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Comprehensive Review Protocol for Investigating Methods of Knowledge Acquisition in Undergraduate Healthcare Experiential Education

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Abstract

The learning process in undergraduate clinical nursing learning is complicated, and depends on educational strategies, clinical settings and individual learner attributes. Although usually a fundamental role in the development of competent nursing professionals, the conceptualization of learning concerning clinical practice is diversified and not well-defined cross-literature. This scoping review will help to comprehensively identify available literature on the manner in which learning is defined in undergraduate clinical nursing practices. The review will help to identify the key themes, definitions, theoretical frameworks, and methodological approaches and present clarity on the current knowledge and evidence gaps to be filled in future studies. The data established in the present review are anticipated to be used in the guidance of nursing educators, curriculum developers, and policy makers in developing evidence-based strategies of education that will ensure that nursing students have maximum learning opportunities in the clinical environment. In the review, we will adhere to recognized scoping review procedures so that our study selection is transparent, replicable, and synthesizing.

Keywords: ***Undergraduate nursing education; clinical learning; knowledge acquisition; scoping review; nursing curriculum; experiential learning; professional development.***

1.Introduction

The dynamic in the landscape of nursing education has changed considerably with the past decades, but one core question remains the same: how do nursing students learn well in the clinical practice setting? Clinical learning is the factor that links the theory learnt in a classroom to the actual skills of nursing in the care setting. This interface between academic knowledge and clinical skill is complex and widely variable between students, and is a key source of research and inquiry by nursing scholars, faculty and academic departments.

Clinical learning in nursing education is much broader than the observation of experienced professionals or adherence to certain pre-planned steps. It deals with an intricate complex of cognitive, psychomotor and affective learning factors that need to be absorbed into each other perfectly to transform into competent nursing leaders. Students are required to acquire the knowledge and skills to maneuver complex healthcare systems, practice critical thinking to assess a patient and create a plan of care, and execute technical tasks without endangering a patient. The essential professional attitudes and values should also be acquired in the process by students. This is a multidimensional learning process that takes place in highly dynamic clinical contexts where the needs of patients set the priority of disciplining students and teaching opportunities transpire randomly and unexpectedly to be acted upon by the student(1).

The importance of clinical learning only increases when one takes into account that nursing is an embodiment of clinical profession to the core. It is impossible to test a nurse by solving math problems or writing an essay since the competence of a nurse includes patient care activities which cannot be assessed by written examinations or research papers. Students need to be prepared to apply their knowledge of pathophysiology clinically to take care of real patients with complex medical situations, therapeutic communication in tense moments and emergencies, and critical decision-making that will personally touch patient outcomes. This fact highlights the need to develop viable clinical learning opportunities to equip the graduate nurses with skills that they will be required to undertake as registered nurses.

The modern healthcare setting presents special circumstances on the way nursing education is conducted and the new generation of nurses could not face the challenges that their predecessors experienced. The current clinical learning environment is ever more demanding and faster paced, with the driving forces being the more complex medical technology, shorter length of stay, rising patient acuity, and notably the focus on evidence-based practice. Students are required to learn how to navigate and use advanced medical technology, interpret advanced diagnostic

information, manage care across various professions in the medical field, and how to balance excellent documentation with excellent patient care. To carry out these responsibilities, the educational processes will have to be based on approaches capable of equipping students with such diverse duties.

FIGURE 1 Clinical Learning in Nursing Education

There have been major changes in the way the learning process in clinical nursing practice has been conceptualized, just as scholars and practitioners in educational research have realized the inadequacies of apprenticeship models of learning. Past methodologies were more dependent on students watched over the shoulders of practiced nurses as they observed their rates of conduct and learn how to take more responsibilities after observing them. Although this model offered great exposure into clinical practice in many aspects, it did not have systematic schedules of offering comprehensive learning opportunities or evaluation of learning achieved scores. From the current perspectives, patient-based clinical learning cannot be productive, unless it is designed with specific learning goals, adequate supervision with feedback mechanisms, and an assessment of the student in the learning process(2).

The research of nursing education has revealed a wide variety of aspects that can influence the success of clinical learning experiences. The subjects of clinical learning environment per se are instrumental factors that include physical space, resources, organizational climate, and the attitude of healthcare personnel concerning student learning. The preceptorship quality, consisting of the clinical knowledge and skills of preceptors and their teaching effectiveness, as well as their availability, contributes prominently to the outcomes of the learning experience of students. There is also the issue of student readiness, personal learning styles, confidence, and how well theory can be translated into practice all play a part in the effectiveness of a clinical learning experience.

