

# Research Progress on the Localized Application of the Objective Structured Clinical Examination in Higher Vocational Nursing Education in China

Xi Yang, Jun Huang

School of Nursing, Hubei College of Chinese Medicine, Jingzhou, China

Email: 1690060050@qq.com

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## Abstract

The Objective Structured Clinical Examination (OSCE), as an important tool for evaluating nursing students' job competency, has been widely implemented in nursing vocational education in China. This study aims to systematically analyze the localized application models, implementation effectiveness, and existing problems of OSCE in higher vocational nursing education, so as to provide references for improving the evaluation system of nursing vocational education.

## Keywords

Objective Structured Clinical Examination, Higher-Vocational Education, Nursing Education, Clinical Competence Assessment

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## 1. Introduction

To advance the high-quality development of the nursing profession and address the public's diverse demands for nursing care, *the National Nursing Career Development Plan (2021-2025)* emphasizes strengthening the nursing workforce. Guided by actual clinical needs and centered on job competency, the plan advocates a position-based, tailored approach to effectively enhance nurses' practical care delivery capabilities [1]. Vocational nursing students represent a key component of the nursing education system, and the cultivation and assessment of their comprehensive clinical competence are vital to the future of nursing in China [2].

The Objective Structured Clinical Examination (OSCE) is a scenario-based assessment method that evaluates students' practical skills through simulated clinical cases. By recreating real-world care situations, OSCE provides students with a highly authentic approximation of actual clinical nursing practice [3]. However, traditional educational models—often characterized by didactic theoretical instruction and fragmented clinical training—tend to disconnect theory from practice [4]. Such approaches struggle to meet the evolving demands for job-ready, competency-based education in the context of modern healthcare.

In this setting, OSCE offers a promising solution. With its multidimensional, process-oriented, and standardized framework, OSCE has emerged as a pivotal tool for addressing evaluation challenges in vocational nursing education. This paper systematically explores pathways for the localized implementation of OSCE in vocational nursing programs, aiming to provide new perspectives for reforming nursing education at this level.

## 2. Compatibility between OSCE and Higher Vocational Nursing Education in China

### 2.1. Characteristics of OSCE

The Objective Structured Clinical Examination (OSCE), first introduced by Harden *et al.* [5], is a standardized clinical competence assessment system based on scenario simulation. This framework is characterized by the following features:

**Standardized Scenarios:** Cases are designed based on actual clinical pathways or nursing procedures, immersing students in realistic clinical settings to comprehensively evaluate their clinical reasoning, problem identification, and decision-making abilities.

**Modular Stations:** Each station focuses on specific competency dimensions, such as nursing assessment or emergency response [6], closely aligning with the curricular objectives and practical demands of vocational nursing education, thereby enhancing the relevance and practicality of the assessment.

**Structured Scoring:** A combination of double-blind scoring and behaviorally anchored rating scales is employed to improve the objectivity of evaluation outcomes [7].

**Immediate Feedback Mechanism:** A structured debriefing is conducted within a specified timeframe after the assessment to reinforce learning outcomes and encourage reflection.

**Full Process Traceability:** Video recordings enable the review of operational procedures and support quality analysis.

Thus, through its systematic, standardized, and scenario-based design, OSCE integrates nursing tasks into a cohesive framework for comprehensive clinical competence assessment. This approach not only ensures scientific rigor in evaluation but also significantly enhances students' on-the-spot adaptability and professional role immersion. As a result, OSCE provides a quantifiable and replicable assessment model for vocational nursing education.

## 2.2. Positioning and Training Objectives of Higher Vocational Nursing Education

According to the *Teaching Standards for Nursing Majors in Higher Vocational Colleges*, practical teaching hours must account for no less than 50% of the total curriculum, underscoring its central role in developing practical competencies and positioning it as a key focus for reform in nursing education [8]. Research indicates that vocational nursing graduates remain the backbone of the hospital nursing workforce, particularly in primary and secondary hospitals, where the proportion of associate-degree nurses exceeds that in tertiary hospitals [9]. Therefore, institutions must continue to strengthen the training of nursing professionals at the vocational level.

