



SYSTEMATIC REVIEW OF RESEARCH INSTRUMENTS MEASURING COMPETENCE OF NURSING CLINICAL PRECEPTORS

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Abstract

Clinical preceptors are essential to nursing education because they help students learn clinical skills and develop as professionals. However, assessing preceptor competency can be challenging due to the lack of standardized and reliable tools. While various tools are available to measure multiple aspects of competency, there is no clear agreement on how these tools should be selected or used across clinical settings. The purpose of this systematic review was to identify and evaluate tools measuring competence of nursing clinical preceptor. The review focused on the instruments and their psychometric qualities, how they are used, and how effective they are in improving clinical education. A systematic literature review was conducted to identify existing instruments used to measure the level of competency of nursing clinical preceptors. Science Direct, Google Scholar, Sage Journal, Pubmed, and Springer were the databases selected for this study. Of the 13 eligible articles in this study, 12 different instruments were found. The instruments found included the Clinical Educators' Competence Questionnaire, Clinical Teaching Competence Inventory, Maastricht Clinical Teaching Questionnaire (MCTQ), Preceptors Orientation Competence Instrument (POCI), Preceptors' Competency Domain Guide Tool, Clinical Core Competency of Preceptors (CCCP), Clinical Preceptor Experience Evaluation Tool (CPEET), Competence of Clinical Nurse Educators Instrument, Nursing Clinical Teacher Effectiveness Inventory (NCTEI), Mentors' Competence Instrument (MCI), Mentorship Effectiveness Scale, IMSOC Questionnaire. Although there are several tools available to evaluate nursing clinical preceptor competency, each has its advantages and disadvantages, according to the review's findings. For a thorough evaluation, the suitable instruments must be chosen depending on particular educational circumstances. The results show that these instruments need to be further developed and standardized to increase their applicability and reliability in a variety of healthcare settings. This will ultimately assist successful preceptorships and raise the caliber of nursing education.

Keywords: *Clinical Preceptors, Competence, Instrument, Measuring, Systematic Review*

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INTRODUCTION

Both nursing students undergoing clinical practice and new nurses learn skills through the critical role of clinical preceptors in nursing education (Awang Rosli et al., 2022). To ensure that students are professionally prepared and competent enough to provide quality health care, clinical preceptors are responsible for mentoring, directing, and evaluating students' performance during clinical practice (Pramila-Savukoski et al., 2020). Clinical preceptors must possess a variety of skills, such as technical, communication, and teaching skills, that are essential to support effective clinical education. Students may experience discomfort or even errors in their practice if they do not receive proper guidance from their preceptors (Ball et al., 2022).

Experienced clinical preceptors are increasingly needed as healthcare standards increase and services become more complex (Carlos & Jeniffer, 2020). In this context, clinical preceptors must have more than just clinical and technical skills; they must also be adept at interacting with others, managing time, and providing constructive feedback to support the learning process (Ong et al., 2021). The importance of clinical preceptors stems from their responsibility to ensure that students receive appropriate guidance, which enables them to provide high-quality and safe patient care (Davis et al., 2021). Clinical preceptors with adequate competency support students in developing the clinical skills, communication skills, and professional attitudes needed to handle a variety of situations in a dynamic clinical environment (Manginte et al., 2019).

METHOD

Google Scholar, PubMed, Springer, Science Direct, and Sage Journal are the databases selected for this study. The selection of literature is adjusted to be indexed by a reputable and reliable database. The index is very important for credibility, breadth of reach, and reputation, as it will affect the impact of published articles. To obtain more relevant and specific results, the

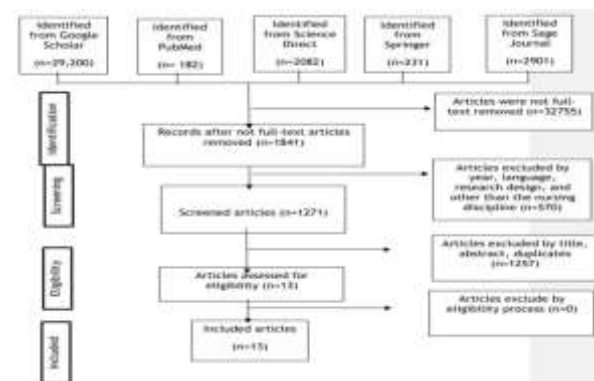
researcher combined the keywords that had been compiled with Boolean Operators. So after combining the keywords with Boolean operators, the results obtained were (instrument OR tool OR questionnaire) AND (measuring OR assessing OR evaluating) AND (nurse clinical preceptor) AND (competence OR capability).