Another issue facing clinical learning in the nursing education is the dynamic nature of clinical settings where the student is expected to learn and competently perform. Whether located on acute care general medical-surgical units to those found in specialized units including intensive care, emergency services, surgery suites, and even the community health setting, our physical environments all offer distinctive learning opportunities and challenges. Students have to be taught how to transfer their knowledge and skills between populations of patients, clinical procedures, organizational settings and, interprofessional team participation. This variety needs educational methods capable of transferring the learning to different clinical situations but at the same time guaranteeing the acquisition of the basic repertoire of nursing skills.

Besides, social and interpersonal dimensions of the clinical learning cannot not be disregarded. Nursing students are expected to know how to act as effective members of healthcare teams, how to communicate professionally with patients and their families of various backgrounds, and how to negotiate relationships that are inherent in a healthcare-delivery setting. They have to learn how to become culturally competent, gain emotional intelligence, and be professionally resilient dealing with the stressful burden and emotional needs of treating the ill and vulnerable communities. These are the psychosocial dimensions of learning, which are not explicitly being taught but are most likely to be implicit; hence, to cover these points in nursing education programs, specific mechanisms may be developed to address these areas.

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2.The Methodological Framework

The research design employed in the study of nursing education is very critical to the suitability and quality of research findings with respect to their applicability to practice. Scoping reviews have proved to be a specialised tool to investigate a complicated educational phenomenon especially when tackling a complex concept, which does not have clear boundary descriptions or when in search of broadening the extent of existing knowledge in a given field. The scoping review has certain specific benefits in terms of nursing education research as the clinical learning is a complex concept presented with different theoretical explanations, methodological estimations, and practical applications in different care settings(3).

The decision to use a scoping review approach instead of a systematic review was carried out due to the exploratory nature of the research question in many present research within nursing education. Whereas systematic reviews are best placed to answer specific questions on how certain interventions work or how clearly defined variables are related, scoping reviews are designed to explore larger concepts and offer patterns across a collection of literature. This difference is especially critical in the context of research on nursing education, where such phenomena as clinical learning include highly complex interpersonal, environmental, interventional, and organizational variables that may not lend themselves to the restricted analysis conditions inherent to the systematic review methodology.

The boundary-setting framework created by Arksey and OMalley, and then improved by Levac and her colleagues and the Joanna Briggs Institute, offers a critical yet flexible method of conducting scoping reviews within nursing education setting. The six research stages include the identification of research questions, which in research studies conducted in the nursing education field tend to come up during the review process as researchers stumble upon unanticipated evidence or come across aspects of the target that they have never noticed before. Such an iterative method to the development of questions can be especially helpful in nursing education research, as the messiness of educational settings and variability of educational activities can provide insight into critical considerations that were overlooked at the beginning of the study.

The second step in the process of a scoping review the identification of relevant studies poses special challenges in nursing education research because nursing education as an area of research is interdisciplinary in nature. Nursing education research is made up of many combined disciplines that apply theories and methods of psychology, education, sociology, and healthcare sciences and as such, effective search strategies need to be extensive to encompass and retrieve relevant literature with the potential to be found on any database or in any type of publication. The process of achieving an effective search strategy needs collaboration between researchers in the field of nursing education and information specialists that are familiar with the complexities of research terminology, who can lead the researcher to setting effective subject headings and keywords to capture the relevant scope of the literature and which do not become overwhelming in their scope.

Selecting the studies to include in nursing education scoping reviews should be based on complementing comprehensiveness and feasibility, and depending on the number of methodological approaches employed in educational research studies included in the review, some may have more or less relevance to the research question. The inclusion criteria need to be broad enough to include all possible points of view on the phenomenon under study and narrow enough to actually give such synthesis informative potential relevance to educational practice. Such balance is especially difficult in the context of nursing education research, in which studies can use quantitative, qualitative, and mixed-methods designs and be located in different educational and clinical settings with varying groups of participants.