Compared with undergraduate nursing education, vocational nursing education is more explicitly job-oriented, emphasizing the cultivation of job competency as its foundational objective. It is essential for vocational nursing programs to closely align with the needs of general nursing positions in primary healthcare settings, aiming to cultivate practical talent who are “ready to serve at the grassroots level and capable of meeting practical needs” [10].

## 2.3. Analysis of the Compatibility between OSCE and Higher Vocational Nursing Education

Based on the analysis above, OSCE’s evaluation logic demonstrates reasonable compatibility with higher vocational nursing education in terms of teaching and assessment. First, the core objective of higher vocational nursing education is to cultivate job competency, emphasizing practical teaching effectiveness and alignment with professional roles, which requires students to possess rapid skill transfer ability and clinical adaptability. However, in the teaching process, there is often an overemphasis on hard-skill acquisition, insufficient development of soft skills, inadequate integration of hard and soft skills, and low student engagement, leading to a significant gap between training outcomes and actual job requirements [11].

Wang Lijie *et al.* [12] further pointed out that nursing students exhibit critical deficiencies across the pre-, during-, and post-operation stages, commonly manifesting poor psychological preparedness and inadequate adaptability. Therefore, by designing integrated case stations that require students to simultaneously apply operational skills and communication techniques, OSCE establishes a structured assessment mechanism that authentically and comprehensively reflects students’ overall professional competence, effectively addressing the limitations of traditional evaluation methods.

## 3. Progress in the Localized Practice of OSCE

### 3.1. Innovation in Application Models

Since OSCE was first introduced into the field of nursing education in China in 1996 [13], its localized implementation has evolved alongside the development of

higher vocational nursing education, demonstrating trends toward diversification and refinement. Various institutions have flexibly explored and developed multiple application models based on specific course objectives, student levels, and available resources:

**TEFIR Closed-Loop Teaching Model:** This integrated model follows a Teaching-Evaluation-Feedback-Improvement-Re-evaluation cycle [14]. The core of the TEFIR model lies in its emphasis on continuous teaching evaluation, feedback, and improvement, which can significantly enhance teaching quality and students' learning outcomes. The contribution of this model to the field of education is that it provides an operational and practical framework for instructional improvement, thereby facilitating teachers' professional development and the enhancement of students' learning outcomes.

**Scenario Simulation-Integrated OSCE Model [15]:** Evaluates nursing students' clinical skills by creating simulated patients and clinical scenarios that closely replicate real-world clinical problems, and systematically collects multidimensional evaluation data, including performance scores, self-assessments, and instructor feedback.

**The Simplified OSCE Model [16]** retains the core principles of the Objective Structured Clinical Examination while streamlining the assessment process. This model typically focuses on key competencies and essential clinical skills required for nursing practice by establishing a limited number of stations and reducing the scope and complexity of the examination. Standardized rating scales are used by instructors to complete the assessment within a specified time frame. By emphasizing critical competencies, the simplified OSCE model effectively reflects students' basic job readiness while reducing implementation costs and organizational burden, making it particularly suitable for routine teaching evaluations and formative assessments in higher vocational nursing education.

**Blended OSCE Teaching Model [17]** integrates OSCE assessment with multiple instructional approaches, emphasizing the integration of teaching, learning, and evaluation. In this model, students first complete theoretical learning, skill demonstrations, and pre-class preparation through online platforms, followed by in-person OSCE stations for skill performance and scenario-based tasks. During the assessment process, self-assessment, peer assessment, and instructor evaluation are combined to strengthen formative feedback and reflective learning, thereby promoting the continuous development of students' clinical skills and comprehensive competencies.

