lack of integration of complete perioperative nursing scenarios. Practical training prioritizes operational standardization yet ignores the integrity, logic and continuity of nursing workflows, and fails to conduct scenario-based practical training oriented toward ERAS whole-process nursing thinking. As a result, students can only mechanically

perform individual skills [4]. They are deficient in holistic nursing thinking, condition observation capacity and individualized nursing intervention competence, and cannot satisfy clinical nursing requirements for whole-process, precise and efficient care under the ERAS model.

2.3 Shallow Integration of Posts, Courses, Competitions and Certificates and Low Talent-Training Adaptability

In-depth integration of posts, courses, competitions and certificates constitutes a core requirement of the “Double-High Plan”. Nevertheless, current nursing practical teaching fails to effectively align with clinical ERAS post competence standards, assessment requirements of 1+X nursing vocational skill certificates, and scoring criteria for vocational skill competitions. Practical-training project design is divorced from real clinical working scenarios [5]. Skill assessments focus on standardization of operational workflows while overlooking core evaluation indicators such as nursing outcomes, patient experience and rehabilitation prognosis, which deviates from the patient-recovery-centered service philosophy of modern nursing. Furthermore, the school-enterprise collaborative education mechanism is imperfect. Front-line clinical ERAS nursing experts participate sparingly in teaching reform and practical-training guidance, so teaching reform lacks support from industry frontiers.

2.4 Simplified Teaching Evaluation System Restricting Comprehensive Education Outcomes

Existing practical-teaching evaluation is dominated by summative assessment, which mainly relies on final practical skill examinations. Evaluation dimensions are limited to proficiency and standardization of skill operations, excluding comprehensive competencies required by ERAS, such as clinical thinking, humanistic care, communication and health education, process optimization and emergency disposal. Process-oriented evaluation is deficient, making it impossible to dynamically monitor students’ mastery of concepts, development of thinking and competence improvement during practical training. Teaching weaknesses cannot be accurately fed back, which hinders the all-round improvement of students’ comprehensive nursing literacy.

3. Reform Paths for Practical Teaching Empowered by the ERAS Concept under the Guidance of the “Double-High Plan”

3.1 Benchmark against “Double-High” Construction Standards and Reconstruct Modular ERAS Practical-Training Teaching Content

In accordance with the construction requirements of “Double-High” specialty groups, clinical ERAS nursing experts from surgery, orthopedics, obstetrics and gynecology are invited to systematically restructure existing practical-training content for comprehensive nursing skills in light of the post-training positioning of higher-vocational nursing students. Obsolete practical-training items are eliminated and cutting-edge clinical ERAS nursing specifications are incorporated to build a four-module practical-training system: preoperative intervention, intraoperative cooperation,

postoperative rehabilitation, and continuing care.

The preoperative-intervention module adds practical-training content including ERAS preoperative health assessment, individualized psychological counseling, enhanced-recovery-concept-oriented health education, guidance on optimized preoperative diet, and improved bowel preparation. The intraoperative-cooperation module intensifies skill training in intraoperative temperature protection, precise aseptic cooperation, standardized position nursing and intraoperative stress prevention [6]. The postoperative-rehabilitation module focuses on ERAS core skills such as multi-modal analgesia nursing, early oral intake and nutritional support, guidance for early ambulation, refined pipeline nursing and preventive intervention for complications. The continuing-care module incorporates expanded practical-training items including postoperative rehabilitation follow-up, home-based rehabilitation guidance and rehabilitation effect assessment. In addition, core ERAS nursing thinking runs through teaching of each module, guiding students to establish the modern nursing philosophy of “whole-process optimization, precise intervention and accelerated rehabilitation”, so as to realize seamless alignment between teaching content and cutting-edge clinical post standards.