The following are the inclusion criteria for this study: 1) English language articles; 2) articles published between 2019 and 2024; 3) full-text articles; 5) papers using case-control research methods, randomized-control trials, cross-sectional studies, cohorts, quasi-experimental, qualitative, and quantitative. The exclusion criteria for this study are: 1) published before 2019; 2) articles written in languages other than English; 3) Not full-text articles; 4) papers originating from conferences or proceedings; 5) papers that are the result of reviews

The identification, screening, eligibility, and inclusion stages are the first of numerous steps in the literature review process. At the eligibility step, researchers evaluate the article's eligibility using the JBI Critical Appraisal Tools to obtain outcomes free from bias. The articles that are found can be incorporated into the research once it has been deemed eligible following a feasibility test conducted using the JBI Critical Appraisal Tools.

We organized the articles in a table with numerous points in order to collect data from those that qualified. The questionnaire's name, the author and journal, the subscale, the goal, the population, and the sample were among these requirements.

RESULT AND DISCUSSION



Picture 1. Flowchart of literature search

Table 1. Literature Analysis Results Comparative Analysis of Instruments

ID	Author and Journal Identity	Questionnaire Name	Subscale	Objective	Population and Sample
A1	Jeng, C. C., Ou, L. S., Teng, H. M., Cho, Y. P., Lin, J. R., & Marrouse, L. V. (2022). Evaluating Clinical Educators' Competence in an East Asian Context: Who Values Values Most. <i>Frontiers in Medicine</i> , 9, 896822.	Clinical Educators' Competence Questionnaire	<ul style="list-style-type: none"> Teaching ability Assessment ability Personal qualities Interpersonal Relationships Curriculum planning 	To comprehend what makes up appropriate evaluation standards and who is most qualified to conduct the assessment of clinical educators in medicine within an East Asian culture, especially Taiwan.	258 Nurses preceptor
A2	Wu, X. V., Chi, Y., Selvam, U. P., Devi, M. K., Wang, W., Chen, Y. S. B. Ang, H. K. E. (2020). A clinical teaching blended learning program to enhance registered nurse preceptors' teaching competencies: Pretest and posttest study. <i>Journal of medical internet research</i> , 22(4), e18604.	Clinical Teaching Competence Inventory	<ul style="list-style-type: none"> Student evaluation Goal setting and individual teaching Teaching strategies, a Demonstration of organized knowledge 	To create a clinical teaching blended learning (CTBL) program for nurse preceptors. It also sought to determine how well the CTBL program affected the clinical teaching competencies, self-efficacy, attitudes toward web-based learning, and blended learning outcomes of the preceptors.	150 nurse preceptors
A3	Rodino, A. M., & Wolcott, M. D. (2019). Assessing preceptor use of cognitive apprenticeship in the Maastricht clinical teaching questionnaire (MCTQ): a useful approach. <i>Teaching in Medicine</i> , 31(3), 506-518.	Maastricht Clinical Teaching Questionnaire (MCTQ)	<ul style="list-style-type: none"> Modeling Coaching Articulation Exploration Safe learning environment 	To evaluate the utilization of apprenticeship teaching techniques by preceptors	38 nurse preceptors
A4	Pohjanen, H., Mäkelinen, V., Mäkeläinen, M., & Haaga, T. (2022). Development and psychometric testing of the preceptors' orientation competence instrument (POCI). <i>Nurse Education in Practice</i> , 44, 103448.	Preceptors' Orientation Competence Instrument (POCI)	<ul style="list-style-type: none"> Preceptor characteristics Goal-oriented Guidance in reflective discussion Knowledge of orientation Proficiency of practice Creation of a supportive learning atmosphere Preceptor motivation Giving developmental feedback 	To create and evaluate a preceptors' Orientation Competence Instrument using psychometrics to gauge the orientation proficiency of nurses serving as preceptors for new hires.	844 nurse preceptors
A5	Al Adweli, M., Al Syabi, I., Al Hashmi, H., Abdul Raouf, F. M., Al Harazi, A., Al Busaiti, K., & Al Amri, W. (2022). Developing nurse preceptor competency domain guide tool: A Delphi study. <i>Journal of Nursing Education and Practice</i> , 12(3), 33.	Preceptors' Competency Domain Guide	<ul style="list-style-type: none"> Guide novice nurses to develop interpersonal Communication skills Appropriate teaching strategies Time Management Skills Build a learning atmosphere Coaching critical thinking Novice nurse performance assessment technique Evaluation & feedback of the novice nurse 	To create a competency domain guide for nurse preceptors at an Oman tertiary hospital	6 nurse preceptors
