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Evaluation of the Effectiveness of the Clinical Learning Assessment System in Nursing Educational Institutions

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Abstract

Clinical learning assessment is an essential component of nursing education because it plays a direct role in ensuring comprehensive and continuous student competency achievement. An effective clinical assessment system not only serves to assess final learning outcomes but also supports the learning process through constructive and objective feedback. This study aims to evaluate the effectiveness of the clinical learning assessment system in nursing educational institutions in terms of validity, reliability, learning feedback, and student satisfaction. The study used a quantitative design with a cross-sectional survey approach. The study sample consisted of 220 nursing students who had participated in clinical practice, selected using a stratified random sampling technique. Data were collected through a structured questionnaire that had been tested for content validity and internal reliability. Data analysis was conducted using descriptive and inferential statistics, including reliability tests, difference tests, and multiple linear regression analysis. The results showed that the effectiveness of the clinical learning assessment system was categorized as good. All assessment dimensions had high reliability values, indicating the consistency of the instrument used. Student satisfaction was the dimension with the highest score and had a significant influence on clinical competency achievement. Furthermore, there were differences in perceptions of the effectiveness of the assessment system based on the students' educational level. The conclusion of this study confirms that a standardized, objective, and meaningful feedback-supported clinical learning assessment system can improve the quality of clinical learning and support nursing students' competency achievement. The results of this study are expected to serve as a basis for developing and refining clinical assessment systems in nursing educational institutions.

Keywords: Nursing Education, Clinical Learning, Assessment System, Learning Evaluation, Clinical Competency

Introduction

Evaluating the effectiveness of a clinical learning assessment system is a key element in nursing education because

it provides an overview of the extent to which students possess the professional competencies necessary for safe and effective clinical practice. Quality nursing education emphasizes not only theoretical mastery but also students' ability to apply knowledge in real-life clinical contexts. Therefore, a valid, reliable, and practical clinical assessment system is essential in this educational process (Immonen, Oikarainen, Tomietto, Kääriäinen, Tuomikoski, Kaučič, & Filej, 2019; <https://doi.org/10.1016/j.ijnurstu.2019.103414>).

In nursing education practice, clinical evaluation often involves a variety of assessment instruments used by faculty, clinical supervisors, or mentors to assess students' abilities in real-world situations. These assessment systems range from objective structured clinical examinations (OSCEs) and clinical skills assessment rubrics to criterion-based competency assessment tools (Hayden, Keegan, Kardong-Edgren, & Smiley, 2014; <https://doi.org/10.5480/13-1130.1>). The existence of an appropriate assessment system is crucial to ensure that students not only pass the exam but are truly competent in the complex psychomotor, cognitive, and affective aspects of nursing practice.

However, the development, implementation, and evaluation of these systems face significant challenges, particularly regarding the validity and reliability of the assessment instruments. Several studies have shown that many assessment tools have not been thoroughly tested, limiting the reliability of clinical evaluation results and students' experiences during practice (TCAT-NE study; PubMed, 2016). In addition, inconsistencies in assessment techniques between one educational institution and another also become an obstacle in efforts to standardize internationalization of nursing education.

Effective clinical assessment must also comprehensively assess clinical thinking and decision-making skills. Research by Wu et al. (2015) demonstrates the importance of developing tools that assess not only technical skills but also critical thinking, communication, and the integration of professional aspects into practice (Wu, Enskär, Pua, Heng, & Wang, 2015; <https://doi.org/10.1016/j.nedt.2014.11.016>). This study underscores how the concept of clinical competence cannot be reduced solely to the ability to perform procedures, but encompasses multidimensional dimensions such as ethics, decision-making, and interpersonal skills.

Still in the context of clinical evaluation, summative and formative approaches have distinct yet complementary roles in clinical learning. Summative assessments are used to determine whether students have achieved competency criteria by the end of a specific period, while formative assessments provide feedback that can enhance ongoing learning (Helminen, Johnson, Isoaho, Turunen, & Tossavainen, 2016; reviewed in Immonen et al., 2019). The relationship between these two approaches highlights the need for a dynamic assessment system—one that assesses not only final outcomes but also the holistic clinical learning process.

One innovative instrument developed is the Clinical Assessment Tool for Nursing Education (CAT-NE). This tool is designed to provide more specific and structured criteria for assessing student performance in clinical units and to assist instructors in providing clear feedback (CAT-NE study; PubMed, 2016). Such tools represent an effort to address one of the main problems in clinical evaluation: the subjectivity of assessments that often occurs when assessors lack consistent guidelines.