The process of data charting is the crucial aspect of scoping review in the nursing education research, and it needs to be built with the adoption of analytical frameworks that may reflect the complexity of the educational phenomenon in the research but allow comparing the results of studies written. In the research of nursing education, data-extraction should consider possible multiple levels of analysis, such as the attributes of individual learners, the educational methods or programs, environmental conditions and organizational effects. The creation of more elaborate data extraction schemes should be done with a lot of regard concerning the theoretical considerations of a number of research projects and various methods in which important concepts could be operationalized or measured in diverse studies(4).

There are also some peculiarities of synthesis and reporting of findings in the nursing education scoping review associated with the wide variety of methods and theoretical bias seen in included studies. Unlike systematic reviews which are usually inclined to focusing on quantitative synthesis of similar outcome measures, scoping

reviews will have to devise narrative synthesis methods that would allow it to possibly identify trends and patterns across different study designs and outcome measures. The synthesis in this case presupposes close attention to the theoretical background of various studies and the manner in which various conceptualizations of various key phenomena can add up to a comprehensive picture regarding the research topic.

The inclusion of professional judgment into the scoping reviews in nursing education introduces another dimension of meticulousness and field relevance to the study research. Nursing education experts may offer insightful information when it comes to interpreting findings, knowledge gaps of the existing literature, and formulating some recommendations on the future research and practice. The process of this consultation could prove to be especially valuable in the context of nursing education research where the practical relevance of research findings should be apperceived in regard to the complexity of educational and clinical settings.

Quality assessment in nursing education scoping reviews is a developing methodology area that remains open to disagreement about the role of quality assessment in reviews with a primarily mapping purpose rather than the ability to judge the effectiveness of interventions. Nevertheless, the evaluation of study quality can reveal promising data related to the lack of strictness of the current research paradigm and guide the recommendations on the necessary key research directions. In research studies on nursing education, quality appraisal should reflect whether the type of research method is suitable to answer the educational questions and the detail provided or lack of it, on the educational background and interventions so that it can be replicable in a different setting or adapted to a different setting(5).

The translation of the scoping review findings to nursing education research is solely dependent on the sensitivity to various target audiences such as nursing educators, clinical preceptors, educational administrators and policy makers. A researcher should strike a balance between reporting details of the research process and the process of communicating the major findings and recommendations to practice. This challenge is especially pertinent in the case of nursing education research, where it is possible that findings would have a consequence on curriculum development, partnership agreements in the clinical setting, faculty development, and educational policy at both institutional and regulatory levels.

3.Results

The systematic review of learning conceptualization within the field of undergraduate clinical nursing practice has identified a wide and multifaceted rather disorganized picture of conceptualizations, operational definitions and empirical discoveries. Categorization of 127 studies over several decades and across geographical locations by the scoping review revealed large differences in the perceptions, definitions, and study of learning processes in clinical nursing settings as perceived by different researchers and educators. The findings show the diversity of the concerns of scholars in that field and the urgency of more consistent conceptual framework and methodological approaches to the field of effective clinical nursing education.

The search strategy identified 2,847 initial records in three databases (PubMed, EBSCO/ERIC, and EBSCO/ CINAHL) and an extra 43 records were added through reference list review and expert consultation. After removing duplicates and preliminary screening, 384 abstracts were evaluated as to eligibility, which further yielded 189 full-text publications, which were assessed on a case-by-case basis. The included 127 studies were as a result of the rigor applied in terms of applying selection criteria that specifically and selectively looked at research that addressed study related to learning processes in clinical undergraduate nursing practice in hospitals. The geographical representation of included studies showed a predominance of research taking place in North America (45%), Europe (32%), Australia and New Zealand (15%), and Asia (8%), though with little else represented, indicating the lack of internationalization of perspectives on the subject of clinical nursing education. Temporal analysis of the restricted studies showed that there have been considerable changes in research methods and the conceptual framework over the period(6). The literature that appeared in the period preceding 2005 (n=23) was mainly based on the traditional apprenticeship paradigm of clinical learning that placed a lot more emphasis on the development of skills and the transfer of knowledge from competent practitioners to learner students. The gap (2005-2010) a total of 34 articles indicates change in a direction towards more advanced theoretical principles, the constructivist principles of learning and acknowledgement of the social aspect of clinical learning. Analysis of studies published between 2011-2015 (n=41) revealed increasing interest within competency-based methods, and the integration of evidence-based practice, and most recently, between 2016-2018 (n=29), there has been an

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increase with regard to incorporation of the use of technology, the consideration of patient safety, and interprofessional learning efforts.

