REVIEW ARTICLE

Tools To Evaluate Nursing Competency: A Literature Review

Vuong Nguyen Dang[1] , Ha Do Thi[2]

[1] Medical Faculty, Buon Ma Thuot Medical University, 298 Ha Huy Tap street, Tan An Ward, Buon Ma Thuot City, 63000, Dak Lak Province, Vietnam
[2] Pham Ngoc Thach University of Medicine, 02 Duong Quang Trung street, 12 Ward, 10 District, Ho Chi Minh City, 70000, Vietnam

ABSTRACT

The proficiency of nurses plays a crucial role in assuring the healthcare delivery high quality and safe for patients. A standardized measurement tool should be developed based on considering all aspects of nursing competency and practice situations to accurately identify and evaluate nursing competencies. However, deciding what to evaluate when assessing practice competency can be a challenging task. This study reviewed nursing competency assessment tools used over the past decade. There were 35 articles found and 31 nursing competency assessment tools; twenty-eight tools were self-reporting, and three were observational tools. Based on this review, it is necessary to develop nursing competency assessment tools based on the requirements for each working position and greatly depending on environmental factors. The length of tools and the number of options in each item should be considered precisely to get higher validity and reliability.
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Corresponding Author:
Vuong Nguyen Dang, Master
Email: ndvuong@bmtuvietnam.com
Tel : +842623986688

INTRODUCTION

The field of healthcare is undergoing rapid transformations, becoming more specialized and intricate. These changes are primarily attributed to factors like alterations in disease patterns and the simultaneous aging of the population coupled with declining birth rates (1). Consequently, healthcare system and care provider systems are undergoing transformations. The primary objective of healthcare is now centered around providing safe and top-notch care. As a result, the proficiency of nurses plays a crucial role in attaining this objective (2). Nurses have to adapt to these changes to contribute as professionals. So, nursing competency improvement has been described as a continuing process (3) and the evaluation of competency should commence during the period of nursing education and persist throughout the entirety of one's nursing profession (4).

During the past decade, the amount of research about nursing competency has increased (5). According to literature reviews, there are various tools that assess the competencies of clinical nursing. (6). However, due to its abstract nature, evaluating and quantifying competence can be a complex task. Hence, it is imperative to establish a precise and unequivocal operational definition of this concept in order to develop reliable tools for assessing competence (3).

Nursing graduates often lack the necessary skills to practice in real-life settings with patients with complex medical conditions. This issue is further compounded by the inadequate depth of learning provided in our academic nursing programs, resulting in a crisis of competency. A recent study involving 5,000 newly graduated nurses revealed that only 23 percent of them were deemed proficient enough to practice independently. Additionally, some of these graduates, despite their impressive academic accomplishments, struggle to apply their knowledge in unstructured and spontaneous scenarios, feeling lost amidst a vast sea of information (7). Watson emphasizes the importance of nursing professions having public statements or nursing standards that outline the competencies of their qualified members and the reasonable expectations people can have from them (8). The evaluation of nurses' competence by healthcare institute administrators is crucial to ensure their ability to fulfill the requirements of the healthcare profession.

On the one hand, researchers strive to identify the key components of nursing competency in order to establish a measurable framework for this holistic and integrated concept. Nevertheless, the diverse definitions and indicated variations of nursing competency pose

a challenge in this pursuit (4). Nursing professionals employ three primary concepts in the development of the nurses' competence tool: Behaviorism, Trait theory, and Holism. Behaviorism defines competence as the capability to execute specific core skills, which is assessed through the demonstration of these skills. Trait theory perceives competence as the individual traits essential for the proficient execution of duties, encompassing knowledge, critical thinking skills, and more. On the other hand, Holism regards competence as a collection of various components, such as knowledge, skills, attitudes, thinking ability, and values, all of which are indispensable in specific contexts (1). Nevertheless, the absence of agreement regarding whether competence is synonymous with potential or actual ability results in a wide range of approaches to defining, implementing, and, naturally, evaluating competence (8). Deciding what to evaluate when assessing practice competency can be a challenging task. Additionally, it is important to acknowledge that nursing practice is highly dependent on the specific situation. Therefore, it is crucial for every country to develop an assessment tool that accurately measures clinical nursing competencies, tailored to their individual requirements and aligned with their national guidelines (6). In addition, competence is defined as 'functional adequacy and capacity to integrate knowledge, and skills to attitudes and values into specific contextual situations of practice' (9).