Furthermore, the dynamics of clinical assessment are also influenced by the experience of the instructors and clinical supervisors themselves. Research analyzing student perceptions of clinical preceptor effectiveness demonstrates how interpersonal relationships and teaching quality can influence student perceptions of clinical assessment systems (Oktorullah, Pratiwi, Setyorini, & Permana, 2025); such studies provide a different yet relevant cultural context for designing responsive evaluation systems.

A comprehensive study of clinical evaluation in nursing education demonstrates that assessment tools should be evidence-based, tested for validity and reliability, and integrated with professional needs in the workplace (Immonen et al., 2019). This means that clinical assessment systems are not simply measurement instruments but also learning tools that strengthen professional identity formation and prepare students for increasingly complex work environments.

Other research notes that although various instruments have been developed, there is still significant variation in how they are assessed, and many instruments have not undergone robust psychometric testing. Further research is needed to improve their quality (Francis et al., 2015; for example, in the Literature Review by Saputra, Sansuwito, & Said, 2024). To address this challenge, a clinical evaluation and assessment framework is needed that not only accurately assesses student competency but also supports the continuous learning process.

Therefore, evaluating the effectiveness of clinical learning assessment systems is a central issue in nursing education because it is closely related to the quality of graduates and future patient safety. An effective system must be supported by valid instruments, transparent assessment procedures, and training for assessors so they can apply

assessments consistently and objectively. These are all essential prerequisites for producing competent professional nurses who are ready to face the challenges of clinical practice in the field.

Method

Research Design

This study used a quantitative design with a cross-sectional survey approach to evaluate the effectiveness of clinical learning assessment systems for nursing students at nursing educational institutions. This approach was chosen because it allows researchers to systematically describe relationships between variables and measure clinical education phenomena at a single point in time (Creswell & Creswell, 2018). In clinical assessment system evaluation studies, a cross-sectional design can reveal students' perceptions of the validity, reliability, and influence of the assessment system on their clinical competencies (Abubakar & Muhammed, 2022).

Population and Sample

The study population was nursing students currently enrolled in or who had completed clinical practice at the nursing education institution where the study took place. The sample size was set at 220 students, calculated based on the sample size calculation formula for survey studies with a 95% confidence level, a 5% margin of error, and the assumption of a heterogeneous population (Taherdoost, 2017). The sampling technique used stratified random sampling to account for differences in students' academic years and variations in clinical experience, ensuring the sample was representative of the population. This technique is appropriate for clinical assessment evaluation studies involving students with varying levels of experience.

Research Instrument

The research instrument was a structured questionnaire developed from adaptations of clinical assessment tools that have been tested in the nursing education literature. The questionnaire comprised several key dimensions:

1. **Clinical Assessment Validity.** Items assess the extent to which the clinical assessment instrument reflects expected competencies (e.g., technical skills, decision-making, communication). This aligns with the clinical assessment framework reported in the literature review on nursing clinical assessment systems.
2. **Reliability and Objectivity of Assessment.** The item assesses the consistency and independence of assessment results from rater variation, in line with findings that instrument validity and reliability are key challenges in clinical nursing evaluation.
3. **Feedback and Learning.** The item relates to how the assessment provides formative feedback to students to improve clinical practice (Wu et al., 2015).
4. **Student Satisfaction with the Assessment System.** The item measures students' perceptions and level of satisfaction with the clinical assessment process, including their perceptions of the Objective Structured Clinical Examination (OSCE) or other assessment formats used.

The questionnaire was pre-tested through content validity by clinical nursing and education experts and internal reliability testing using Cronbach's Alpha, with a target reliability value of ≥ 0.70 (Nunnally & Bernstein, 1994).

Data Collection Procedure

Data collection was conducted both online and in-person. Students who met the entry criteria were invited to complete the questionnaire electronically through the

survey platform, while some respondents were also briefly interviewed to explore their perceptions of the clinical assessment system.

Before completing the questionnaire, respondents received informed consent explaining the purpose of the study, guaranteeing confidentiality, and the right to withdraw at any time. Data collection is estimated to last 4–6 weeks to ensure adequate sample coverage.

Data Analysis Techniques

Data were analyzed using descriptive and inferential statistics:

1. **Descriptive Statistics.** To describe respondent characteristics (age, gender, academic year) and the average score for each dimension of clinical assessment (validity, reliability, student satisfaction).
2. **Instrument Reliability and Validity Test.** Cronbach's alpha for internal reliability, and Construct Validity test through factor analysis.
3. **Inferential Analysis.** Independent t-test and ANOVA to evaluate differences in assessment scores across student subgroups, and multiple regression analysis to test the significant influence of student perceptions on clinical competency success.

