

Review

Measurement of critical thinking, clinical reasoning, and clinical judgment in culturally diverse nursing students – A literature review[☆]

Christine L. Sommers

Universitas Pelita Harapan, Faculty of Nursing, J. Jenderal Sudirman Boulevard, No. 15, Lippo Karawaci, Tangerang, 15811, Indonesia

1. Introduction

There is a need for nursing education globally to assist nursing students in developing the skills of critical thinking, clinical reasoning, and clinical judgment. Developing these skills will require that nursing students develop the ability to: (a) analyze collected data (critical thinking), (b) apply reasoning to the data obtained (clinical reasoning), and (c) appropriately act based on the specific situation (clinical judgment) (Victor-Chmil, 2013). It is expected that nursing students worldwide graduate with all three skills to meet diverse health needs, in both urban and remote areas, and to provide safe and effective patient care (Berkow et al., 2008; Cronenwett et al., 2007; International Council of Nurses, 2009; Lovett and Gidman, 2011). However, these skills may be exhibited and defined differently in various cultural groups (Lasater, 2011; Tian and Low, 2011). Effective evaluation of these skills will require measurement tools that are available and applicable for use with nursing students from all cultures. The purpose of this paper is to review recent literature to determine what measurement tools are available to evaluate critical thinking, clinical reasoning, and/or clinical judgment in nursing students from diverse cultures.

What is the relationship between culture and learning? If there is a relationship, would the effect of culture on learning also influence critical thinking, clinical reasoning, and/or clinical judgment? The cultural values of an individual will affect learning style preferences (Holtbrügge and Mohr, 2010). Students' cultural values will also influence motivation, ways of thinking, respect for elders, group expectations, and style of communication, (Brown et al., 2013; Coburn and Weismuller, 2012; Frambach, Driessen, Beh and van der Vleuten, 2014). This influence may result in some students not speaking up in discussions or asking questions in class, as those behaviors may be considered unacceptable in some cultures (Frambach et al., 2014; Fung, 2014; Henze and Zhu, 2012).

Sommers (2014), in a review of the literature related to problem-based learning methods to promote critical thinking among nursing students from differing cultures, noted that there was very limited research in nursing that examined the relationship between culture and learning. A conclusion of that review was in order to prepare nursing graduates to meet patient care needs globally, nurse educators need to

teach in a culturally congruent manner, and therefore, need to know more about how culture may affect learning (Sommers, 2014). To develop culturally sensitive and supporting learning environments that promote the development of the skills of critical thinking, clinical reasoning, and clinical judgment, it is vital that nurse educators understand how to work with the unique knowledge and skills of ethnically diverse students (Veal et al., 2012). This will include nurse educators being aware that students who have only been exposed to teacher-centered methods (i.e. lecture) may struggle when initially exposed to student-centered methods (i.e. flipped classroom, group work, team learning, problem-based learning) (Bestetti et al., 2014; Frambach et al., 2014; Gilligan and Outram, 2012; Hayes et al., 2015).

As approaches to learning are ingrained and shaped by an individual's culture, caution is required when using tools that were developed for Western cultures for use in non-Western learners (Brown et al., 2013). Carter, Creedy, and Sidebotham (2015), in their review of tools to measure critical thinking in nursing and midwifery students, noted that the measurement of critical thinking in some of the studies reviewed may have been influenced by the impact of culture on different learning environments. Therefore, it is important that any tools used to measure critical thinking, clinical reasoning, and clinical judgment are appropriately culturally contextualized during the translation process (Hwang et al., 2010; Shin et al., 2015a; Shin et al., 2014; Yu et al., 2013).

2. Search strategies

Electronic databases were searched for papers related to measurement tools that have been used to measure critical thinking, clinical reasoning, and/or clinical judgment in nursing students from diverse cultures. The databases of PubMed, CINAHL, ERIC, PsychINFO, and ProQuest databases were searched. The search was limited to recent articles and dissertations published between 2010 and 2016 that were accessible in the English language. The search terms used were “measurement” AND “critical thinking OR clinical reasoning OR clinical judgment” AND “nursing student OR undergraduate nursing OR nursing education”.

The initial search identified 211 papers (Fig. 1). Inclusion criteria

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E-mail addresses: christine.sommers@uph.edu, csommers@kumc.edu.