Moreover, the objective of the evaluation is to enhance the progress of the registered nurse (RN) and facilitate the journey of education and professional advancement (10). Hence, it is imperative to have valid and reliable tools for evaluating competence. If our goal is to achieve competence truly, we must explore the potential for a shared set of competencies or universal competencies in the field of nursing (6). The most suitable tool should be selected by considering the collective understanding of its application in a specific situation. Universal tools should be developed to enable the assessment of proficiency in different environments, institutions, and nations (11). Moreover, cross-cultural validation must be considered (4). Knowing which tool to utilize, how to utilize it effectively, and how to respond to the outcomes appropriately is crucial in assessing nursing competencies. These changes in nursing over the last decade emphasize the significance of ensuring that every registered nurse delivers competent care (10). The objective of this review study is to investigate the tools employed for evaluating nursing competencies in clinical practice over the past ten years. This review has the potential to lay the groundwork for the future advancement of competency assessment tools.

MATERIAL AND METHODS

This literature review follows the 5-steps process: 1) identifying a research question; 2) identifying relevant articles; 3) Study selection; 4) data charting; and 5) collating, summarizing, and reporting the results (12). A protocol was developed prior and registered with Open Science Framework in January 2024 (13).

This review aims: 1) To identify the tool developed for nursing competency assessment, 2) to explore the method of nursing competency assessment, and 3) to identify the aspects of nursing competency of those tools assessed.

Search strategy

Firstly, a pilot search took place on CINAHL databases to identify articles on the topic. The keywords in the identified articles in this step were used to modify the search terms for the final search in five databases: SCOPUS, CINAHL, Proquest, Pubmed, and Cochrane. The search terms were developed from two concepts: nursing competency and tool, and MeSH was applied to determine the relevant keywords. The search statements were adapted for each database and information source. Moreover, the review articles identified from the results will be used to determine the tools that were not mentioned in the original study. Then, a manual search on Google Scholar took place to identify more relevant articles. The search was limited date of publication from 2013 and was limited to the English language.

Selection criteria

This study developed the inclusion/exclusion criteria based on the PCC (Population/Concept/Context) framework recommended by JBI to identify the main concepts in this review (14). The inclusion/exclusion criteria in this study were as follows:

Population: The articles that study the nursing competency tools that assess the nurses' competency in clinical practice settings will be included in this review. It could include newly graduated nurses and experienced nurses, nursing students. The articles that study the competency of other allied healthcare professionals and nurse educators were excluded from this review.

Concept: The nursing competency assessment tool refers to the tools that measure all abilities that are required for nurses to fulfill nurse responsibilities in clinical practice. The tools that measure the competency of nursing students when they complete a subject in a nursing educational program were excluded.

Context: This review focuses on the tools that measure the nurses' competency in clinical practice; it includes the real clinical practice setting and stimulation setting. The tool that assesses the learning and teaching competency of nursing students and educators in educational settings is not included.

Screening

The screening process utilized the PRISMA-ScR flow diagram (15). Following the search, all identified citations were transferred to the Rayyan program for the

independent screening process. Firstly, Rayyan helps to detect the duplicates, and the first authors check the similarity report and delete the duplicates manually. For the first round of screening, two co-authors read each article's title to assess the article's relevance based on inclusion criteria. When the two authors completed the title screening, if a consensus could not be reached after discussion. These conflicted articles were put into The Maybe folder in Rayyan and considered for the next round of screening. The second round was the abstract/full-text screening. Two authors screened the included abstracts independently. After that, two authors discussed providing the reasons for conflicts. If the information in the abstracts is unclear enough to solve the conflicts, the full text will be read to find the information for consensus. Finally, the full text of the included abstracts was scrutinized to ensure they met the inclusion criteria by two authors independently and discussed.

Research Instruments

The pilot result extraction took place on three articles for completeness and applicability. The final extraction tools included: 1) Name of the tool; 2) Objectives; 3) Assessment methods; 4) Dimensions of assessment; 5) Authors and year of publication (see Table I).

Data analysis

The Arksey and O'Malley method was used to analyze and report the findings (16). Firstly, we provide a descriptive numerical summary of the included studies' characteristics, including Names of tools, Aims of tools, Method of assessment, Items, and Dimensions of assessment. Then, all results were analyzed by qualitative data analytical techniques to map and present all results in the narrative account. Then, we considered these findings in the broader context, such as comparing nursing standards between nations and implications from academic papers, to identify the knowledge gaps in the literature.