Methodological diversity was present among the reviewed studies with qualitative designs being the most prevalent (58% of studies), followed by quantitative ones (25%), mixed-methods (12%) and conceptual and theoretical papers (5%). Phenomenological (31%) and grounds theory (23%) and ethnographical (18%) methodologies dominated the qualitative studies given the fact that researchers perceived clinical learning as complex, contextual and experiential. Quantitative studies were mainly cross sectional surveys (67%) and pre-post comparisons (24 %). The dominance of the qualitative research methods indicates not only the exploratory research nature of much of the research in this field, but also the difficulties of quantifying many informational learning processes.

Findings

It was identified that there were twelve different theoretical frameworks to the investigation of clinical learning in nursing practice each providing varying views as to how professional competence is acquired by students. The most cited was the experiential theory of learning theory (32 percent of the studies) which relies on the Kolb learning cycle shifting through concrete experience, reflective observation, abstract conceptualization and active experimentation. Research based on this framework has generally been concerned with how reflection influences the translation of clinical experiences into learning, especially in structured debriefings, and writing reflective journals as part of educational intervention(7).

Social learning theory based on the works of Bandura was encompassed in 28 percent of the studies and appeared primarily in the works of Bandura. He undermined the effects of role modeling, observations, and social interactions to the clinical learning process. These studies all noted the significant role of preceptors, clinical instructors, and clinical staff in student learning and learning outcome particularly the demonstration of professional behaviors and clinical decision-making processes. The social learning theory also pointed the value of self-efficacy beliefs in the determination of how students actively engage themselves in difficult clinical scenarios and persists.

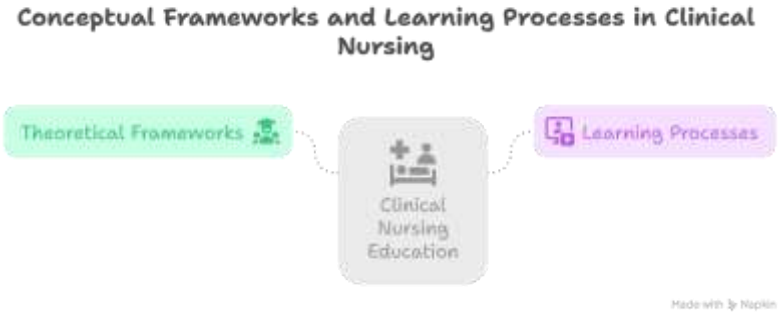

FIGURE 2 Conceptual Frameworks and Learning Processes in Clinical Nursing

Learning methods based on constructivism were present in a quarter of studies, and here the main focus was on participation of students in the construction of knowledge through communication with clinical reality and combining with past experiences. These reports tended to center on problem-based learning techniques, case-based discussion and team-based exercise which in turn made students build their own interpretation of the concepts and practice of nursing. Constructivist attention was particularly strong in aiding development of critical thinking and clinical reasoning.

Situated learning theory was dominant in 18% studies with concentration on the situation in learning and consideration of genuine practice settings in acquiring professional competence. Examples of research using this framework have included communities of practice in clinical contexts, legitimate peripheral participation of students and intermediate transition between the novice and more practised roles. This much-anticipated theory reminded and emphasized the need to withhold clinical culture and organizational factors to support learning in students.

Briefly used theoretical frameworks were transformative learning theory (12% of studies), which involves perspective transformation and critical reflection, adult learning principles (10% of studies), being oriented towards self-direction and experiential learning preferences, cognitive load theory (8% of studies) which addresses

information processing limitations in complex clinical environments and activity theory (5% of studies) which examines learning in terms of participation in a clinical activity and system.

A total of five main features that characterize the learning processes within the clinical nursing practice according to various theoretical approaches were identified in the analysis. First, learning was always expressed in terms of being situational and grounded, taking place in a context of clinical situations shaping the opportunities of learning and outcomes. Literature made it clear that learning does not exist outside the clinical settings in which it is experienced, with issues of acuity, unit culture, staffing and organizational support fundamentally influencing learning outcomes.