**Multi-Station Integrated Training Model [18]** is structured around the clinical workflow and creates an integrated training and assessment environment that closely resembles real clinical practice through a series of interconnected stations. These stations encompass tasks such as patient assessment, technical procedures, communication, clinical decision-making, and health education. Students are required to complete each station sequentially, simulating the full nursing care process. Evaluation is conducted by multiple assessors using standardized criteria,

with an emphasis on overall practical competence, clinical reasoning, and teamwork abilities, reflecting a holistic approach to assessing job competency.

**Stratified and Classified OSCE Model** [19] designs assessment content and difficulty levels according to students' learning stages, competency levels, or training objectives, while also aligning assessments with specific professional roles or practice domains. Lower-level assessments focus on the standardization of foundational knowledge and basic clinical skills, whereas higher-level assessments emphasize the integrated application of skills and clinical judgment in complex scenarios. By implementing OSCE in a stratified and categorized manner, this model enhances the precision and relevance of assessment and supports the progressive development of students' professional competencies.

## 3.2. Implementation Effects and Educational Outcomes

### 3.2.1. Enhancement of Multidimensional Competence

OSCE shifts the focus of assessment from evaluating isolated competencies to systematically examining the multifaceted professional readiness of nursing students. This approach enables a comprehensive and objective evaluation of students' integrated performance in realistic clinical scenarios, extending beyond the mere mastery of individual clinical skills [20]. Through its multi-station design, which covers essential phases of nursing practice, OSCE effectively assesses core competencies such as communication, clinical decision-making, procedural compliance, and teamwork. Among these, critical thinking—a defining attribute of modern professional competence—has become central to students' ability to adapt to contemporary nursing models [21]. Consequently, students' theoretical and practical performance reflects not only their knowledge base but also their capacity for integrated clinical reasoning [22].

Furthermore, by simulating actual clinical workflows, OSCE significantly enhances students' familiarity with clinical processes and professional responsibilities, thereby shortening the transition from theory to practice [23]. This assessment model effectively promotes active learning and engagement, motivating students to participate more fully in clinical practicums and skills training, thus creating a reinforcing cycle of “assessment-driven learning and evaluation-informed development” [24]. Hu Yueyun *et al.* [25] also demonstrated that combining OSCE with case-based teaching markedly increased students' learning motivation, encouraging active participation in case discussions, confident expression of viewpoints, and more proactive academic and professional behaviors.

It is important to note, however, that the clinical realism and evaluative rigor of OSCE can induce significant anxiety and stress in some students, exerting a complex and multidimensional psychological impact that varies across individuals. Chen Minhua *et al.* [26] observed that students often exhibit reduced confidence, hesitant decision-making, and even cognitive blocking when interacting with standardized patients and examiners under situational pressure. Conversely, some students report strong curiosity and interest in the OSCE format and expe-

rience a sense of accomplishment and professional self-identity upon successful completion.

### **3.2.2. Optimization of the Link between Teaching and Clinical Practice**

Vocational nursing education requires the deep integration of teaching content, assessment methods, clinical nursing needs, curriculum standards, and the nurse licensure examination, effectively realizing the unification of “teaching, learning, doing, and evaluating” [27]. In this context, OSCE serves not only as an effective tool for fostering students’ clinical competence but also plays a pivotal role in teachers’ professional development, systematically promoting the cultivation of a “dual-qualified” teaching workforce.

The implementation of OSCE provides teachers with a structured pathway for growth from theory to practice and from teaching to clinical engagement. During the development stage, instructors must immerse themselves in clinical settings, collect real case data, and integrate disease care pathways with typical work tasks. This process encourages teachers to continuously update their professional knowledge, stay informed about new clinical requirements and standards, and in turn enrich classroom design, making teaching content more timely and targeted.

When designing scoring criteria, teachers are required not only to clarify procedural essentials but also to deconstruct and quantify comprehensive competencies such as clinical critical thinking, communication, collaboration, and humanistic care. This deepens their understanding of nursing competency and enhances the scientific rigor and objectivity of teaching evaluation.

Moreover, through participating in the training of standardized patients (SPs) and scenario simulation, teachers hone their clinical communication and situational management skills, gradually mastering key simulation-based teaching techniques and diversifying their instructional strategies and classroom management approaches [28].