RESULTS

The systematic search identified 381 unique citations, then 61 duplicates were removed. 320 remaining relevant articles were put into the title screening process. Two hundred forty-two articles were excluded from this step because these studies did not aim to develop tools for measuring nursing competency; the majority of these articles used the existing tools as research instruments in their study. After that, the abstract/full-text screening step excluded 36 articles. In this step, most of the excluded tools were used for assessing some particular skills of nursing, such as literacy, information technology, cultural sensitive competency, or teaching skills of nursing education, these tools were not developed for assessing nursing competency as a whole. Furthermore, other tools were developed for allied health professionals. Further excluded articles that did not aim to develop a tool to assess nursing competencies but used existing tools to test nursing competencies. These tools were included in other articles. Finally, in the initial analysis steps, 14 studies were excluded. In addition to exclude articles that used existing instruments and articles that developed instruments assessing a particular aspect of nursing practice (teaching skills, practice competencies from a subject in the nursing program, disaster nursing competency), review articles were also excluded.

Moreover, alongside the systematic searching process, we conducted manual searches in Google Scholar; this search identified five articles related to developing nursing competency assessment tools. Especially in this process, although the are some studies that develop the tools for nursing competency assessment, they focus on some small areas in nursing, such as culture, literacy, information technology, and teaching competencies. These articles were excluded because we do not want them fragmented into too small areas; it may be more suitable for reviewing the specific competency in nursing. Finally, the search process collected 35 articles. The screening process was illustrated in Figure 1.

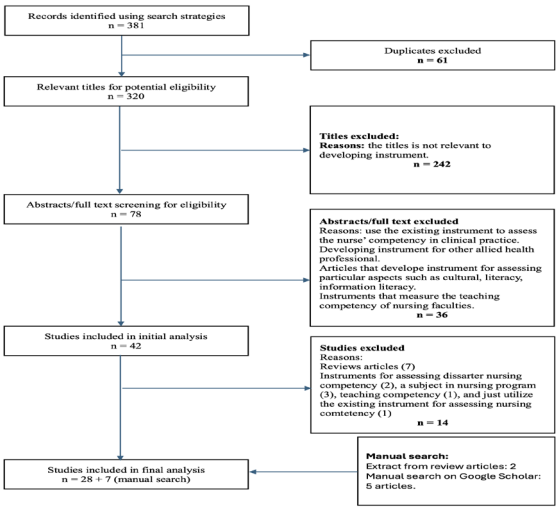

Figure 1: PRISMA flow diagram for the screening process

On the other hand, although we tried to develop the key works that could help find the relevant article as most as possible. However, the missing is unavoidable. That is why we try to read the review article that we found from the screening process. Then, after the extraction of data from review studies, we identified two more tools.

Characteristic of tools

After extracting data from 35 articles, the result identified 31 tools; these tools are illustrated in Table I.