3.2 Innovate the Virtual-Real Integrated Practical-Training Mode and Foster ERAS-Oriented Whole-Process Clinical Thinking

In compliance with the construction requirements of “Double-High” practical-training bases, resources including on-campus virtual simulation practical-training platforms, standardized ward training sites and off-campus clinical practical-training bases are integrated to build a trinity virtual-real integrated practical-training mode of “virtual simulation + scenario-based simulation + clinical internship”, addressing the problems of single practical-training scenarios and fragmented workflows in traditional teaching. Virtual simulation systems are adopted to construct full-process simulated perioperative ERAS scenarios, allowing students to repeatedly practice whole-process nursing workflows for complex cases, get familiar with standardized ERAS operational specifications and avoid risks in clinical hands-on practice. Scenario-based comprehensive practical training is carried out in on-campus standardized wards [7]. Real clinical scenarios such as postoperative pain, abdominal distension and activity intolerance are set to train students’ capacities for individualized nursing intervention and emergency disposal guided by the ERAS concept. Students are regularly arranged to attend clinical internships in ERAS specialized wards of cooperative hospitals to intuitively experience clinical enhanced-recovery nursing practices, achieving high alignment between practical-training scenarios and clinical posts.

Meanwhile, the traditional individual-skill training mode is transformed. The case-oriented and task-driven teaching method is adopted. Centered on complete perioperative cases, skill items of various modules are connected in series. Students are guided to independently finish the whole nursing process including condition assessment, scheme formulation, workflow implementation and effect evaluation, so as to cultivate their systematic and whole-process clinical nursing

thinking oriented toward ERAS.

3.3 Deepen the Integration of Posts, Courses, Competitions and Certificates and Construct the School-Hospital Collaborative Education Mechanism

Following the requirements of industry-education integration and school-enterprise cooperation under the “Double-High Plan”, a school-hospital collaborative education platform is established to promote the full integration of ERAS nursing post standards, skill competition standards and 1+X nursing certificate standards into practical teaching [8]. An ERAS teaching-reform steering committee is set up in cooperation with affiliated hospitals. Clinical head nurses and specialized nurses are invited to participate in the formulation of practical-training syllabi, design of practical-training projects, classroom teaching guidance and assessment evaluation throughout the process, ensuring that teaching content conforms to real clinical post practices.

Scoring criteria for precise nursing, humanistic nursing and whole-process rehabilitation nursing in vocational skill competitions are embedded into daily practical-training teaching to promote learning and reform through competitions. Assessment key points of 1+X certificates such as elderly care and maternal-infant nursing are aligned to optimize ERAS-related practical-training items and realize interoperability between skill training and certificate examinations. In addition, a mechanism for improving dual-competency teachers’ capabilities is perfected. Professional teachers are organized to receive further clinical training in ERAS specialized departments and participate in clinical nursing practice to update cutting-edge nursing knowledge and skills, enhance teachers’ capabilities for ERAS teaching and practical-training guidance, and build a dual-competency teaching team adapted to modern nursing teaching reform.

3.4 Improve the Multi-dimensional Three-dimensional Evaluation System and Guarantee the Improvement of Education Quality

Based on the quality-assurance-system construction requirements of the “Double-High Plan”, the single summative evaluation mode is replaced by a multi-dimensional three-dimensional teaching evaluation system combining process-oriented evaluation, summative evaluation and comprehensive clinical evaluation. Process-oriented evaluation focuses on the whole practical-training process of students, covering dimensions such as mastery of the ERAS concept, standardization of skill operations, case-analysis competence, effects of communication and health education, and teamwork competence [9]. Students’ learning outcomes are dynamically recorded via classroom questioning, practical-training operations, case presentations and group seminars. Summative evaluation adopts comprehensive-case practical examinations with typical perioperative cases to assess students’ hands-on competence for whole-process ERAS comprehensive nursing. For comprehensive clinical evaluation, clinical preceptors from off-campus practical-training bases conduct comprehensive assessments on students’ post adaptability and rehabilitation-nursing service quality during internships.

Furthermore, an evaluation-feedback-rectification mechanism is established. Teaching weaknesses are accurately identified according to multi-dimensional evaluation results, and practical-training content and teaching approaches are dynamically optimized to form a closed-loop education system of “teaching-evaluation-feedback-optimization”, so as to fully guarantee the quality of practical teaching.