A6	Jeong, H. W., Ju, D., Choi, M. L., & Kim, S. (2021). Development and evaluation of a preceptor education program based on the one-minute preceptor model: participatory action research. <i>International Journal of Environmental Research and Public Health</i> , 18(21), 11376.	Clinical Core Competency of Preceptors (CCCP)	<ul style="list-style-type: none"> Role model Facilitator Educator Learning needs assessment Learning experience planning Learning plan implementation Job performance evaluation 	To validate the process and outcome of creating and implementing a One Minute Preceptor Model-based preceptor education program to improve preceptor clinical nurses' competency.	30 nurse preceptors
A7	Mhango, L., Jere, D., Msika, G., Charwe-Sungani, G., & Chinwa, E. (2021). The roles and experiences of preceptors in clinical teaching of undergraduate nursing and midwifery students in Malawi. <i>Malawi Medical Journal</i> , 33(Postgraduate Supplementary 1st), 35.	Clinical Preceptor Experience Evaluation Tool (CPEET)	<ul style="list-style-type: none"> Role Experience Education Challenges Satisfaction 	The roles and experiences of preceptors during the students' clinical instruction were investigated in this study.	87 nurse preceptors
A8	Annals, S., Fekadu, T., Mengesha, A., & Bayisa, E. (2020). Clinical practice competence of Meru University nursing students: a cross-sectional study. <i>Advances in Medical Education and Practice</i> , 7(1), 798.	Competence of Clinical Nurse Educators Instrument	<ul style="list-style-type: none"> Monitoring students' professional development Competence in providing evidence-based practice Competence in assessing and developing the quality of student learning and clinical learning environment Competence of student-centered pedagogy Leadership and management competence Teaching competence Collaboration and social competence Competence of legal collaborative learning Competence of cultural and linguistic diversity Competence of subject and curriculum 	To investigate the clinical educators' competency profiles and the background variables connected to them.	19 nurse preceptors
A9	Alshakrani, M., Qatout, F., Al Anwar, H., Alayef, B., & El Hajri, M. (2023). Clinical teaching effectiveness of student nurses in the United Arab Emirates. <i>SAGE Open Nursing</i> , 6, 237760820948540.	Nursing Clinical Teacher Effectiveness Inventory (NCTEI)	<ul style="list-style-type: none"> Teaching ability Nursing competence Evaluation of effectiveness of student nurses in the United Arab Emirates The personality of the clinical teacher 	The purpose of the study was to investigate how nursing students and professors in the United Arab Emirates view the concept of effective clinical teachers.	147 nursing preceptors
A10	Dharaman, S., Sankhla, V., Tanti-Ukronen, M., Lehtinen, T., & Mäkelinen, K. (2022). Educational intervention to improve the orientation competence of preceptors in mentoring culturally and linguistically diverse students: A quasi-experimental study. <i>Nurse Education Today</i> , 119, 107424.	Mentoring Effectiveness Scale	<ul style="list-style-type: none"> Monitoring practices in the workplace Characteristics of the mentor Orientation of the mentee Goal orientation in mentoring Reflection during mentoring Student-teacher evaluation Constructive feedback 	To assess how an educational intervention affects mentors' ability to guide nursing students from culturally and linguistically diverse backgrounds during clinical placement.	111 nurse preceptors
A11	Shah, P. C., Huang, H. L., Cho, H. L., Chen, Y. F., Chiu, F. B., & Tang, S. M. (2023). Effectiveness of clinical mentorship program for students of long-term aged care: A mixed-methods study. <i>Nurse Education Today</i> , 123, 106781.	Mentorship Effectiveness Scale	<ul style="list-style-type: none"> On-campus learning Clinical mentoring Professional notice 	To clarify clinical mentors' duties and address and analyze the effectiveness of a mentorship program for developing students' professional competencies and self-efficacy in long-term aged care.	48 nursing preceptors
A12	Alhassan, A., Galar, M., & Phillips, H. M. (2024). Nursing students' satisfaction with the quality of clinical placements and their perceptions of preceptors: A prospective longitudinal study. <i>Nurse Education Today</i> , 123, 106801.	The Mentors' Competence Instrument (MCI)	<ul style="list-style-type: none"> Monitoring practices in the workplace Characteristics of the mentor Goal orientation in mentoring Reflection during mentoring Student-centered evaluation Constructive feedback 	The purpose of this study was to ascertain whether preceptor training affects students' opinions of preceptor mentoring and their level of satisfaction with the caliber of their clinical placement.	189 nursing preceptors
A13	Maheriyah, B., Elwak, A., Mehrez, B., & Mowayed, M. S. (2024). The effect of the preceptorship training program on the participation of clinical nurses in training nursing internship students: a quasi-experimental study. <i>BMC Nursing</i> , 23(1), 395.	MSOC Questionnaire	<ul style="list-style-type: none"> Implementation Satisfaction Obstacle Commitment 	To further ascertain whether preceptorship training program is beneficial for clinical nurses' involvement in nursing students' education.	88 nurse preceptors