Table I: List of tools for nursing competency assessment

No.	Tool's name	Objectives	Characteristics of tool			Author (year)
			Assessment methods	Dimensions of assessment	Number of item	
1	Nurse Professional Competence Scale (NPC)	Develop based on national and international professional competence requirements for nurse students prior to graduation and among practicing nurses.	Self-report	Nursing care, Value-based nursing care, Medical and technical care, Teaching/learning and support, Documentation and information technology, Legislation in nursing and safety planning, Leadership in and development of nursing, Education and supervision of staff and students	88 items 4 -point Likert	Gardulf, A., et al. (2019) (17) Nilsson, J., et al. (2014) (20)
2	Nurse Professional Competence scale short form (NPC-SF)	The shorter version of the Nurse Professional Competence Scale Scale			35 items 4- point Likert scale and 7 point Likert scale	Nilsson, J., et al. (2018) (19)
3	Advanced Practice Nursing Competency Assessment Instrument (APNCAI)	This tool aims to Assessing Advanced Practice Nursing specific competencies based on international and Spanish standards,	Self-report	Research and Evidence-Based Practice, Clinical and Professional Leadership, Interprofessional Relationship and Mentoring, Professional Autonomy, Quality Management, Care Management, Professional Teaching and Education and Health Promotion.	44 items 5 point Likert scale	Sastre-Fullana, P., et al. (2017). (21) Dias, F. C. P., et al. (2022) (44)
4	Holistic Nursing Competence Scale	Assessing the nursing comprehensive and practical competence of Japanese registered nurses.	Self-report	General Aptitude, Staff education and management, Ethically-oriented practice, Nursing care in a team, Professional development.	36 items 7-point Likert scale	Takase, M., & Teraoka, S. (2011) (61) Aydin, A., & Hi3durmaz, D. (2019) (45)
5	Clinical Simulation Competency Assessment Tool (ClinSimCAT)	Evaluate nursing student competency in clinical and simulation settings	Observation	Patient-centered care, teamwork and collaboration, evidence-based practice, quality improvement, safety, informatics, professionalism, and systems-based practice	20 items – three level (novice, Advanced Beginner, Competent)	Marie Beauvais, A., & Phillips, K. E,. 2020 (33)
6	3C scale (Capstone core competency)	The 3C scale may be used to evaluate the performance of nursing students during their learning process in bachelor-degree nursing programs.	Self-report	Nursing intelligence, Nursing humanity, Nursing career	24-item scale 6-point Likert scale	Tseng, H.-C., et al. (2022) (53)
7	Appraisal of Nursing Practice (ANP)	An observational tool for monitoring development of nursing practice competency of residents across the hospital system's program	Observation	Person-centered care, teamwork and collaboration, evidence-based practice, quality improvement, safety, informatics, professionalism, and overall satisfaction.	37-item 5- point Likert scale	Becker, H., Meraviglia, M., (2018) (48)
8	Clinical Skills Self-Efficacy Scale (CSES)	Clinical Skills Self-Efficacy Scale was used to measure the difference in a student's reported perception of self-efficacy after completing a refresher program.	Self-report	Performing clinical procedures: Administer intramuscular injection, administer subcutaneous injection, change sterile dressing, insert Foley catheter, insert nasogastric tube, start intravenous line, transfer patient from bed to chair, hang intravenous piggyback and administer tube feeding through percutaneous endoscopic gastrostomy (PEG)	14-items 11- point Likert scale.	Oetker-Black, S. L., (2016) (28)
9	Community Care Competency Scale (CCCS)	The instrument for measuring community care competency among multi-ethnic undergraduate nursing students.	Self-report	Individual needs, influences from family, friends, environment, culture, abilities and spirituality	21 items 4-point Likert scale	Lau, S. T., Lopez, V., (2019) (32)
10	Competence Scale for Clinical Nurses (CSCN).	Measuring clinical competence in nurses	Self-report	Basic care skills, being dedicated to work, and patient-centered and ethical considerations.	18-item 7 likerts scale.	Kao, C. C., Chao, H. L., (2022) (37)

CONTINUE

Table I: List of tools for nursing competency assessment (CONT.)

No.	Tool's name	Objectives	Characteristics of tool			Author (year)
			Assessment methods	Dimensions of assessment	Number of item	
11	Critical Care Nursing Competence Questionnaire for Patient Safety (C3Q-safety)	Assess nursing competence related to patient safety in ICUs	Self-report	Decision making, collaboration, nursing intervention, and principles of nursing care	22-items 5 point Likert scale	Okumura, M., et al. (2019) (38)
12	Critical Care Nursing Competence Scale (ICCN-CS-1)	Assess basic competence in intensive and critical care nursing.	Self-report	Knowledge base, skill base, attitude and value base and experience base.	144 items 5 point Likert scale	Lakanmaa, R. L., (2014) (36)
13	Nursing Competence Questionnaire (CNCQ-22)	This tool was developed to measure student caring, communication/coordination, management/teaching, and professional self-growth competence.	Self-report	Caring, Communication/ Coordination, Management/Teaching, and Professional Self-growth competence.	22 items 5-likert point scale	Beogo, I., Rojas, B. M., Gagnon, M. P., & Liu, C. Y. (2016) (50)
14	Nursing Competence Self-Efficacy Scale (NCSES)	The NCSES help determine whether graduates have been provided with a level of education, skill, and knowledge that prepares them to not only become competent and safe practitioners as mandated by regulation but to also thrive, prosper, and become innovators for positive change within the profession.	Self-report	Proficiency, Altruism, Prevention, Leadership	32-item 9 point Likert scale	Kennedy, E., Murphy, G. T., Misener, R. M., & Alder, R. (2015) (29)
15	Nursing Older People – Competence Evaluation Tool' (NOP-CET)	This tools can be used to explore the competence of nursing staff employed in nursing homes, home care services, or entire municipalities.	Self-report	Health promotion as well as disease prevention, treatment, palliative care, ethics and regulation, assessment and taking action, covering basic needs, communication and documentation, responsibility and activeness, cooperation, and attitudes	62 items 5-point Likert scale	Bing-Jonsson, P. C., et al. (2015) (47)
16	Nursing Student Competence Scale (NSCS)	Measure the nursing competency nstudents in bachelor program in Taiwan	Self-report	Medical related knowledge, basic nursing skills, communication and cooperation, life-long learning, global vision, and critical thinking.	30-items 5-point Likert scale	Huang, S.-M., et al (2022) (51)
17	Nursing Students Competence Instrument (NSCI)	Assessment of nursing student competencies at in bachelor program	Self-report	Integrating care abilities, leading humanity concerns, advancing career talents, and dealing with tension	27 items 10-point Likert scale	Lin, C. C., (2017) (30)
18	Patient safety competency self-evaluation (PSCSE) tool	Assess nursing students' perception of their own competency regarding patient safety and reflects the current culture of health care in South Korea	Self-report	Patient safety promotion/prevention strategy. Responsibility of health care professionals for patient safety culture. Error reporting and disclosing. The components of patient safety culture	45 items with a 5-point Likert scale	Lee, N.-J., et al. (2014) (35).
19	Pediatric Nursing Competency Scale	Assess pediatric nursing competency of nursing students when they enrolled the pediatric nursing course in nursing program.	Self-report	Content, physical examination, nutrition, drug and fluid administration, complex care, interaction with child/family, growth/development, and pain/fever management.	39 items 5 point likert scale.	Bektaş, İ., Bektaş, M., & Ayar, D. (2020) (39)
20	Standards of Practice and Evaluation of Critical-Care-Nursing Tool (SPECT)	This tool can be used by nurses working in education and/or clinical practice and student self-assessment for assessing the critical care competence of nursing graduates.	Observation	A patient and family focused approach to care, Quality of care and patient safety, Resuscitation, Assessment, monitoring and data interpretation Critical illness management, Teamwork and leadership	64 items 5 point likert scale.	Gill, F.J., et al. (2014) (40)

