Competency in nursing practice: a concept analysis

Majd T Mrayyan, Hamzeh Y Abunab, Abdallah Abu Khait, Mohammad J Rababa, Sami Al-Rawashdeh, Abdullah Algunmeey, Ahmed Abu Saraya

ABSTRACT

Objective Competency denotes the ability to execute a certain task or action with the necessary knowledge. Competency definitions and measurements are challenging for nursing and other professions due to their multidimensional aspects. This study aimed to clarify the concept of competency in nursing practice and propose an accurate definition.

Design Walker and Avant’s approach was used to elucidate the concept of competency in nursing practice.

Data sources ScienceDirect, PubMed, ProQuest, Scopus and CINAHL were searched from 1 January 2000 to 31 December 2021.

Eligibility criteria We included studies with the keywords: “concept analysis”, “competence”, “competency” and “nursing”. The search was limited to full-text studies written in English that used theoretical and empirical approaches.

Data extraction and synthesis We extracted the concept’s uses, defining attributes, and the consequences and antecedents of the concept.

Results 60 articles were identified from the search process; after excluding duplicates and works unrelated to the study aim and context following the full-text screening, 10 articles were included in this concept analysis. The common defining attributes of competency were knowledge, self-assessment and dynamic state. Competency in nursing practice had many reported positive consequences that include but are not limited to improved patient, nurse and organisational outcomes.

Conclusions Nurses can benefit from the result of this analysis in practice to implement professional care, in particular clinical contexts and situations to enhance patients’ health.

INTRODUCTION

Definition of competency and role in education ‘Competency’ is the capability of any given person or professional to execute a certain task or action while having the necessary training and education to do so. Another essential term is ‘competency-based education’, defined by the American Association of Colleges of Nursing as ‘a process whereby students are held accountable to the mastery of competencies deemed critical for an area of study’. It is ‘anchored to the outputs of an educational experience vs the inputs of the educational environment and system’ (p. 4).

On the other hand, Zumstein-Shah and Grace purported that nursing education aimed to achieve learning outcomes in the classroom and during clinical practice. It is an example of operation and structure. Nursing education is based on competency frameworks from other professions, such as in the USA and Switzerland, in contrast to this well-established method. This is a concern since the fundamental idea and philosophy conflict with those of the nursing field. Competency may signify several aspects of this approach.

Competency: theoretical background and role in clinical practice

Nurses must maintain their competency as they are on the front when carrying out tasks for their clients and performing the duties of their profession. Nurses have legal and ethical obligations to maintain their competency. Competency helps them perform their duties while integrating multiple elements, including knowledge, techniques, attitude and thinking ability. ‘Competency’ will result in positive outcomes for patients, nurses, their profession and organisations.

Competence is a concept used interchangeably with competency in the literature. However, competence reflects an individual’s actions and abilities to fulfil job responsibilities. In contrast, competency represents an individual’s performance in specific contexts.
circumstances to implement successfully. \(^1\) Competency has always been the core goal of nursing, in contrast to other aspects of healthcare in which getting the job done has always been the primary focus. \(^1\)

Although ‘competence’ has been extensively discussed in the nursing literature, \(^5\) it has moved into the contemporary term ‘competency’. \(^6\)–\(^7\) Competency in nursing practice is a behaviour-oriented term, while competence is a task-based term based on the behaviourism view of the profession and trait theory. \(^6\)–\(^7\) More specifically, while ‘competency’ is knowing behaviours, judgement and skills to perform duties efficiently, \(^4\)–\(^8\) ‘competence’ is the ability to do something successfully. \(^1\)

There are several assumptions about competency: (1) a comprehensive conceptualisation of competence includes skills, knowledge, attitudes, levels of sufficiency and performances; \(^4\) \(^6\) \(^9\)–\(^13\) (2) competency is an indicator of an extent of capability assumed to be sufficient in a specific task; \(^7\) \(^11\) (3) competency can be achieved; thus, training is required; \(^3\) \(^10\) (4) performance regarding specific behaviours may be measured to check for competency; \(^6\) \(^11\) \(^14\) and (5) competency is crucial for nurses to make safe clinical judgements. \(^3\) \(^10\) \(^13\) \(^16\) Recent reference denoted ‘competency’ as the ability to execute a certain task or action in conjunction with the necessary knowledge. \(^1\) \(^17\) \(^18\)

In response to the changing healthcare environment, competency-based education emerged as a key policy in industrialised countries in the mid-1960s. Worldwide, nursing education has moved to a competency-based curriculum due to the move from ‘training’ to ‘education’ that occurred in the 1980s and 1990s. \(^19\) \(^20\) In 2005, a project developed a competence matrix for nurses working in clinical settings within the European Union. \(^21\) The competency-based practice emerged as a response to competency-based education. Competency has implications in nursing practice as the health and safety of patients are directly impacted by competency, whereas the absence of competency may result in harmful medical consequences. \(^5\) It contributes to safe care and protects nurses’ credibility, enhancing their proficiency and independent work. \(^6\) \(^16\) \(^22\)

The International Council of Nurses (ICN) supports regulation to ensure safe and competent nursing practice and safeguard the public. The scope of nursing practice defines its dimensions and bounds, and the profession must clearly describe its practice parameters to meet general societal requirements. Otherwise, the practice may become limited and fragmented, leaving needs unsatisfied. \(^23\)

The term ‘competency in nursing practice’ was used for the current concept analysis. ‘Concept analysis’ used a thematic method for presenting the findings. \(^23\)–\(^26\) Walker and Avant’s \(^26\) approach was used in the concept analysis as it is the simplest and most understandable method used for concept analysis.