4. Outcomes of Teaching Reform Implementation

In this study, 420 nursing students of Grade 2023 and Grade 2024 from the author's university were selected as research subjects, among whom 210 students in the control group received traditional practical teaching, and 210 students in the experimental group received the new practical teaching mode empowered by the ERAS concept. Remarkable outcomes have been achieved after one academic year of teaching reform practice.

First, students' comprehensive competence has been significantly enhanced. The experimental group achieved statistically significantly higher average scores in comprehensive nursing skill examinations, case analysis and clinical thinking assessments than the control group ($P < 0.05$). The mastery rate of the ERAS enhanced-recovery nursing concept and standardized workflows among students reached 98.5%. Students are capable of independently completing whole-process ERAS nursing interventions for patients with common surgical conditions, which fundamentally resolves the problems of fragmented skills and oversimplified thinking under traditional teaching. Second, post adaptability has been greatly improved. According to follow-up internship data, students in the experimental group obtained significantly higher recognition in clinical internships and higher satisfaction scores from clinical preceptors. Their average pre-employment adaptation cycle was shortened by 2-3 months, enabling them to rapidly adapt to clinical precision nursing posts. Third, distinctive specialty education features have been formed. Relying on this teaching reform, the ERAS practical-teaching resource library for nursing specialties has been improved. A modular, scenario-based and integrated practical-teaching mode has been established, enriching the connotation of “Double-High” specialty construction and enhancing the school-running characteristics and competitiveness of the specialty. Fourth, students' professional literacy has been comprehensively upgraded. After the reform, students demonstrated markedly strengthened awareness of humanistic care, individualized nursing thinking and doctor-patient communication competence, which meet the core requirements of the modern medical industry for high-quality nursing talents.

5. Research Conclusions and Prospects

5.1 Research Conclusions

Against the backdrop of the “Double-High Plan”, empowering comprehensive-skill practical teaching of higher-vocational nursing with the Enhanced Recovery After Surgery (ERAS) concept serves as an effective reform path for promoting high-quality development of higher-vocational nursing specialties, deepening the integration of posts, courses,

competitions and certificates, and meeting the demands of modern clinical nursing posts. By reconstructing modular ERAS practical-training teaching content, innovating the virtual-real integrated practical-training mode, deepening school-hospital collaborative education integrating posts, courses, competitions and certificates, and improving the multi-dimensional teaching evaluation system, the pain points of traditional nursing practical teaching such as outdated teaching content, fragmented practical training, insufficient cultivation of thinking and low post adaptability can be effectively addressed [10]. This reform mode can comprehensively improve nursing students' hands-on nursing skills, clinical thinking competence and comprehensive professional literacy, realize precise alignment between talent training of higher-vocational nursing and cutting-edge clinical post standards, enrich the educational connotation of “Double-High” specialty construction, and provide a feasible practical paradigm for practical-teaching innovation and reform in higher-vocational nursing.

5.2 Research Prospects

Although favorable outcomes have been obtained from this teaching reform, there remains room for optimization. Follow-up research will further deepen medicine-education collaboration and expand the scope of clinical cooperation. Practical-training projects will be refined in combination with ERAS nursing characteristics of different specialties to develop specialized ERAS practical-training modules. Supported by digital campus construction, the virtual-simulation practical-training platform will be upgraded with more highly-simulated ERAS nursing teaching scenarios to realize digital and intelligent practical-training teaching. Moreover, the ERAS concept will be incorporated into talent-training programs, curriculum standards and textbook development for nursing specialties to build a systematic and normalized education system. The integration mechanism of posts, courses, competitions and certificates will be continuously optimized to consolidate the outcomes of teaching reform, sustainably improve the talent-training quality of higher-vocational nursing specialties, support the long-term construction of “Double-High” specialties, and deliver more high-quality modern nursing technical and skilled talents for the Healthy China Strategy.

Fund Project

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