CONTINUE

Table I: List of tools for nursing competency assessment (CONT.)

No.	Tool's name	Objectives	Characteristics of tool			Author (year)
			Assessment methods	Dimensions of assessment	Number of item	
21	Assessment of safe nursing care (ASNC)	Assessing the Safe nursing care which are characterised by nursing interventions focused on measures to prevent practice errors and any unintended consequences in nursing care.	Self-report	Evaluation of nursing skills, assessing the patient's psychological needs, assessing the patient's physical need, and assessing nurses' teamwork.	32 items 5-point Likert	Rashvand, F., et al. (2017) (52)
22	Nurse Competence Scale	This tool is a widely used international measure of the generic nursing competence of nurses in various career stages,	Self-report	research oriented, work role, diagnostic functions, managing situations, patient education, and mentoring functions.	36 items 4 point Likert	Juntasopeepun, P., et al. (2019) (46)
23	None (Author did not name for this tool)	Assessing the nursing competence in general after graduate in clinical context.	Self-report	Understanding of health conditions and illnesses of individuals, decission making, identify needs, nursing process, safety, nursing procedures, medication, continuing care, emergency care, communication, health education, and team work.	60 items 5 point likert scale	Nguyet, T. T., et al. (2023) (49)
24	None (Author did not name for this tool)	Assessing the professionalism competence of nursing in clinical practice context.	Self-report	Problem solving, Teamwork, Self-development, Productivity and quality at work, Creativity and innovation, Communicatio, Decision making, Leadership, Systemic Vision and User Focus.	25 items 4-point Likert scale	Piedade Tamada, R. C., et al. (2022) (26)
25	None (Author did not name for this tool)	Evaluation of the clinical competency according to nursing competency standard for new graduate in Vietnam.	Self-report	(Nursing care practice, Management and pro- fessional development, and legal and ethical competencies.	131 items - 3 point Likert scale	Horii, S., et al. (2021) (41)
26	None (Author did not name for this tool)	Assessment instrument for nurses who have completed an outcome-based educational program	Self-report	Critical thinking and application of the nursing process, Self-management, coordination, and collaboration, Patient care, Ensuring quality and communication	19 items 4-point Likert scale	Ko, Y., & Yu, S. (2019) (27)
27	None (Author did not name for this tool)	Assessing managerial competencies of hospital department head nurses	Self-report	planning, organising, leadership, and control	78 items 5-point Likert scale	Moghaddam, N. M., (2019) (25)
28	None (Author did not name for this tool)	Assessment clinical competence of undergraduate nursing students.	Self-report	Technical competence, advanced competence, ethical competence, competence of care management, safety competence	46 items 5 point Likert scale	Nehrir, B., Ebadi, A., (2018) (42)
29	None (Author did not name for this tool)	Measure conpetency of nurse for the nursing care of people with psychiatric disabilities	Self-report	Sense of responsibility, vocational identification, agreeableness, cooperation capacity, and carefulness;	17-items 5-point Likert scale	Feng, D., Li, H., Meng, L., & Zhong, G. (2018) (54)
30	None (Author did not name for this tool)	Evaluation of the clinical competency of critical care nursing students	Self-report	Care management, technical competency, individual management, human-oriented care, and scholarship-oriented care	44 items 5-point Likert scale	Ebadi, A., (2016) (31)
31	None (Author did not name for this tool)	Measuring the core competencies of baccalerate nurse	Self-report	Professionalism; direct care; support and communication; application of professional knowledge; personal traits; and critical thinking and innovation.	47 items 5-point Likert scale	Yang, F. Y., (2013) (43)