Problem with competency in nursing and rationale for the study

No mechanism exists for most healthcare facilities to ensure that practitioners remain updated with current best practices. Nursing schools struggle to determine the best ways to educate students who demonstrate entry-level competencies. Employers struggle to determine the best ways to validate entry-level competencies and determine specialty competencies. Because the idea of competence in nursing practice is still developing and continues to suffer from a lack of clarity and operationalisation, we must have a much better grasp of the antecedents, attributes and consequences of this concept.

Competency in nursing practice is crucial for optimal health outcomes in general and advanced nursing practice. \(^15\) Yet, the clear meaning of competency is still questionable, as this concept is multifaceted and derived from distinct attributes. \(^3\) \(^6\) The multidimensional features of this concept complicate the process, and this conceptual unclarity has not facilitated effective communication among nurses and other professionals. \(^19\) Regarding its actual meaning, ‘competency’ is an elusive rather than an exclusive entity. \(^3\)

Although it is one of the basic milestones in nursing practice, few studies analysed and measured competencies. \(^4\)–\(^6\) \(^25\) \(^27\) \(^28\) It is integral in many nurses’ educational programmes but has no universal definition. \(^5\) \(^6\) \(^19\) \(^29\)

Competency definitions are challenging for nursing and other professions. \(^13\) \(^6\) \(^19\)

Based on the prior literature, it is clear that competence is a mix of knowledge, skills and attitude in numerous pieces of literature. However, the purpose of this research is to provide the findings from a concept analysis that looked at many aspects of competence, specifically how those aspects have changed over the last decades in terms of interpretation, application and transformation. The purpose of this concept analysis was to review and evaluate the data that were available on competency in nursing practice. The goal is to discover any important factors that shape professional understanding and, in turn, shape the actual application of that understanding in modern nursing practice.

METHODS

Concept analysis method

The eight-step model of concept analysis of Walker and Avant \(^26\) was used to explore the concept of competency in nursing practice: (1) choosing the concept; (2) outlining the objectives of the analysis; (3) recognising the concept’s uses; (4) selecting the concept’s defining attributes; (5) constructing a model case; (6) constructing related, borderline and contrary cases; (7) defining the consequences and antecedents of the concept; and (8) determining empirical referents. \(^26\) A concept analysis is usually used for theory development and understanding and operationalising certain terms. \(^10\) \(^24\) \(^26\) \(^30\) Although the authors’ intention is not to develop a theory of the
concept of competency in nursing practice, applying an iterative analysis process will help remediate the lack of consensus on the key attributes of this concept.

**Data sources**

Five electronic databases were selected: ScienceDirect, PubMed, ProQuest, Scopus and CINAHL. The reference list of the selected studies was also reviewed to consider further resources. The keywords with Boolean operators used in the search process were: “concept analysis”, “competence”, “competency” and “nursing”. The search was limited to full-text studies written in English that used theoretical and empirical approaches published between 1 January 2000 and 31 December 2021. All studies that did not comply with these inclusion criteria were excluded.

The titles and abstracts found using the search strategies were evaluated separately by the two authors. When an abstract was first evaluated, it was discarded if it was determined that the article did not match the idea being studied. The authors determined whether or not the abstract should be included if there was any uncertainty about it meeting the inclusion requirements of the concept under study. After that, the whole texts of the selected articles were obtained. The authors independently screened the chosen full-text publications and, where necessary, checked and verified the results against the inclusion criteria.

**Selecting the concept**

Different terms related to ‘competency’ and ‘competence’ in nursing were used in the reviewed literature, such as ‘cultural competence’, ‘ethical competence’, ‘moral competency’, ‘professional competence’ and ‘clinical competence’. As seen, ‘competency’ per se was not commonly used.

Competency is important in all professions, including nursing. It directly influences the safety and health of patients. Diminished competency can result in serious medical errors for patients.

Competency in nursing practice should always be assessed to address aspects of professional development, meet learning needs and provide the best care for patients. The standards for professional competency contain various domains, such as technical, cognitive and emotional aspects of practice, including those unmeasurable domains. However, no agreed-upon definition of competency contains all important domains of nursing practice and the practice of other professions.

**Patient and public involvement**

None.

**RESULTS**

Sixty articles were yielded from the search process; however, 50 were identified as duplicates or unrelated to the study aim and context after full-text screening. Finally, 10 articles were included in this concept analysis, as they applied the elements of the studied concept and the eight-step method of Walker and Avant and the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow chart (figure 1). Complete details on the search protocol are listed in online supplemental file 1, and a summary of selected articles is provided in online supplemental table 1. To comprehensively analyse a concept, its definitions and uses, defining attributes, antecedents, consequences and empirical referents should be considered. PRISMA 2020 was also used to facilitate transparent and complete reporting of the concept analysis (online supplemental file 2).

**Definitions and uses of the concept**

The definitions of competency have evolved. Merriam-Webster defines competency as having sufficient knowledge, behaviours, judgement and skills to perform a particular duty. Competency was described by Zumstein-Shaha and Grace as the ability of any given person, pending training and instruction, to carry out specific activities or actions.