Tools such as the Clinical Educator Competency Questionnaire (CEC-Q) and the Clinical Teaching Competency Inventory (CTCI) are broader and cover topics such as communication, clinical teaching skills, feedback, and management of clinical situations (Jeng et al., 2022). The instruments found in this systematic review showed variation in the scope, focus, and application of tools for measuring clinical preceptor competency. These instruments are well suited to conducting a comprehensive assessment of preceptor competency, especially when the goal is to gain a comprehensive understanding of how effective clinical teaching is across multiple domains (Wu et al., 2020b).

However, instruments like the Preceptor Clinical Core Competencies (CCCP) and the Preceptor Orientation Competency Instrument (POCI) concentrate on particular aspects, like initial orientation and core clinical competencies. The POCI, for instance, is mainly used to assess a preceptor's capacity to assist new students in adjusting to the clinical setting. Since the preceptor receives the teaching, these tools are especially helpful for assessing new preceptors or those participating in orientation programs (Pohjamies et al., 2022). On the other hand, the CCCP evaluates core competencies in highly specialized and professional domains, like clinical knowledge and fundamental clinical skills. It is therefore a useful instrument for assessing the foundational abilities of more seasoned preceptors (Jeong et al., 2021).

Additional methods, such as the Maastricht Clinical Teaching Questionnaire (MCTQ) and the Nursing Clinical Teacher Effectiveness Inventory (NCTEI), measure preceptor competency from the perspective of students and provide insight into the quality of clinical teaching as perceived by students (Rodino & Wolcott, 2019). To assess the quality of preceptor teaching, student-centered perspectives are essential, such as openness in communication, ability to provide feedback, and supportiveness during the learning process. These instruments tend to be more subjective in their results, but they do offer additional information that is useful for understanding how preceptorship impacts students' learning experiences (AlMekkawi et al., 2020).