The objectives of tools

In this literature review, most of the tool's purpose is to assess the clinical competency of registered nurses with 20/31 tools. Among them, the NPC scale is the most researched tool with two versions, the original and the shortened versions (17-19). When assessing nurses' clinical competency, these tools also assess a wide variety of assessments, from assessing the nursing practice capacity of nurses before graduation (17, 19, 20) to advanced practice nurses (21). Some tools also aim to measure clinical competency in specific areas, such as critical or intensive care nursing (22), elderly care (23), pediatric nursing care (24), and management competency of head nurses (25). Furthermore, two tools were designed to assess the competency of nursing care for nurses who completed the resident program (26) and outcome-based program in the hospital (27).

On the other hand, there are 12 tools were developed for assessing the clinical competency of nursing students (the NPC scale can be used for both registered nurses and nursing students). All these tools are employed for assessing the clinical skills of nursing students enrolled in bachelor programs. Over fifty percent of these tools are designed to assess the overall clinical competence of nursing students. Additionally, the second focus is on evaluating the perception and self-efficacy of nursing students regarding their clinical competencies (28-30). Moreover, the community nursing care and critical care are two unique tools for nursing students that were identified in this review (31, 32). Especially one tool that aims to evaluate the nursing students' competency in the stimulation setting was also mentioned (33).

The methods of assessment

The most favorite methods of assessment were self-report with 28/31 tools. There are only 3/31 tools that use observational methods to measure nurses' competencies.

The dimensions of assessment

There is a diversity in the dimensions of assessment, which include eight dimensions and range from the attitude to basic knowledge skill, then the professionalism. The first dimension is attitude and self-efficacy, which is the perception of nurses and nursing students about their clinical competencies (28, 34, 35). The second dimension is basic knowledge and skill of nursing, such as the understanding of illness conditions, physical assessments to identify patients' needs, application of the nursing process, performing clinical procedures, and nursing documents (27, 28, 32, 36-43). The third dimension is education competencies, which include mentoring nursing staff and educating individuals, families, and communities (17-19, 21, 34, 44-46). The fourth dimension is prevention and safety care competencies; this dimension also covers health promotion (17-19, 21, 35, 40, 42, 47-49). Alongside that, the fifth dimension that authors in this review are concerned about is soft-skill, which includes communication, teamwork, and collaboration (26, 27, 33, 34, 38, 40, 43, 48-52). The sixth dimension that is mentioned in the categories of competency related to leadership requires nurses in the 21st century to have such informatics and data interpretation skills, integrating care abilities, problem-solving, situation management skills, and global vision (17-19, 21, 25-27, 29, 30, 40-42, 44, 46, 51). The seventh dimension is related to professionalism, which includes thinking about career development, self-development ability, research competency, and legal and ethical competencies (17-19, 21, 26, 27, 30, 33, 34, 41, 43, 44, 46, 48, 50, 51, 53). The last dimension is the personal traits; this dimension covers two aspects. The first aspect is personal characteristics such as responsibility, altruism, and autonomy. The second aspect is how nurses deliver patient care, including the dedicated care delivery and creative and innovative nursing care (21, 26, 29, 35, 37, 43, 44, 47, 54).

Number of items

Most of the tools have less than 60 items (25/31). The Clinical Skills Self-Efficacy Scale is a tool that has a minimum number of 14 items (28). There are five tools that have more than 60 items in length. The highest is the Critical Care Nursing Competence Scale and an tool by Horii, S. et al. (no name) with 144 and 131 items, respectively.

On the other hand, the number of options in each item almost ranged from a 4-7 point Likert scale with 26/31 tools. Only one tool has nine options (55), one tool has ten options (30), and one tool has eleven options in each item (28). Two tools have three levels of options in items (33, 41). All results are illustrated in Figure 2.