The psychological construct, holistic approach and behavioural perspective are competency’s most widely used definitions. The psychomotor, cognitive and affective skills are the main topic of the psychological construct. The holistic approach defined competency as a broad range of shared qualities essential to effective performance. Takase et al consider competency as individual traits such as knowledge, critical thinking and skills necessary for effectively performing duties. Competency was described from a behavioural standpoint as task oriented, defined as finishing a task.

The widely acknowledged holism is that nursing competency includes skills, knowledge, professional judgement,
attitudes and values. Given that knowledge and skills are adaptable to various contexts, nurses must integrate and apply their newly learnt knowledge, abilities and personal traits to each clinical practice environment. The scope and standards of nursing practice, the ICN Framework of Competencies for the Nurse Specialist and the graduation success goals as they show the growth of nursing competency can all be used to assess the integrated and holistic nursing competency.

The definition of competency in nursing practice is not universally agreed upon, although most definitions emphasise knowledge, behaviours, judgement, skills, values and attitudes needed to perform professional obligations.

**Key attributes of competency**

The most important aspect of concept analysis is determining the concept’s defining characteristics, which distinguish this concept from other similar or related concepts. Defining attributes also aid researchers in identifying key qualities that repeatedly appear in a concept and highlighting their significance in the context. Attributes are the traits that have the strongest link to the concept, and they are the terms researchers use to describe the characteristics of concept.

Competency has many attributes (characteristics); however, the common defining attributes of competency in nursing practice in the reviewed literature are knowledge, self-assessment and dynamic state.

Knowledge is one of the important dimensions for assessing competency. Nurses must possess many specialty areas through special education that enriches their knowledge. Nurses with the knowledge and skills provide safe, high-quality care with the best possible outcomes. This knowledge supports their abilities in providing safe, high-quality care with the best possible outcomes. It bridges the gap between theory and practice and enhances professional growth and nursing practice by allowing nurses to analyse and adapt their nursing practice critically. Nurses reflect on their experiences and ask the ‘why’ question regarding the nursing issue via self-reflection, broadening their thinking and comprehending the context of the situation in detail.

The dynamic state is a synonym for ‘continuously developing’ and ‘changing’. To maintain an updated competency in nursing practice, it is important to invest in nurses’ increasing experience and ongoing continuing education. Yet, once the knowledge is attained, it needs to be updated regularly to stay current with developments. Other attributes of competency were actions and professional standards.

**Constructed cases**

Constructed cases function as an additional means of defining a concept’s key attributes by demonstrating which essential qualities are considered key attributes for the concept and which are not. Online supplemental file 3 shows the constructed cases that can be universally applied to different healthcare systems in different countries.

**Antecedents of competency**

Antecedents are those events or situations that must be presented for the concept to occur. For a nurse to practise competently, the following must be satisfied first: (1) sufficient education, (2) a set of skills and abilities, (3) standards of actions or behaviours, and (4) positive attitudes and responsibility for applying the knowledge in practice.

In the global context, Liu and Aungsuroch reported, in their comprehensive literature review, that the antecedents related to nursing competency are: (1) sociodemographic variables, including work experience, employment status and age; (2) professional-related variables such as self-esteem, research utilisation and critical thinking; and (3) work environment variables such as ethical climate, job satisfaction, practice environment and learning environment.

Also, in the global community, the inductive content analysis yielded 11 components of nursing competency: professional clinical practice, personal traits, cooperation, therapeutics practice, management of nursing care, ensuring safe and quality legal and ethical practice, professional development, communication, leadership, critical thinking and innovation, and teaching-coaching. The researchers elaborated on each component as the following: (1) personal traits identified nurses’ consistent thoughts and behaviours such as accountability and self-control; (2) professional clinical practice focused on applying the holistic nursing care that meets patients’ needs; (3) cooperation and therapeutics practice focused on multidisciplinary teams to provide high-quality nursing care; (4) ensuring quality and safety goals at improving the quality of nursing care provided; (5) management of nursing care focused on how nurses provide nursing care; (6) legal and ethical practice when nurses work in the diverse cultural practice environment; (7) innovation...
and critical thinking by which nurses’ decision-making is evidence based; (8) communication is the ability to understand and be understood; (9) ‘leadership’ means that nurses should be able to influence while providing nursing care; (10) professional development by which nurses continue to update their skills and knowledge to adapt to changes in all aspects of work environment; and (11) ‘teaching-coaching’ in which nurses are aware of teaching/learning principles.

While considering the context of nursing practice, using the inductive content analysis, the common and appropriate antecedents of competency were education, knowledge, skills and abilities, standards of actions or behaviours, positive attitudes and responsibility for applying the knowledge in practice.

Consequences of competency

Consequences are the outcomes of the concept’s occurrence. Competency models are critical to ensure professionals meet job requirements and produce positive outcomes for themselves, their patients and the organisation. Competency in nursing practice decreases serious medical errors for patients and maintains patient safety. It improves patients’ outcomes and nurses’ clinical judgement. It also improves the accountability and self-assessment of nurses. As a result, competency in nursing practice narrows the gap between education and practice.

Empirical referents

Empirical referents embrace those categories of actual manifestations that can suggest the concept’s occurrence in its context and allow quantifying its key characteristics. They can be used in the development of new measurement tools and the review of present ones. Empirical referents can further simplify the concept and facilitate its measurement. Nurses work in complex and varied clinical settings, complicating the measurement of nursing competency. Thus, the definition and measurement of nursing competency differ among researchers and professionals. Competency is also a time-specific and context-related concept. It mandates that nurses maintain their education and skills updated to accommodate society’s evolving requirements and work environments; thus, nurses must maintain contemporary nursing competency.