Instruments such as the Mentors' Competence Instrument (MCI) and the Mentorship Effectiveness Scale have been tested in a variety of settings and be highly accurate and valid in assessing mentor competence, particularly in mentor-mentee relationships in clinical settings (Oikarainen et al., 2022). These instruments are useful for assessing the emotional support, trustworthiness, and ability of mentors to mentor students. They are often used together to produce a richer assessment of the interpersonal interactions and support provided to students in the practice setting (Oikarainen et al., 2022).

In summary, each instrument has advantages and disadvantages depending on the purpose of the evaluation and the situation in which it is used. Instruments with a broad scope, such as the CEC-Q and CTCI, are advantageous for comprehensive assessment, while more specific instruments, such as the POCI and CCCP, are more suitable for focused assessment of a particular competency area. In practice, a combination of these instruments can allow for a more comprehensive assessment of the clinical preceptor's abilities. This would address the need for assessments that include technical, interpersonal, and teaching aspects.

Contextual Suitability and Instrument Application

Each instrument, depending on its design and the skills it is intended to measure, can be used in both academic and clinical contexts, according to a comprehensive review. Instruments such as the Clinical Educators' Competence Questionnaire (CEC-Q) and the Clinical Teaching Competence Inventory (CTCI) can be used in both academic and clinical settings (Kaarlela et al., 2022). They are also suitable for a variety of educational programs that involve practical teaching. These Instruments cover a range of competencies, such as communication, clinical knowledge, and feedback, and can therefore be used effectively to assess the quality of clinical teaching in a variety of contexts (AlMekkawi et al., 2020).

In contrast, an instrument such as the Preceptor Orientation Competency Instrument (POCI), which focuses on orientation skills, is ideal for early preceptorship or the orientation phase of clinical education, particularly in hospitals that prioritize structured orientation programs. The POCI is also ideal for early preceptorship or during the orientation phase of clinical education (Pohjamies et al., 2022). Similarly, the preceptor core clinical competencies (CCCP) emphasize core competencies necessary for clinical decision-making and direct patient care, which is a major advantage for preceptors who need strong foundational clinical skills. This instrument is particularly suited to intensive care

or acute care settings where foundational skills are critical (Jeong et al., 2021).

Instruments such as the Maastricht Clinical Teaching Questionnaire (MCTQ) and the Nursing Clinical Teacher Effectiveness Inventory (NCTEI) are commonly used in academic settings where student feedback on preceptor effectiveness is critical to program improvement (Rodino & Wolcott, 2019). These instruments provide insight into how students perceive preceptor support, communication, and teaching quality, which are key to program improvement. Therefore, these instruments are particularly relevant in settings where student well-being and learning experience are critical (AlMekkawi et al., 2020).

Additionally, instruments such as the Mentoring Effectiveness Scale and the Mentor Competency Instrument (MCI) are particularly useful in situations where the mentor-mentee relationship is critical, such as in residency programs or long-term clinical placements. These instruments are designed to assess relational elements of preceptorship, such as emotional support, trust building, and interpersonal communication (Oikarainen et al., 2022). They are appropriate for long-term research or evaluation in settings where preceptors are in an ongoing mentoring role. In situations such as public health rotations or specialty clinical residencies, these instruments are particularly useful (Kung et al., 2023).

All things considered, each instrument's contextual appropriateness emphasizes how crucial it is to choose one that meets the various requirements and objectives of every educational or therapeutic situation. Because of the wide range of applications and breadth, there is no one-size-fits-all method for evaluating preceptor competency. A variety of situation-specific instruments are frequently needed for an effective assessment.

Discussion

The results of this study provide important light on the application associated with tools used to assess nursing clinical preceptor competency. The study found at least 13 instruments. Each of

the instruments used to assess clinical preceptor competency has unique advantages and disadvantages that are mostly determined by their scope, design, and intended use.

The Clinical Teaching Competence Inventory (CTCI) and the Clinical Educators' Competence Questionnaire (CEC-Q) are examples of broad instruments that are useful for general assessments of clinical teaching quality because they cover a wide range of competency domains, such as communication, clinical knowledge, and feedback skills (Kaarlela et al., 2022). They could not have the depth necessary for certain competencies, including initial orientation skills or core clinical knowledge, which are crucial in early-stage or specialized preceptorships, therefore their breadth could be a drawback when more focused assessment is required (AlMekkawi et al., 2020).