By repeatedly engaging in OSCE station design and on-site assessment, teachers shift their focus from “teaching procedures” to “cultivating clinical thinking”, placing greater emphasis on students’ decision-making and adaptability in complex clinical situations, thereby aligning teaching priorities with actual clinical demands [29].

Against the backdrop of “integration of medical care and education”, collaborative partnerships between schools and hospitals in establishing OSCE centers and clinical practice platforms enable teachers to regularly participate in clinical teaching and practice, ensuring the continuous mutual renewal of both teaching competence and clinical skills [30].

## **4. Challenges and Optimization Strategies for OSCE Implementation**

### **4.1. Complexity of Station Design and Examination Organization**

OSCE provides an objective, structured, and well-organized framework for assess-

ment. Within this framework, medical colleges and hospitals can flexibly design assessment content and methods according to their own teaching and evaluation plans, thus constructing stations of different types and objectives [23].

In higher vocational nursing education, the specific design of OSCE stations is often based on multiple considerations such as the talent development plan, nursing procedures, students' clinical thinking habits, routine clinical nursing practices, and Maslow's hierarchy of needs. Clear assessment objectives are established, and scenario-based cases are developed using real clinical examples to enhance the practicality and authenticity of the assessment [31]. Currently, the construction of OSCE stations in China frequently employs the Delphi method, with the number of stations varying across programs [32].

Hua Xiaojuan *et al.* [33] noted that nursing students generally prefer a limited number of stations, with six stations being widely accepted. If the number reaches ten, assessment duration tends to extend and student fatigue increases—a finding consistent with the study by Wang Yuansong *et al.* [34]. Therefore, appropriately streamlining the number of stations, optimizing the assessment process, and integrating nursing skill evaluation with health education components within a limited number of stations can improve assessment efficiency while ensuring comprehensiveness, thereby enhancing objectivity, fairness, and acceptability.

However, the implementation of OSCE is relatively complex and places high demands on space, equipment, personnel, and organizational management. The assessment requires standardized station layouts that simulate clinical environments, and both examiners and standardized patients must undergo systematic training to ensure scoring consistency and standardization. Meanwhile, factors such as assessment equipment, case confidentiality, scheduling, and student rotation significantly increase the operational difficulty and management cost of OSCE implementation [35]. Thus, while maintaining scientific rigor and comprehensiveness, improving implementation efficiency remains a key issue to be addressed in future research and practice.

## 4.2. Standardized Patients and Resource Limitations

SPs are essential for implementing OSCE, as they help faithfully recreate clinical scenarios while ensuring assessment homogeneity [36]. Consequently, SPs are widely used in medical and nursing education, with their diverse backgrounds adding different dimensions and significance to teaching and assessment, effectively enhancing students' clinical thinking and practical skills [37]. Based on their recruitment background and identity, SPs are mainly categorized into the following types: Student Standardized Patients (SSPs), Teacher Standardized Patients (TSPs), professional SPs, and electronic SPs.

SSPs are widely adopted due to their easy recruitment and low cost; however, issues such as inconsistent performance and unpredictability can significantly impact assessment outcomes for nursing students. TSPs are typically medical or nursing professionals who, despite possessing systematic expertise, may overuse