Various tools have been developed to measure competency. However, the tools and methods used to measure the concept lack rigour. Given the varied definitions of the concept, the challenge remains concerning selecting the research tool.

In their comprehensive literature review, Liu and Aung-suroch explored different instruments used to assess nursing competency: (1) the European Questionnaire Tool, (2) the Competence Inventory for Registered Nurses, (3) Australian National Competency Standards for Registered Nurses, (4) Competence Scale for Senior Clinical Nurses and (5) Holistic Nursing Competency Scale. Most instruments focused on ‘competence’ rather than ‘competency’. All those instruments have good psychometric properties. Yet, the five developed instruments were designed as self-reported scales, contributing to the bias of nurses rating their competencies. However, self-assessment still serves as a career planning and learning tool; it helps nurses identify the strengths and weaknesses of their practice.

The Nurse Competence Scale (NCS) is a common tool used for measuring the competency self-assessment of practising nurses; it is an easy and culturally sensitive tool. The NCS is a 73-item scale with seven subscales: teaching-coaching (16 items), helping role (7 items), managing situations (8 items), diagnostic functions (7 items), ensuring quality (6 items), work role (19 items) and therapeutic interventions (10 items). Items are rated on a Visual Analogue Scale (0–100), with a higher score indicating greater competency levels.

Assessing applied knowledge and skills is crucial for nurses’ optimal competency levels. The Knowledge and Skills Framework was launched in the UK in 2004. This framework required all non-medical, registered practitioners to demonstrate their ongoing professional development and ability to practise by demonstrating this ability against a set of competencies.

Competency is a context-specific as well as a time-specific concept. Garside and Nhemachena and Liu and Aung-suroch suggested that ‘date-stamping’ qualifications, which are related to a system of updates of 5–10 years, should be seriously considered. Continued ‘exposure’ and ‘performance feedback’ provide continuous development and maintenance of competency and confidence within the designated clinical context. Competency should not be viewed merely as the aptitude for nurses to act efficiently once, and the nurse should deliver their performance constantly to reach a satisfactory standard. In conclusion, developing new tools is required to measure competency in nursing practice as an evolving concept.

The proposed definition of the concept

Based on the present concept analysis, ‘competency’ is the ability to execute a certain task or action with the necessary knowledge. It is the dynamic process of acquiring knowledge, behaviours, judgement, skills, values and attitudes to provide patients with effective, safe and quality care. This definition is consistent with the ICN’s (2009) definition of nursing competency and the ‘holism’ view of competency.

DISCUSSION

The current concept analysis findings indicate that competency in nursing practice is the ability to deliver safe and quality patient care. It has been claimed there is very much professional freedom in defining nursing competency. Competency does not suddenly occur; nurses must maintain updated knowledge and keep the evolving ‘continuously developing’ status. Nurses also maintain
specific technical skills and affective and cognitive characteristics; these are crucial antecedents for maintaining competency in nursing practice. Nurses acknowledged that unlimited tasks must not evaluate competency or be too extensive.

Based on the present concept analysis, ‘competency’ is the ability to execute assigned tasks or actions with the necessary knowledge. This definition is consistent with the ICN’s (2009) definition of nursing competency, which focuses on the scope of nursing practice that originally depended on nurses’ knowledge levels. In nursing definitions, there is general agreement that competence reflects the knowledge, comprehension, judgement, cognitive, technical, psychomotor and interpersonal abilities, and personal traits and attitudes. Moreover, this definition is consistent with the ‘holism’ view of competency based on certain elements, knowledge and skills in particular.

Certain antecedents, such as educational preparation for nurses, should precede to develop and maintain competency in nursing practice. Integrating the concept of competency into nursing course syllabi, and conducting educational sessions and training workshops for nursing instructors are important to maintain competent nurses and nursing students. Administrative aid and funding are also crucial to developing and maintaining competency in nursing practice.

Other antecedents related to nursing competency were professional work environment related and sociodemographic variables. Therefore, nursing managers need to establish and maintain a supportive work environment. Leaders who encourage their employees to learn and teach one another, provide coaching when needed and empower their employees’ professional development will improve their practice competency.

Recent studies reported the consequences of competency concerning patients, nurses and healthcare organisations. These consequences include decreased medical errors, lowered healthcare costs and continuous safety of patients, improved patient outcomes and nurses’ clinical judgement, and increased accountability and self-assessment of nurses. Competent nurses provide patient-centred care, and promote patient empowerment, personal and professional development, and emotional interaction with their patients.

Implications of the findings

The findings of this concept analysis reveal implications for nursing practice, education, research, and organizational and managerial planning. For nursing practice, paying attention to competency is among the main keys of clinical nursing. Competency in nursing practice includes core abilities required to fulfil one’s clinical roles. Thus, it is critical to clearly define the concept to establish a foundation for competent nursing practice.

For nursing education, in-service competency sessions are essential for nurses to expand and update their knowledge and improve their skills. Practice-based learning and individualised learning experiences could be established in in-service competency education programmes. Educators must integrate competency care into the curricula. The profound change in educational policy during the 1980s and 1990s by adopting a competency-based curriculum mandates examining the effects of this curriculum on defining and measuring competency in nursing practice; thus, a policy is warranted. For nursing research, future studies are still needed to examine the impacts of nursing competency on health-related outcomes. Instead of self-rating nursing competency, more objective approaches are recommended to evaluate competencies in nursing practice, such as observing patients, and administrators’ and peers’ evaluations. These different tools are more comprehensive and objective. For organisational and managerial planning, ‘competency in nursing practice’ could be integrated into healthcare organisations’ philosophy, mission and goals. The organisation will be visible to the public in its competency-related matters. Healthcare organisations should provide necessary programmes to develop nurses and other healthcare providers. Having up-to-date knowledge and skills are essential antecedents of competency in nursing practice.