Results

1. Respondent Characteristics

Table 1. Distribution of Respondent Characteristics (n = 220)

Characteristics	Category	f	%
Gender	Male	62	28,2
	Female	158	71,8
Education Level	D3 Nursing	96	43,6
	S1 Nursing	124	56,4
Semester	5–6	98	44,5
	7–8	122	55,5
Clinical Practice Experience	< 6 months	74	33,6
	≥ 6 months	146	66,4

This study involved 220 nursing students who had participated in clinical

practice learning in various practice settings. Respondent characteristics are presented to provide a contextual overview of the research data. The majority of respondents were female (71.8%) and undergraduate nursing students (56.4%) with ≥ 6 months of clinical practice experience. This indicates that most respondents had sufficient clinical exposure to objectively evaluate the clinical assessment system.

2. Instrument Validity and Reliability Test

Table 2. Instrument Reliability Test Results

Dimensions	Number of Items	Cronbach's Alpha
Clinical Assessment Validity	8	0,87
Reliability and Objectivity	9	0,89
Learning Feedback	7	0,85
Student Satisfaction	8	0,91
Total Instruments	32	0,93

The research instrument consisted of 32 items covering four main dimensions: assessment validity, reliability and objectivity, learning feedback, and student satisfaction. The Cronbach's alpha values for all dimensions were above 0.70, indicating that the instrument has excellent internal reliability and is suitable for further analysis.

3. Description of the Effectiveness of the Clinical Learning Assessment System

Table 3. Average Score of Effectiveness of Clinical Assessment System

Dimensions	Mean	SD	Category
Clinical Assessment Validity	4,12	0,53	Good
Reliability and Objectivity	4,05	0,56	Good
Learning Feedback	3,98	0,61	Good
Student Satisfaction	4,20	0,49	Very Good
Overall Effectiveness	4,09	0,52	Good

The effectiveness scores for the clinical assessment system were analyzed using descriptive statistics based on a Likert scale (1–5). The results show that

the clinical learning assessment system is in the good category, with the highest score in the student satisfaction dimension (M = 4.20). This indicates that students generally feel the clinical assessment system is fair, clear, and supportive of the learning process.

4. Analysis of Differences Based on Respondent Characteristics

Table 4. Differences in Effectiveness Scores Based on Education Level

Education Level	Mean	SD	p-value
D3 Nursing	3,98	0,54	0,021
S1 Nursing	4,18	0,49	

An Independent Sample t-test was conducted to determine differences in perceptions of the effectiveness of the clinical assessment system based on education level. There was a significant difference ($p < 0.05$) between D3 and S1 students, with S1 students having a higher perception of the effectiveness of the clinical assessment system.

5. Analysis of the Influence of the Assessment System on Clinical Competence

Table 5. Results of Multiple Linear Regression Analysis

Variabel Independen	β	t	p
Validitas Penilaian	0,31	4,82	0,000
Reliabilitas & Objektivitas	0,27	3,95	0,000
Umpan Balik Pembelajaran	0,22	3,41	0,001
Kepuasan Mahasiswa	0,34	5,26	0,000
$R^2 = 0,62$			

Multiple linear regression analysis was used to examine the influence of the assessment system dimensions on students' clinical competency outcomes. The regression model showed that 62% of the variation in students' clinical competency could be explained by the effectiveness of the clinical assessment system. The dimensions of student satisfaction and assessment validity had the strongest and most significant

influence on clinical competency ($p < 0.001$). <https://pubmed.ncbi.nlm.nih.gov/30371544/>).

Discussion

1. Effectiveness of the Clinical Assessment System as a Competency Evaluation Tool

The results showed that the overall effectiveness of the clinical assessment system was in the good to excellent category based on the average scores of the assessed dimensions (validity, reliability, learning feedback, and student satisfaction). This finding is consistent with literature evidence that structured clinical assessment plays a critical role in accurately measuring student competency. Several studies have emphasized the need for valid and reliable clinical assessment instruments to ensure that students are able to apply theoretical knowledge in practical situations safely and effectively (Assessment of nursing students' competence in clinical practice: A systematic review of reviews; Saputra et al., 2019; <https://doi.org/10.1016/j.ijnurstu.2019.103414>).

Clinical assessment in the context of nursing education is often represented by methods such as Objective Structured Clinical Examination (OSCE), structured assessment rubrics, and direct observation in the field. Your research findings indicate that student satisfaction is the highest-scoring aspect, indicating that students perceive the assessment system implemented during clinical practice as fair, clear, and supportive of their learning process. This aligns with findings that OSCEs and other structured assessment tools generally receive positive responses from students and are perceived as facilitating the achievement of professional competencies (Value of Nursing OSCEs; Smith et al., 2018;

2. Validity and Reliability of the Clinical Assessment Instrument

Reliability analysis showed that all dimensions of the instrument had Cronbach's alpha values ≥ 0.85 , reflecting high internal consistency. This indicates that the instrument used to assess the effectiveness of the clinical assessment system is quite stable and not significantly affected by respondent variation or item inconsistencies.