Second, classroom-based learning in clinical practice was described as being essentially social and relational, as part of the process of interacting with patients, families, preceptor, nursing peers, and interprofessional colleagues. The quality of relationships occasions extensively categorized as a significant determinant of learning outcomes, in clinical settings, with positive collaborative relationships being associated with learning, whereas negative or unsupportive relationships had been shown to act as a hindrance to effective learning.

Third, the learning experience was described as an experiential and theorizing one that demands active participation in clinical experiences and purposeful reflection in the context of meaning-making and its development of understanding. The literature stressed that didactic experiences are not sufficient to learn but the reflection processes are needed to refine the experiences into professional knowledge and skills.

Fourth, learning was described as a change that occurred gradually and developing through identifiable stages, in a sequence of novice awareness to more advanced competence. Learning by stage or level was a characteristic of studies using developmental frameworks with students progressing through pre-determined learning stages with differing degrees of responsibility and autonomy as they became more competent.

Fifth, the clinical practice learning was described as integrative as it involves combining of the theoretical knowledge with the practical skills and professional values. The difficulty of relating classroom learning to the clinical practice and the need of education methods that facilitate this relationship has continually been remarked upon in the studies.

4.Clinical Learning Environment

The clinical learning environment is the pillar in nursing education as it is the interplay between theoretical material and its practice in the real-life healthcare facilities. This environment is much more than the physical facilities in which nursing students learn their crafts; it also covers the character of the organization, its interpersonal dynamics, educational possibilities, support structures and learning materials that all combine to create the learning experiences in the organizations. To better comprehend the multilateral character of the clinical learning environment, nursing professionals should be aware that it is crucial to both nursing educators and healthcare organizations to improve learning and achieve better educational outcomes to provide competent nursing professionals ready to serve healthcare practice and their patients.

Physical attributes of clinical instruction settings have a big impact on the learning experiences as well as on the results of the students. Potentially and simultaneously, modern healthcare facilities introduce the challenges and opportunities in the context of nursing education, as the advanced technology and specialized equipment can offer an extended exposure to the current practice standards that might create unsettling or overwhelming experiences in the novice learners. The physical structure of clinical units, access to personal space to reflect/gather feedback, private areas to access learning resources (such as computers and reference materials) as well as the general work environment of the healthcare facility are all factors that make up the learning environment. Learners will be expected to move through these physical environments with a lot of self-assurance and at the same time keeping in mind the needs of the patient and educational requirements.

The culture in organizational-level clinical learning environments has an over-whelming influence on the quality of the education activity experienced by students. Healthcare organizations that remain student-centered and see student learning as an inseparable part of their mission usually offer more supporting and efficient learning environment than the organizations that see students as extra workforce or as possible disturbance in the smooth work. The commitment to education organizationally manifests itself through policies and practices that facilitate student learning, investments of resources within education-related practices, supports of individuals who contribute to the organization as preceptors or mentors and the incorporation of educational interests into organizational planning and decision-making.

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Interpersonal dynamics in the learning clinical setup is paramount to gauging the success of the learning experiences. Student- preceptor/clinical instructor/staff nurse/physician/other healthcare team member relationships are critical in terms of influencing student learning outcomes, as well as professional development. Good relationships that are reflective of mutual respect dialogue, constructive feedback, and common commitment to learning generates environments that students feel safe to ask questions, acknowledge shortcomings, and make desired risks in their courses of study. On the other hand, learning environments filled with intimidation, criticism or dismissive attitudes towards students can impede learning and lead to unpleasant experience, which can affect career satisfaction/ retention in nursing.

The development of learning opportunities and quality of learning opportunities offered in clinical settings is highly inconsistent across the health care settings and various specialties. Many acute are settings offer exposure to a wide variety of patients, complex medical situations, high-tech equipment, and can present a fast-paced environment that may help to expedite learning in students who are prepared and supported. Nonetheless, when the students lack proper background knowledge or do not undergo proper guidance and support, the given characteristics can become overwhelming. Learning opportunities provided by long-term care centers, community health centers, outpatient clinics, and other healthcare provision grounds are likely to be as valuable as those leading to the development of nursing competencies, especially in health promotion, chronic disease, and continuity of care.