Study limitations

Some limitations should be acknowledged in this concept analysis. The major shortcoming of using Walker and Avant’s eight-step method is that no particular strategy is recommended for outlining the concept’s uses. However, the rigorous methodology used in this analysis has diminished this limitation. The constructed cases in this analysis were artificially developed, restricting their real-world applicability. Despite these limitations, the current analysis may contribute to creating an agreed language enclosing the concept, which helps nurses discern competency from other closely related concepts such as competence.

CONCLUSIONS

Competency is a challenging concept that addresses gaps between theoretical knowledge, education and clinical practice; thus, it warrants more research. A consensus is lacking about several important issues surrounding competency, of which a clear definition of competency. This concept evolves over time; it is defined in the current concept analysis as the ability to execute assigned tasks or actions with the knowledge and skills needed to deliver safe, effective and quality care to individuals. This definition is consistent with the ICN and the ‘holism’ view of competency.

Concept analysis is a useful tool for conducting research in nursing. The outcome of this concept analysis would set the defining characteristics of ‘competency in nursing practice’, which will give the direction of what counts in clinical practice. Moreover, the attributes of competency in nursing practice are applying skills in all aspects of
the nursing practice. These characteristics and attributes would bring safe and high-quality nursing practice.

The definitions, uses, attributes, antecedents and consequences of ‘competency in nursing practice’ were identified. This concept analysis provided further interpretation and specificity to the meaning of competency in nursing practice. The defining attributes of competency in nursing practice were knowledge, self-assessment and dynamic state. The antecedents of competency in nursing practice were education, knowledge, skills and abilities, standards of actions or behaviours, positive attitudes and responsibility for applying the knowledge. Other global antecedents included certain work environments and professional-related and sociodemographic variables. On the global level, 11 components of nursing competency were also identified. The common consequences of competency in nursing practice were decreased serious medical errors, patient safety, improved patient outcomes and nurses’ decision-making, self-assessment and accountability. Most existing tools were developed to assess competency in nursing practice from professionals’ perspectives; thus, new tools are required to measure competency in nursing practice from patients and healthcare administrators’ perspectives.

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Contributors MTM and HYA conceptualised the study, developed literature review, wrote the first draft of the methodology and discussion, and developed the study’s protocol and the summary table of the included studies. AAK wrote the abstract and the significance, synthesised the literature review, and wrote the integrated draft of the methodology and the implications. MJR developed and synthesised concept analysis cases of nursing practice competency and did the critical revisions accordingly. AAK and SA-R did the critical revisions for the whole study, synthesised the whole parts and proofread the first draft of the paper. MTM and AAK wrote the final draft of the paper and supervised the whole work. HYA and AA proofread the final paper and did further syntheses, and HYA supervised the final stages of the paper after both reviews. AAS applied the method part of the concept analysis of competency in nursing. MTM and HYA accept full responsibility for the finished work and/or the conduct of the study as guarantors, had access to the data, and controlled the decision to publish.

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Patient consent for publication Not required.

Ethics approval This study does not involve human participants. As it is a concept analysis, it did not require the approval of an Institutional Review Board.

Provenance and peer review Not commissioned; externally peer reviewed.