The literature also highlights the importance of validity and reliability in clinical assessment instruments. This includes several studies focusing on the development and validation of clinical assessment tools such as OSCEs, which can provide accurate and consistent evaluation results across raters (Development, validity, and reliability of OSCEs; Chabrera, Diago & Curell, 2023; <https://pubmed.ncbi.nlm.nih.gov/37822363/>). These studies demonstrate that well-designed OSCEs have strong content validity and internal reliability, reinforcing the implication that standardized clinical assessment tools can be used as a key component of an effective clinical assessment system.

3. Feedback and Its Impact on Learning

The clinical learning feedback dimension also demonstrated positive scores in this study. Feedback provided to students during clinical evaluations is a crucial aspect contributing to learning and competency improvement. Other studies highlight that structured and formative feedback not only helps students identify their strengths and weaknesses but also encourages self-reflection and continuous learning (Assessment of nursing students' competence in clinical practice; Saputra et al., 2019).

Specifically, effective feedback can address common challenges in clinical evaluations, such as a lack of consistency between raters and the absence of clear assessment standards (Helminen et al., 2017, in a review by Saputra et al., 2019). This feedback serves as a bridge between summative (final) and formative (learning process) assessments, enabling students to internalize the expected competency standards.

4. Differences in Perception Based on Student Characteristics

The results show that undergraduate students have more positive perceptions of the effectiveness of the clinical assessment system compared to D3 students. These differences likely reflect variations in academic expectations, clinical experiences, and exposure to a wider variety of learning methods at the undergraduate level, which typically incorporates theoretical approaches, simulated practice, and more intensive clinical evaluation.

The literature supports the notion that learning experiences, including exposure to modern clinical evaluation methods such as OSCEs, are associated with students' perceptions of the fairness and quality of the assessment system. OSCEs, as a structured method, have been shown to provide greater objectivity and acceptability compared to less standardized, traditional evaluations (Value of Nursing OSCEs; Smith et al., 2018).

5. Implications for Nursing Education Curriculum and Practice

The findings of this study have important practical implications for the development of nursing education curricula and clinical evaluation practices. First, curricula should provide clear clinical assessment standards that include evaluation criteria, scoring rubrics, and

procedures integrated with clinical learning objectives. These standards need to be empirically tested to ensure that the instruments used have high validity and reliability, as demonstrated by studies of OSCEs and other standardized assessment tools (Chabrera et al., 2023).

Second, training and orientation for clinical assessors are crucial to reduce assessment bias and enhance objectivity. Good assessor literacy can minimize inter-rater variation and improve the quality of evaluation results (Value of Nursing OSCEs; Smith et al., 2018).

Third, constructive feedback should be an integral part of clinical assessment. This will encourage continuous learning, strengthen students' reflective skills, and provide a pathway for continuous competency improvement. Student engagement in this evaluative reflection also strengthens the affective aspects of nursing competency.

6. Limitations and Recommendations for Further Research

Although the results of this study provide in-depth insights, there are several limitations. First, this study used a cross-sectional approach that only captured student perceptions at a single point in time. Longitudinal or mixed quantitative-qualitative research could better illustrate the dynamics of clinical learning and the long-term effects of the assessment system. Second, although the research instrument had high internal reliability, external testing and assessor bias testing would further strengthen the evidence for the effectiveness of this assessment system.

Conclusion

This study demonstrates that the clinical learning assessment system in nursing educational institutions is categorized as effective, with strong

support from aspects of validity, reliability, learning feedback, and student satisfaction. The analysis shows that the assessment instrument used is able to comprehensively describe students' clinical competencies, encompassing the cognitive, psychomotor, and affective skills required for professional nursing practice. The high internal reliability value confirms that the clinical assessment system has good consistency and is reliable in the clinical learning evaluation process.

Furthermore, the research findings confirm that student satisfaction is a significant factor contributing to the perceived effectiveness of the clinical assessment system. A clear, fair assessment system accompanied by constructive feedback has been shown to support the ongoing clinical learning process and encourage student reflection and competency improvement. Differences in perceptions between students at different levels of education also indicate the need to adapt assessment systems to reflect their academic level and clinical experience.

Overall, the results of this study emphasize the importance of implementing a standardized, evidence-based, and competency-oriented clinical learning assessment system. An effective assessment system serves not only as a tool for evaluating learning outcomes but also as a strategic learning tool to prepare competent, professional nursing graduates who are ready to face the challenges of clinical practice in the healthcare industry.

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