The evidence-based practice is becoming a major synergist in the nursing learning clinical setting. Students have to acquire the skill of accessing, evaluating, and applying current research findings in making their clinical decisions and providing patient care. Clinical learning environments that allow access to current literature, stimulate critical thinking and research utilization skills, and therapeutic professionals who model evidence-based practice in their day-to-day practice are essential to this integration. Evidence-based practice is the organizational practice that is successfully implemented in several healthcare organizations that create valuable learning experiences as students and assist in achieving better patient outcomes and job satisfaction among nursing employees.

5.Conclusion and Future work

This broad scoping study has highlighted the astounding complexity of the issue and the long-standing fragmentation of the conceptual understanding of learning in undergraduate clinical nursing practice. The review synthesizing 127 works in various theoretical frameworks, methodological approaches, and learning settings proves a field rich in scholarly research with a lack of clear definitions and inconsistent terminologies, varied definitions and an inability to reconcile the findings between different research traditions. What the evidence teaches us is that learning in clinical nursing practice is a complex phenomenon that cannot be effectively summarized by any single theoretical framework or evaluation method, but rather one that must be viewed in a more complex yet intertwined way, which takes into consideration individual differences of learners, education activities, clinical settings, and organizational considerations.

The leading role taken by qualitative research methods in the literature can be explained by the exploratory nature of a majority of work on learning at the clinic as well as by the complexities in the quantification of a range of educational phenomena. Although the qualitative nature of this body has given deep insights into the experiences of students in learning and the factors that drive the effectiveness of learning, the field deserves more methodological diversity that employs more rigorous experimental designs, longitudinal study, and mixed-method approaches capable of capturing both the within- and broader aspects of clinical learning phenomena. The disproportionate lack of standardized assessment tools and outcome measures across studies is a major roadblock on the path to comparison of findings, and an obstacle to the accumulation of knowledge about effective educational practices.

The theoretical diversity that is witnessed in the literature is a strength as well as a challenge in the field of clinical nursing education. Each of the numerous theoretical perspectives such as the experiential learning, social learning, constructivist, situated learning and transformative learning theories presents important kinds of insights into the various facets of clinical learning process. Nevertheless, the absence of theoretical conjunction and the fact that researchers are focusing in sequestered theoretical regions has restricted the generation of universal models able to reproduce the proficiency of the clinical learning process. Research future would be enriched by approaches

that synthesize across theoretical traditions to develop more elaborate frameworks in which theoretical insights can be understood and used to support clinical learning.

Implication and Policy to Educational Practice

Our review results have major implications on nursing education practice at various levels that include, but are not limited to, an individual faculty development, institutional policy, and curriculum design. The fact that all the studies address the challenges and significance of positive clinical learning environments is an indication that healthcare institutions and nursing programs need to ensure that positive institutional cultures that promote student learning and invest in education activities are established. This must be given systematic consideration to preceptor preparation/support, selection and formation of clinical sites, community partnerships, and quality assurance activities to make sure that the clinical learning experiences are consistent with education standards and to support student success.

The data on the paramount role of preceptor quality and student-preceptor relationships in dictating the outcomes of the learning processes does imply some important evidence concerning the faculty improvement and clinical affiliation plans. Nurse schools and health care organizations need to invest in effective preceptor preparation programs, not only a clinician needs to have an adequate foundation of clinical knowledge but also to possess pedagogical skills and means of communication, and the knowledge on the developmental needs of the learners. The creation of standardized competencies involving preceptors, sustained professional advancement courses, and a reward and appreciation system to effective preceptors are vital elements that make up good clinical education-based programs.

The variety of evaluation methods found in the literature demonstrates the necessity to further standardize and evidence-based methods of evaluating the clinical learning results. The design of standardized competency frameworks and measures capable of consistently, and validly, evaluating student learning, but that is versatile enough to meet the requirements of various clinical settings and philosophy of education, would serve the field well. A combination of assessment types such as direct observation, assessment via simulation, portfolio building, and peer assessment seems to be the most effective way of getting an image of the complexity of nursing competence.

The little focus on individual differences in behavioral predisposition to learning and background features as expressed in the review would mean that a more individual-specific and adaptive approach toward clinical education must be pursued by nursing education programs. This involves appreciation of different learning styles, cultures, backgrounds, past experiences and learning needs with consequent flexibility of educational approaches and services. This is because the current needs of populations in nursing schools may be differentiated in their learning plans and the provision of individual feedback.

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Conflicts of interest

The authors have no conflicts of interest to declare

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