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REFERENCES


## Supplemental Table 1. Summary of articles on “competency in nursing practice”

<table>
<thead>
<tr>
<th>#</th>
<th>Title</th>
<th>Year</th>
<th>Design</th>
<th>Major findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Clinical competence in nursing: A hybrid concept analysis</td>
<td>2021</td>
<td>Concept analysis</td>
<td>Clinical competency in nursing is defined as a combination of knowledge, skills, and attitudes consistent with those of the fieldwork phase. Most participants in fieldwork stated that gaining CC is a process achieved over time through practice, repetition, and increasing experience.</td>
</tr>
<tr>
<td>2</td>
<td>Competency in nursing: a concept analysis</td>
<td>2008</td>
<td>Concept analysis</td>
<td>The defining attributes of competency are applying skills in all domains for the practice role, instruction that focuses on specific outcomes or competencies, allowance for increasing levels of competency, accountability of the learner, practice-based learning, self-assessment, and individualized learning experiences. The learning environment for competency assurance involves the learner in assessment and accountability, provides practice-based learning opportunities, and individualizes learning experiences.</td>
</tr>
<tr>
<td>3</td>
<td>Competency: a concept analysis</td>
<td>2008</td>
<td>Concept analysis</td>
<td>The competency of all nurses and healthcare providers must be assessed to provide safe care, protect the public, and maintain the credibility of nurses. Standards must be established and adhered to in practice and evaluation of competency.</td>
</tr>
<tr>
<td>4</td>
<td>A discussion of concepts for promoting nursing core competencies</td>
<td>2010</td>
<td>Concept analysis</td>
<td>Competencies are not nurtured separately. Nursing faculty should provide adequate learning opportunities for their students to help students integrate healthcare knowledge, skills, and attitudes successfully. In addition, the nursing faculty is responsible for guiding students to emphasize quality of care and examine the association of such with professional competencies. Accumulating clinical experience and reflection will assist students in developing integrity and life-long learning abilities and graduating with solid professional competencies.</td>
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<tr>
<td>5</td>
<td>Conceptualizing and determining core clinical competencies in nursing students: a qualitative study</td>
<td>2019</td>
<td>Content analysis</td>
<td>Clinical competency and its dimensions among students comprise a multidimensional concept. Having a clear and comprehensive understanding of this concept and focusing on its core axes may be the most important step in improving students’ clinical competency.</td>
</tr>
<tr>
<td>6</td>
<td>Competency in Nursing Students: A Systematic Review</td>
<td>2016</td>
<td>Systematic review</td>
<td>The individual experiences, dynamic process, and positive interactive social and beneficial changes in the equality of one’s professional life that cause meta-cognitive abilities, touch reality, motivation, decision making, job involvement, professional authority, self-confidence, knowledge, and professional skills formulated the definition of</td>
</tr>
<tr>
<td>No.</td>
<td>Title</td>
<td>Year</td>
<td>Method</td>
<td>Summary</td>
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<tr>
<td>7</td>
<td>A concept analysis of competence and its transition in nursing</td>
<td>2013</td>
<td>Concept analysis</td>
<td>The analysis identified how influential academics and professional bodies have attempted to provide definitions and concluded that so many of these definitions had compounded the problem of what competence is.</td>
</tr>
<tr>
<td>8</td>
<td>Defining Competence in Nursing and Its Relevance to Quality Care</td>
<td>2016</td>
<td>Concept analysis</td>
<td>It is critical to maintaining a stable foundation and unified understanding of the core concept of competence in nursing and its relationship and effect on quality care.</td>
</tr>
<tr>
<td>9</td>
<td>Nursing Competency: Definition, Structure, and Development</td>
<td>2018</td>
<td>Concept analysis</td>
<td>Nursing competency is a core ability that is required for fulfilling nursing responsibilities. Therefore, it is important to clearly define nursing competency to establish a foundation for the nursing education curriculum. It is also important to identify the developmental process of nursing competency for continuous professional development after obtaining a nursing license.</td>
</tr>
<tr>
<td>10</td>
<td>An Analysis of the Competence in Nursing Education</td>
<td>2017</td>
<td>Concept analysis</td>
<td>Using concept analysis resulted in identifying four critical attributes concerning competence applied to nursing practice. The concept analysis revealed difficulty in identifying a clear meaning of the constituents of competence and the definitions assigned to a competent nurse. The four critical attributes were ‘state of being,’ ‘condition of being capable,’ ‘sufficient for the purpose,’ and ‘required ability.’</td>
</tr>
</tbody>
</table>
Supplement File 1: Search protocol

The authors designed and validated a sensitive search technique using indexed and free-text phrases. During the process of creating the study proposal, the review question and the inclusion criteria were used to define the key search keywords. These terms were then produced and evaluated using publications previously known to the research team. The search technique called for constructing strings of phrases and synonyms to capture the following three fundamental concepts from the review:

Concept 1. Concept analysis
Concept 2. Competence
Concept 3. Competency
Concept 4. Nursing

These concepts were combined in searches as follows:

The keywords with Boolean operators used in the searching process were: “Nursing” AND “Concept analysis” AND “Competency” OR “Competence.”

Databases
Searches were undertaken on the following five electronic bibliographic databases:
- ScienceDirect
- PubMed
- ProQuest,
- Scopus
- CINAHL

<table>
<thead>
<tr>
<th>Database</th>
<th>Query</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>PubMed</td>
<td>(((concept analysis[MeSH Terms]) AND (nursing[MeSH Terms])) AND (competency[MeSH Terms])) OR (competence[MeSH Terms])</td>
<td>4,309 - Studies were published between January 1, 2000, to December 31, 2021. - Full-text publications - Written in the English language</td>
</tr>
<tr>
<td>ScienceDirect</td>
<td>&quot;concept analysis&quot; AND &quot;nursing&quot; AND &quot;competency&quot; OR &quot;competence.&quot;</td>
<td>243 - Studies were published between January 1, 2000, to December 31, 2021. - Review article</td>
</tr>
</tbody>
</table>
Filters and limit

- Studies were published between January 1, 2000, and December 31, 2021.
- Full-text publications
- Written in the English language

Result

The first screening of the retrieved articles resulted in selecting 60 articles based on their titles. This number was determined following the initial screening. After doing a full-text screening, it was determined that 50 of the papers were either duplicates or had no relevance to the purpose and setting of the study. In the end, a total of 10 articles were considered for inclusion in this concept analysis.
# PRISMA 2020 Checklist