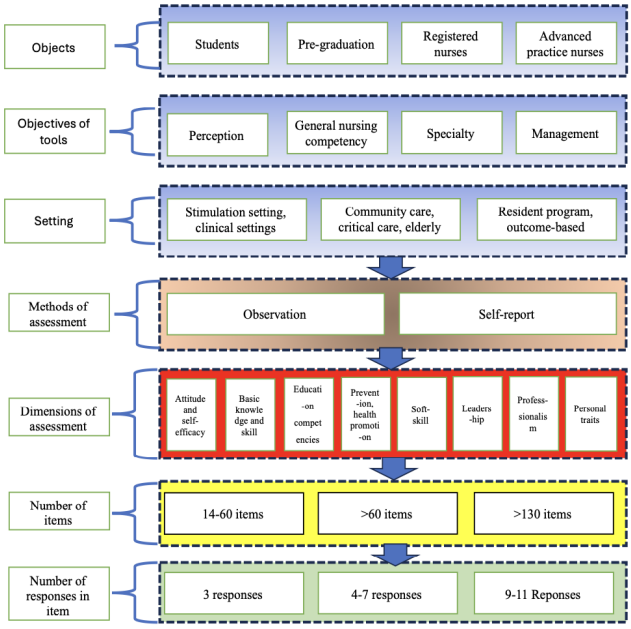

Figure 2: Tools characteristics mapping

DISCUSSION

To effectively fulfill their professional duties, nurses must be encouraged to engage in continuous learning and stay updated with the latest knowledge and skills. Hence, it is imperative to acknowledge the progressive journey of nursing proficiency for ongoing professional growth subsequent to acquiring a nursing license (1). All the tools developed over the past decade to measure clinical nursing competency have spread from students to nurses and even advanced practice nurses. This shows that researchers have received proper attention and the need for a clear differentiation in assessing nurses' competencies according to each stage of professional development.

Moreover, since nursing practice is contingent upon specific situations, every nation must develop an evaluation tool that gauges real clinical nursing skills and is tailored to their individual requirements in accordance with their national guidelines (6). So, some tools were developed based on the international standard of nursing professionals. However, there are still almost tools that were developed based on national standards, which help to identify exactly the competencies of nurses in each country, showing the condition of the nursing education system of each country and what knowledge, skills, and competencies nurses receive from their education program. So, the cross-culture validation should be considered to confirm that the tool will produce meaningful results when applied in another culture, which is different from where they were developed. Before modifying the tools for cross-cultural adaptation and checking psychometric properties, the translation process is importance process. This process should be implemented by experts who have language and professional proficiency to ensure equivalence in measured concepts. The several terminologies used in different cultures are characterized by the use of specific terminology and it could have various meanings from other cultures (56). One of the successful examples is the Nurse Professional Competence Scale (NPC), which is based on the national guidelines of Swedish and the global standards for the education of nurses from the World Health Organization (20). In fact, this tool has been translated and adapted successfully into many countries and languages. This tool can be used not only for quality assessments but also for benchmarking projects. This tool can serve as a criterion for benchmarking systems, which compare the quality of nursing education and nursing care, which facilitate the improvements of nursing education programs at national and international levels (17).

Additionally, the diversity in objectives of assessing nurses' clinical practice competencies is also an issue that has received attention. The tool not only assesses general clinical practice competencies but also assesses competencies for specialties, such as pediatric nursing, geriatric nursing, and intensive care nursing. In addition, with the development and affirmation of the important role of nurses in the medical field in recent years, leadership and management skills have been included among the dimensions to be evaluated.

For the methods of assessment, all tools use only two methods: observation and self-report. This is a limitation in assessing practical capacity. However, self-reporting is the most favorable method to assess nursing clinical competency. This method of competency assessment was argued that it may not be valid. For example, individuals who are worried about their performance may provide a more precise assessment of their competence when compared to those who are not (57) because respondents may actually treat the questions in the tool as attitudinal rather than factual, which they have done in clinical practice (58). Kruger further suggests that studies on the evaluation of self-reported competence reveal that experts possess a greater ability to accurately gauge their level of competence compared to novices (59). Therefore, when evaluating nursing proficiency in a clinical setting, an alternative assessment method is necessary to directly gauge skills. One such approach involves presenting a scenario involving an unstructured problem and assessing the respondents' ability to analyze and make judgments based on the given situation. (60). However, only three tools in this review use the observational approach. It could be related to the convinient and easy to use of self-report approach. According to one concept analysis study (61), this only meets the concept of assessment according to Trait theory, that is, it can only partially assess the knowledge, skills, attitudes of the person being evaluated. However, as mentioned before, nursing practice is the situation-practice; the assessment needs to be assessed based on Behaviorism, which refers to competency as an ability to perform skills and is assessed by demonstrating the skills in actual context.