The Clinical Core Competency of Preceptors (CCCP) and the Preceptors Orientation Competence Instrument (POCI) are particularly helpful for evaluating orientation procedures or core clinical competencies because of their depth within more specific categories (Chen et al., 2021). Although these instruments offer detailed assessments for particular skill sets, their limited scope prevents them from providing a complete picture of a preceptor's overall competency, frequently necessitating the use of additional instruments for more thorough evaluations. By assessing teaching efficacy from the viewpoint of students, instruments that gather student input, such as the Nursing Clinical Teacher Efficacy Inventory (NCTEI) and the Maastricht Clinical Teaching Questionnaire (MCTQ), offer a useful perspective (Rodino & Wolcott, 2019). These findings, however, may be arbitrary and may not accurately reflect the interpersonal or technical abilities required of preceptors outside of student engagement settings.

Furthermore, instruments that evaluate relational skills and mentorship efficacy, such as the Mentors' Competence Instrument (MCI) and the Mentorship Effectiveness Scale, are especially trustworthy for long-term assessments in contexts where interpersonal communication and emotional

support are crucial (Alhassan et al., 2024). Although crucial, their emphasis on mentor-mentee relationships may restrict their usefulness in situations where clinical and technical abilities are given equal weight. The advantages and disadvantages of each instrument show how important it is to carefully choose and sometimes combine different instruments to adequately capture the variety of skills needed by clinical preceptors (Griffiths et al., 2021).

The results of this systematic study have important ramifications for management procedures in healthcare settings as well as clinical education. Given the wide variety of techniques available for assessing preceptor competency, educational institutions and healthcare organizations may improve their training initiatives by choosing the best instruments for their particular requirements (Bartlett et al., 2020). For example, educational institutions can evaluate the overall efficacy of their preceptorship programs by using comprehensive instruments like the Clinical Educators' Competence Questionnaire (CEC-Q), which can pinpoint areas where faculty may need further assistance or training. The creation of focused seminars or professional development opportunities geared at enhancing clinical supervision and teaching abilities might be guided by the results of this thorough examination (Wu et al., 2020).

In addition, instruments that emphasize student input, like the Nursing Clinical Teacher Effectiveness Inventory (NCTEI), offer insightful information on the learning outcomes and student experience, empowering teachers to modify their curricula and instructional strategies accordingly (AlMekkawi et al., 2020). Institutions may foster a more responsive and stimulating learning environment, which will eventually improve student success and happiness, by proactively integrating student input into program evaluations. From a management perspective, knowing the competencies needed for a successful preceptorship can help direct hiring and training procedures, guaranteeing that preceptors have the abilities needed to effectively assist students' development (Aithal, 2023).

Furthermore, the results highlight how crucial it is to create a mentoring culture in clinical settings where preceptors are assisted in honing their mentoring abilities in addition to being assessed on their teaching abilities (van der Goes et al., 2022). Because well-trained preceptors can produce more prepared nursing graduates with both technical skills and critical thinking abilities, this all-encompassing approach to preceptorship can result in better patient care results (Lestari et al., 2021). In the end, healthcare organizations may improve the quality of their educational programs, assist their mentors' professional development, and increase the overall nursing student learning experience by utilizing the insights gathered from these instruments.

CONCLUSION

A wide variety of instruments for assessing nursing clinical preceptor competency were found in this systematic study, each with unique advantages and disadvantages. Some instruments concentrate on particular skills, like orientation or student feedback, while others provide thorough evaluations across several categories. Choosing the right methods according to the assessment's goals and circumstances is essential to getting a comprehensive picture of preceptor effectiveness. These instruments' disparate psychometric qualities suggest that additional validation and standardization are required to improve their dependability in various healthcare contexts. In the end, these results can help guide instructional strategies, enhance the caliber of clinical mentoring, and enhance nurse education and patient care results. Future studies should concentrate on creating instruments that fill in the current gaps in the assessment of preceptor competency.

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