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<thead>
<tr>
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<tbody>
<tr>
<td><strong>TITLE</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Title</td>
<td>1</td>
<td>Identify the report as a systematic review.</td>
<td>P 1</td>
</tr>
<tr>
<td><strong>ABSTRACT</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Abstract</td>
<td>2</td>
<td>See the PRISMA 2020 for Abstracts checklist.</td>
<td>P 2</td>
</tr>
<tr>
<td><strong>INTRODUCTION</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rationale</td>
<td>3</td>
<td>Describe the rationale for the review in the context of existing knowledge.</td>
<td>P 5, -118</td>
</tr>
<tr>
<td>Objectives</td>
<td>4</td>
<td>Provide an explicit statement of the objective(s) or question(s) the review addresses.</td>
<td>P6 135-137</td>
</tr>
<tr>
<td><strong>METHODS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eligibility criteria</td>
<td>5</td>
<td>Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.</td>
<td>P 6-7 Line : 169 - 173</td>
</tr>
<tr>
<td>Information sources</td>
<td>6</td>
<td>Specify all databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.</td>
<td>P 6-7 Line : -167 168</td>
</tr>
<tr>
<td>Search strategy</td>
<td>7</td>
<td>Present the full search strategies for all databases, registers and websites, including any filters and limits used.</td>
<td>Supplement File 1</td>
</tr>
<tr>
<td>Selection process</td>
<td>8</td>
<td>Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.</td>
<td>P 7 Line 174 - 184</td>
</tr>
<tr>
<td>Data collection process</td>
<td>9</td>
<td>Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process.</td>
<td>P 7 Line 174 - 184</td>
</tr>
<tr>
<td>Data items</td>
<td>10a</td>
<td>List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to decide which results to collect.</td>
<td>P 6-7</td>
</tr>
<tr>
<td></td>
<td>10b</td>
<td>List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information.</td>
<td>Line : 169 - 173</td>
</tr>
<tr>
<td>Study risk of bias assessment</td>
<td>11</td>
<td>Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.</td>
<td>P 6-7</td>
</tr>
<tr>
<td>Effect measures</td>
<td>12</td>
<td>Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results.</td>
<td>NA</td>
</tr>
<tr>
<td>Synthesis methods</td>
<td>13a</td>
<td>Describe the processes used to decide which studies were eligible for each synthesis (e.g. tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)).</td>
<td>Supplement File 2</td>
</tr>
<tr>
<td></td>
<td>13b</td>
<td>Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions.</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>13c</td>
<td>Describe any methods used to tabulate or visually display results of individual studies and syntheses.</td>
<td>Supplement File 2</td>
</tr>
<tr>
<td></td>
<td>13d</td>
<td>Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the</td>
<td>NA</td>
</tr>
</tbody>
</table>
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<tr>
<td>Reporting bias</td>
<td>13e</td>
<td>Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression).</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>13f</td>
<td>Describe any sensitivity analyses conducted to assess robustness of the synthesized results.</td>
<td>NA</td>
</tr>
<tr>
<td>CERTAINTY</td>
<td>14</td>
<td>Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases).</td>
<td>NA</td>
</tr>
<tr>
<td>RESULTS</td>
<td>15</td>
<td>Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome.</td>
<td>NA</td>
</tr>
<tr>
<td>Study selection</td>
<td>16a</td>
<td>Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram.</td>
<td>P 8 Line 197-205</td>
</tr>
<tr>
<td></td>
<td>16b</td>
<td>Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded.</td>
<td>Supplement File 2</td>
</tr>
<tr>
<td>Study characteristics</td>
<td>17</td>
<td>Cite each included study and present its characteristics.</td>
<td>Supplement File 2</td>
</tr>
<tr>
<td>Risk of bias in studies</td>
<td>18</td>
<td>Present assessments of risk of bias for each included study.</td>
<td>NA</td>
</tr>
<tr>
<td>Results of individual studies</td>
<td>19</td>
<td>For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g. confidence/credible interval), ideally using structured tables or plots.</td>
<td>NA</td>
</tr>
<tr>
<td>Results of syntheses</td>
<td>20a</td>
<td>For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies.</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>20b</td>
<td>Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g. confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect.</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>20c</td>
<td>Present results of all investigations of possible causes of heterogeneity among study results.</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>20d</td>
<td>Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results.</td>
<td>NA</td>
</tr>
<tr>
<td>Reporting biases</td>
<td>21</td>
<td>Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed.</td>
<td>NA</td>
</tr>
<tr>
<td>CERTAINTY</td>
<td>22</td>
<td>Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed.</td>
<td>NA</td>
</tr>
<tr>
<td>DISCUSSION</td>
<td>23a</td>
<td>Provide a general interpretation of the results in the context of other evidence.</td>
<td>P 15 -16 Line 359-392</td>
</tr>
<tr>
<td></td>
<td>23b</td>
<td>Discuss any limitations of the evidence included in the review.</td>
<td>P 17 Line 418-425</td>
</tr>
<tr>
<td></td>
<td>23c</td>
<td>Discuss any limitations of the review processes used.</td>
<td>P 17 Line 418-425</td>
</tr>
</tbody>
</table>
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<tbody>
<tr>
<td>OTHER INFORMATION</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Registration and protocol</td>
<td>24a</td>
<td>Provide registration information for the review, including register name and registration number, or state that the review was not registered.</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>24b</td>
<td>Indicate where the review protocol can be accessed, or state that a protocol was not prepared.</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>24c</td>
<td>Describe and explain any amendments to information provided at registration or in the protocol.</td>
<td>NA</td>
</tr>
<tr>
<td>Support</td>
<td>25</td>
<td>Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review.</td>
<td>P 19 Line 472 - 473</td>
</tr>
<tr>
<td>Competing interests</td>
<td>26</td>
<td>Declare any competing interests of review authors.</td>
<td>P 19 471</td>
</tr>
<tr>
<td>Availability of data, code and other materials</td>
<td>27</td>
<td>Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review.</td>
<td>P 19 457-458</td>
</tr>
</tbody>
</table>


For more information, visit: [http://www.prisma-statement.org/](http://www.prisma-statement.org/)
Supplement File 3. Constructed cases for the Competency in Nursing Practice Concept