For the dimensions of assessment, there is a diversity in the dimension. The results indicate that they are concerned not only about the traditional dimensions of nursing education, such as basic skills, knowledge, educational ability, prevention, and health promotion, but also the leadership. During this period, nurses, as integral members of the healthcare interdisciplinary team, need to possess the skills to effectively lead in a demanding and intricate environment with high patient acuity and a fast-paced nature. The nursing profession has the potential capacity to implement wide-reaching changes in the health care system (62). Nurse leaders and managers have a crucial role in achieving organizational objectives, considering the current work environment's challenges posed by financial limitations and organizational transformations (63). Furthermore, the evaluation of clinical competency also considered professionalism and personal traits. These elements encompass the mindset, conduct, and

appearance that showcase a dedication to achieving excellence in all professional endeavors. It encompasses a range of qualities, including a positive attitude, taking responsibility, displaying a strong work ethic, and dedication to the nursing care practice. So, alongside the basic competency of nursing professionals, these aspects are crucial factors for nurses to continue their careers and develop the future of nursing.

Several tools in this evaluation possess a quantity of items exceeding 60, and there are even tools with a quantity surpassing 130 questions. Nevertheless, the findings suggest that the majority of tools contain fewer than 60 items. This quantity of items is appropriate for an tool designed to evaluate nursing clinical competency due to limitations in administration time and space. As a result, recent studies have shifted towards utilizing condensed versions of established tools (64). Additionally, a shorter version offers the benefit of seamless integration with other tools, enabling the provision of more intricate analyses. (65), and response rates are greatly reduced by the number of items (66).

On the other hand, most of the tools used the 4-7 points Likert scale, and almost all of them used an odd number of options for each item. In fact, there is no regulation on how many options there are in each question specifically. Nevertheless, a study demonstrated that seven-point scales can get the highest reliability of measurements. However, their findings also indicated that beyond seven points, and even with the utilization of up to 100 response categories, there was no further enhancement in the reliability (67). Furthermore, having an odd number of options tools may be more advantageous than an even number. O'Muircheartaigh discovered that incorporating midpoints into rating scales enhanced the dependability and accuracy of the ratings. Through the utilization of structural equation modeling, it was revealed that using questions with an even number of answers, or in other words, eliminating the middle option, will confuse respondents. This implies that the inclusion of a midpoint is preferable (68). So, the number of options in each item is also an issue that should be considered when conducting the tools of nursing competency assessment. It is not only related to the length of the items but also to the validity and reliability of the tool. If the researcher intends to use an existing tool that has more than seven options (ex., Clinical Skills Self-Efficacy Scale and Nursing Competence Self-Efficacy Scale, which have 11 and 9 options, respectively), the number of options could be changed for adapting to a new culture and enhancing validity and reliability.

As the results of this study suggested, there is a need to develop more tools that assess nursing competency by observation method or other methods; it facilitates the assessment more objectively and accurately. For the characteristic of items, each tool that has not exceeded 60 items is more suitable for assessment implementation; it is easier for integration with other tools and increases the response rate. Furthermore, a 7-point Likert scale for each item seems to be better than items that used more or less than responses to get the highest reliability of measurements.

CONCLUSION

This review provides an overview of the tools developed over the past decade to assess nursing clinical competency. A total of 31 toolkits were discovered. The results also provide characteristics of the tools. The characteristics of the tools can be used as a reliable source of information to evaluate trends in use as well as aspects of nursing practice of clinical interest.

The results also show diversity and depth in each aspect of nursing practice assessed. This shows that, in order to assess nursing clinical competency accurately, it is necessary to be based on the requirements for each working position as well as greatly depending on environmental factors. Moreover, the length of tools and the number of options in each item should be considered precisely to get higher validity and reliability.

For the characteristic of items, each instrument that has not exceeded 60 items is more suitable for assessment implementation; it is easier for integration with other instruments and increases the response rate. Furthermore, a 7-point Likert scale for each item is better than items that used more or less than responses to get the highest reliability of measurements.

Finally, as this study's results show, competence assessment remains problematic due to a lack of consensus in assessment methods. The self-report method was easy to use, but the observation could generate the result more objectively. So, there is a need for studies to compare the effectiveness of each method in assessing nursing clinical competency. Moreover, to develop nursing in each specific field, it is necessary to conduct research that focuses on developing the core competency of each area in nursing. It could be the foundation for building nursing education programs and assessing competencies for each field more appropriately, which also enhances the professionalism of nursing.

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