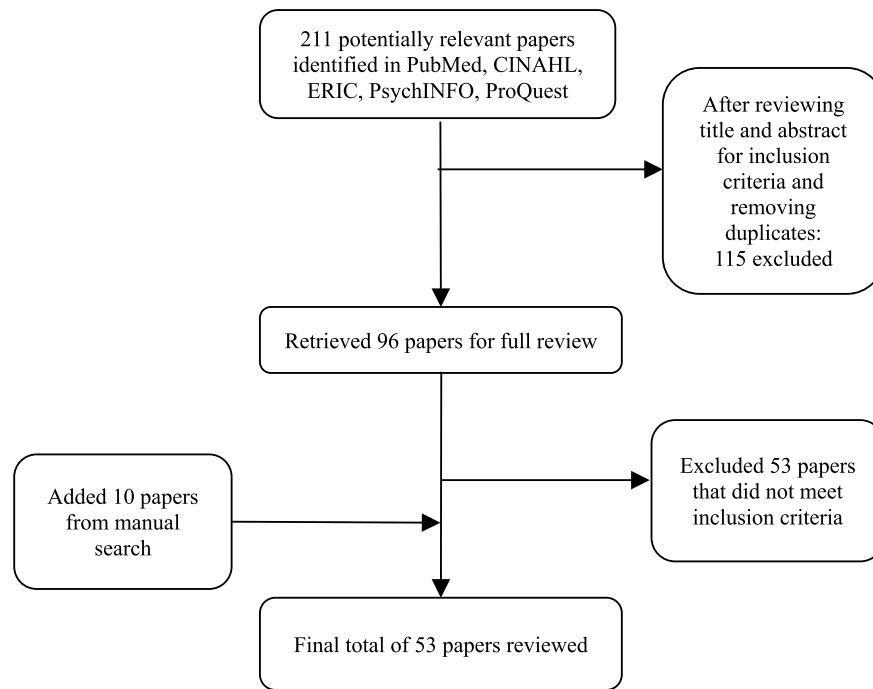


Fig. 1. Flowchart of selection of articles.

were papers that discussed measurement tools used to evaluate critical thinking, clinical reasoning, or clinical judgment in nursing. Once duplicates were removed, the title and any available abstract were reviewed for meeting the inclusion criteria. Ninety-six papers met this initial review. Full-text of those papers were obtained and screened for inclusion criteria. Another 53 papers did not meet the inclusion criteria and were discarded. A manual search of articles added an additional ten papers that also met the inclusion criteria, for a final total of 53 papers reviewed.

To facilitate the review of this large volume of papers, a literature review matrix was developed. The matrix method is a spreadsheet or table to use to abstract selected information from each paper in a review (Garrard, 2014). The use of the matrix enabled being able to view the different papers in summary form and quickly identify which skill was measured, how it was measured, and the country of the participants.

3. Results

Of the 53 papers that were reviewed, the majority ($n = 38$) measured critical thinking. Clinical reasoning was measured in four papers and clinical judgment was measured in eleven papers. There were five papers that focused on providing a literature review; four of these focused on critical thinking (Carter et al., 2015; Romeo, 2010; Salsali et al., 2013; Zuriguel Perez et al., 2015) and one focused on clinical judgment (Victor-Chmil and Larew, 2013). The other 48 papers focused on describing and/or validating a measurement tool or model; using a measurement tool to determine if a teaching strategy improved critical thinking, clinical reasoning, or clinical judgment; and/or examining relationships between a concept and measuring critical thinking, clinical reasoning, or clinical judgment.

3.1. Critical thinking

Critical thinking is necessary for nursing (Romeo, 2010) and is a vital component of clinical judgment in nursing practice (Pai and Eng, 2013). Caring behaviors play a key role in the disposition toward critical thinking (Pai and Eng, 2013) and both should be included in

nursing curriculum. Measurement of critical thinking in students should occur at multiple points in the nursing curriculum to obtain information about development of critical thinking skills, achievement of educational outcomes and objectives, and the influence of specific teaching strategies to improve critical thinking (Dembitsky, 2011; Hunter et al., 2014; Lee et al., 2011; Newton and Moore, 2013; Paul, 2014; Swing, 2015).

Multiple tools were used to measure critical thinking (Table 1). Of the commercially developed tools, the most common were California Critical Thinking Skills Test (CCTST) and California Critical Thinking Disposition Inventory (CCTDI) and variations of CCTST and CCTDI (Azizi-Fini et al., 2015; Blondy, 2011; Fero et al., 2010; Gorton and Hayes, 2014; Hwang et al., 2010; Pai and Eng, 2013; Pai et al., 2013; Salsali et al., 2013; Searing and Kookan, 2016; Shin et al., 2015b; Sinatra-Wilhelm, 2012; Yu et al., 2013). The CCTST and the CCTDI were the only commercially developed tools that were translated into other languages (Persian, Japanese, and Chinese).

Other commercially developed tools that were used to measure aspects of critical thinking were

- Critical Thinking Assessment Entrance Test (Newton and Moore, 2013);
- Educational Resources Incorporated (ERI) RN Assessment test (Romeo, 2013);
- Health Education Systems, Incorporated Critical Thinking Specialty Exam (Brown Basoné, 2014; Greggs, 2014; Kaddoura et al., 2016; York, 2010);
- Health Sciences Reasoning Test (Goodstone et al., 2013; Hooper, 2014; Hunter et al., 2014; Pitt et al., 2015; Shinnick and Woo, 2013);
- InterEd Critical Thinking Nursing Instrument (Abell et al., 2013);
- Kaplan Assessment Tests (Greggs, 2014; Swing, 2015); and
- Watson-Glaser Critical Thinking Appraisal (Crouch, 2015).

Several other studies used tools or methods that were developed by the researchers to evaluate and define critical thinking (Chong et al., 2016; Dembitsky, 2011; Fountain, 2011; Gantt, 2010; Hsu and Hsieh, 2013; Jenkins, 2011; Lee et al., 2011; Moattari et al., 2014; Paul, 2014).

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