<table>
<thead>
<tr>
<th>Case and its definition</th>
<th>Example</th>
<th>Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model Case:</strong> This case is where all the key attributes of the concept are demonstrated, contributing to a better understanding of the concept’s meaning (Walker &amp; Avant, 2018).</td>
<td>A 69 years old farmer, a former smoker, had minimal health care in his life and had a strong family history of cancer. One day he was working on the farm and started to cough; he coughed up sputum with tiny streaks of blood. His wife called the hospital and set up an appointment in the medical clinic. During this initial visit, the nurse guided the conversation with questions about his lifestyle, past health, and current health status. As ordered, the nurse assessed vital signs and performed many tests, including blood work and a chest x-ray. The patient was released at this moment but was immediately followed up that evening via phone call to his home. The chest x-ray showed some opacity, possibly malignancy, and a C.T. Scan of the chest was ordered for the day after. Now two days after the first initial visit, the nurse has not forgotten this patient; she has been busy gathering information regarding consultations with various pulmonologists and oncologists in his surrounding area, considering his lifestyle and what would be the best fit for his life. During this C.T. Scan of the chest, the nurse knew what time his appointment was and made it a point to stop by the radiology office to see this patient.</td>
<td>This nurse showed not only the critical attributes of competency (knowledge, self-assessment, actions, professional standards, and dynamics) as identified in this analysis. She also used them as a guide, utilizing a diverse approach to health and illness. The patient was diagnosed with lung cancer and was taken over by the care of an oncologist. With her expertise in her practice, this nurse recognized valuable information regarding the patient’s personal and economic life and made a plan that benefited the patient and his family while not deferring from his medical care.</td>
</tr>
<tr>
<td><strong>Related Case:</strong> It demonstrates key attributes connected to the concept but not containing all its defining attributes (Walker &amp; Avant, 2018).</td>
<td>Three years ago, M.T. started her work in the hemodialysis unit at the hospital where she worked. M.T. has significantly upgraded her technical skills throughout her career, and she can easily and independently run the hemodialyzer and initiate hemodialysis for patients. Because M.T. thinks she is</td>
<td>This case demonstrates the concept of technical capability, which is very related to the concept of competency. In the abovementioned case, M.T. was very capable of technical skills, and her knowledge of how to initiate hemodialysis for her patients is employed. However, the case did not</td>
</tr>
<tr>
<td>It elucidates the position of these attributes within the network of related concepts.</td>
<td>competent in this skill, she demanded not to enroll in continuing education programs to expand her knowledge base or further master her technical skills.</td>
<td>demonstrate other defining attributes, such as professional standards and dynamics.</td>
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<tr>
<td>---</td>
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</tr>
<tr>
<td><strong>Borderline Case: This case contains most of the concept’s defining attributes (Walker &amp; Avant, 2018).</strong> However, it reveals how some key concept characteristics are often missed.</td>
<td>Mrs. Y.M. is a nurse working in a neuroscience trauma unit. For two days in a row, the nurse cared for a female patient with a right femur fracture and a pelvic fracture. Naturally, it was difficult and painful for her to move. Mrs. Y.M., as a nurse, knows that it is also necessary for her to move. The first day Mrs. Y.M. took care of this patient, the nurse wanted to get her up and out of bed 1-2 times during the day and reposition her every 2 hours. The patient did this with little complaint or difficulty. The next day, the nurses demanded that the patient gets out of bed at least four times during the day and two times during the night shift. She pulled the foley’s catheter, informed the patient that she would use the bedside commode, and quickly left the room. After the nurse left, the patient was in tears.</td>
<td>The way this nurse approached the care of this patient was missing some of the key attributes of competency. While Mr. Y.M. implemented evidence-based knowledge as a guide to practice, expert clinical reasoning, and skillful performance, she failed to implement the characteristics of self-assessment and professional standards. The root of her failure lay in the oversight of evaluating the effectiveness of her performance and applying professional-ethical standards. This nurse should have taken the time and effort to evaluate the effectiveness of her performance and applied the professional-ethical standards. If she had done so, she might have recognized the amount of stress this patient was experiencing in her physical environment, recognized her assumptions about the patient’s rights and responsibilities, and even approached the management of this patient’s “illness” differently. If she had applied the attributes of self-assessment and professional standards, this nurse’s expectations of the patient would not have been felt and perceived as so daunting and unachievable by the patient. Instead, the patient may feel encouraged and motivated to perform the tasks at hand because she has been included in the treatment actions and understood the benefits of the abovementioned tasks.</td>
</tr>
<tr>
<td><strong>Contrary Case: This case exemplifies the opposite meaning of the concept (Walker &amp; Avant, 2018).</strong></td>
<td>A.S. is a nurse working in a nursing home. The registered nurse is responsible for conducting weekly physical examinations according to the resident’s condition. A.S. thinks the assessment is unnecessary</td>
<td>The nurse has just gone through the daily documentation routine rather than skillfully employing comprehensive physical examination as an essential nursing action. A.S. represents the nurse who has not exhibited competency in...</td>
</tr>
<tr>
<td>for the resident to walk across the hallway and be involved in their scheduled physiotherapy program. The nurse thinks it is better to utilize the “physical examination” time in keeping informed about paperwork.</td>
<td>conducting the needed assessment and has made incorrect clinical judgments and actions required for a professional nurse.</td>
<td></td>
</tr>
</tbody>
</table>