medical terminology or suggestive language during simulations, making their portrayal less authentic to that of real patients. Furthermore, both SSPs and TSPs often struggle to realistically simulate pediatric or elderly patient populations, limiting the comprehensiveness and relevance of assessments. In contrast, professional SPs—usually healthy individuals or patients with mild conditions from various social backgrounds—can consistently and stably simulate real cases after systematic training. While widely used in Europe and the United States, they are less common in domestic practice, mainly due to high training costs, limited availability, and management complexities. On the other hand, electronic SPs are simulation-based teaching systems built upon high-fidelity simulators and multimedia instructional software. Through computer-based technology, a variety of typical clinical signs are presented, enabling students to repeatedly practice physical examinations and receive immediate feedback. Their advantages lie in the objective and consistent presentation of clinical signs, making them suitable for training in cardiac, pulmonary, and abdominal examinations. However, in essence, electronic standardized patients belong to the category of simulation mannequins rather than real standardized patients, and they are limited in verbal interaction and situational responsiveness. Consequently, their application is restricted in history-taking training and in physical examination scenarios that require patient cooperation [38]. Additionally, clinical reality is diverse and complex, whereas OSCE—constrained by time and resources—often covers a limited range of conditions through SP cases, failing to encompass all common diseases, frequently encountered disorders, and acute/critical care scenarios [39]. Therefore, establishing a professional, stable, and well-structured SP team tailored to the training characteristics of vocational nursing students is particularly crucial [40]. This ensures the effective implementation of OSCE from both quantitative and qualitative perspectives.

Concurrently, promoting the development of a standardized case library is vital. The creation of such a library should be closely aligned with domestic clinical practice, incorporating typical cases, high-frequency scenarios, and key teaching points in vocational education, thereby providing authoritative and unified scripts for SP performances. A high-quality case library not only enhances the consistency of SP portrayals and the reliability of assessments but also establishes a foundation for comparing and mutually recognizing assessment outcomes across different institutions and regions, further advancing the scientific and standardized application of OSCE in nursing education.

### 4.3. Stratified and Categorized Needs

In practice, nursing students from different specialties and at different learning stages exhibit significant variations in their clinical competency development pathways and core competency requirements. Therefore, constructing a differentiated, categorized, and stratified OSCE assessment system to achieve precise and personalized talent cultivation has become an urgent need in current nursing ed-

ucation reform. Research indicates that the core challenge in promoting such a system lies in dynamically updating and accurately aligning assessment standards and content, thereby striking a balance between standardization and flexibility [41].

On the one hand, OSCE assessment plans should be tailored to different specialties to reflect the distinct competency emphases of various nursing roles. For example, OSCE for internationally oriented nursing programs could include stations focusing on English communication and cross-cultural care, simulating interactions with foreign patients to systematically evaluate students' professional language proficiency and cultural sensitivity, thereby enhancing their cross-cultural nursing competence [42]. For emergency nursing specialties, assessment content should place greater emphasis on on-site evaluation, high-pressure decision-making, and team coordination. High-fidelity simulators or virtual simulation technology can be utilized to construct high-risk clinical scenarios such as emergency resuscitation or disaster response, comprehensively developing students' emergency response and interdisciplinary collaboration abilities [43]. Through such specialty-specific assessment designs, OSCE can better align with actual professional contexts, effectively promoting the integration of "teaching, learning, and assessment".

On the other hand, OSCE assessment strategies should be implemented in a graded and multi-stage manner based on students' academic year or competency level. For junior nursing students, a simplified version of OSCE can be used, focusing on assessing basic nursing skills and communication abilities. For senior students or those entering clinical internships, more comprehensive stations should be included, covering the entire process from nursing assessment and clinical judgment to health education, to holistically evaluate their overall clinical competence [16] [44]. This requires nursing educators to continuously monitor industry trends, actively expand assessment concepts and methods, and drive innovation within the OSCE framework to ensure the synergistic development of standardization and adaptability.

## 5. Conclusion

In conclusion, nursing students from higher vocational colleges remain the mainstay of the nursing workforce in hospitals across China. Cultivating comprehensive clinical competencies in these students plays a decisive role in improving the quality of healthcare services [45]. As a standardized, systematic, and feedback-responsive clinical assessment tool, OSCE demonstrates strong alignment with the teaching objectives, competency requirements, and evaluation needs of higher vocational nursing education, highlighting its strong compatibility and developmental potential. Its wider adoption and application will help address the limitations of traditional assessment methods, promote the establishment of an integrated teaching-learning-assessment closed loop, and provide systematic support for cultivating high-quality, job-oriented nursing professionals.

## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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