



Review

Instruments evaluating the quality of the clinical learning environment in nursing education: A systematic review of psychometric properties



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ABSTRACT

Background: The clinical learning environment is fundamental to nursing education paths, capable of affecting learning processes and outcomes. Several instruments have been developed in nursing education, aimed at evaluating the quality of the clinical learning environments; however, no systematic review of the psychometric properties and methodological quality of these studies has been performed to date.

Objectives: The aims of the study were: 1) to identify validated instruments evaluating the clinical learning environments in nursing education; 2) to evaluate critically the methodological quality of the psychometric property estimation used; and 3) to compare psychometric properties across the instruments available.

Design: A systematic review of the literature (using the Preferred Reporting Items for Systematic Reviews and Meta-Analysis guidelines) and an evaluation of the methodological quality of psychometric properties (using the CONsensus-based Standards for the selection of health Measurement INstruments guidelines).

Data sources: The Medline and CINAHL databases were searched. Eligible studies were those that satisfied the following criteria: a) validation studies of instruments evaluating the quality of clinical learning environments; b) in nursing education; c) published in English or Italian; d) before April 2016.

Review methods: The included studies were evaluated for the methodological quality of the psychometric properties measured and then compared in terms of both the psychometric properties and the methodological quality of the processes used.

Results: The search strategy yielded a total of 26 studies and eight clinical learning environment evaluation instruments. A variety of psychometric properties have been estimated for each instrument, with differing qualities in the methodology used. Concept and construct validity were poorly assessed in terms of their significance and rarely judged by the target population (nursing students). Some properties were rarely considered (e.g., reliability, measurement error, criterion validity), whereas others were frequently estimated, but using different coefficients and statistical analyses (e.g., internal consistency, structural validity), thus rendering comparison across instruments difficult. Moreover, the methodological quality adopted in the property assessments was poor or fair in most studies, compromising the goodness of the psychometric values estimated.

Conclusions: Clinical learning placements represent the key strategies in educating the future nursing workforce: instruments evaluating the quality of the settings, as well as their capacity to promote significant learning, are strongly recommended. Studies estimating psychometric properties, using an increased quality of research methodologies are needed in order to support nursing educators in the process of clinical placements accreditation and quality improvement.

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What is already known about the topic?

- Clinical learning effectiveness is affected by the environment in which nursing student placement takes place.
- Higher education institutions should systematically evaluate the quality of the clinical learning environments.
- To date, different instruments have been developed to evaluate nursing clinical environments but no systematic review has evaluated their psychometric properties and methodological quality.

What the paper adds

- Eight instruments evaluating the clinical learning environments as perceived by nursing students have been evaluated for their psychometric properties.
- Not all relevant psychometric properties have been considered in the validation studies and often the methodological approaches used are poor or fair.
- Studies estimating psychometric properties, using increased quality of methodologies in the validation processes, are needed urgently.

1. Background

Becoming a nurse entails a complex educational path promoting several types of learning processes. Nursing students develop theoretical knowledge from lessons and seminars, and it is expected that this theoretical knowledge will be transformed into competences through clinical placement experiences, both at hospital and community levels (Flott and Linden, 2016). During clinical placement students are exposed to real-life situations and called upon to deal with real problems (Benner, 2003). Thus, clinical placements became opportunities to observe clinical nurses, to be exposed to role models, to reflect upon what is seen, heard, sensed or done; to understand personal attitudes and expected professional values, to develop cognitive, psychomotor and communication skills (Chan, 2001), critical thinking and diagnostic reasoning (Papathanasiou et al., 2014), and finally, to become an independent practitioner.

A recent concept analysis has defined the clinical learning environment as any area where nursing students apply theory to practice by conducting actual or simulated patient care to gain the skills, attitudes and decision-making abilities required to become a competent, entry-level nurse. The clinical learning environment includes physical space, psychosocial and interaction factors, the teaching effectiveness of the instructor, student engagement and organisational culture, all of which have an impact on students' capacity to achieve the desired learning outcomes (Flott and Linden, 2016).

Nursing students themselves perceive clinical placement as the most influential context in which they become a nurse (Chan, 2001). Experiencing a positive clinical learning environment increases learning outcomes as well as skill and knowledge acquisition (Flott and Linden, 2016; Henderson et al., 2011). In contrast, experiencing a negative clinical learning environment negatively affects the learning process, satisfaction and self-confidence (Flott and Linden, 2016; Levett-Jones and Lathlean, 2009).

Given its importance, higher educational institutions are recommended to assess clinical learning environments (Flott and Linden, 2016). However, to date only two reviews have been published on the instruments available for evaluating the quality of clinical learning environments. Hooven (2014) conducted an integrative review, analysing the instruments available and identifying the fundamental dimensions used in evaluating the clinical learning environment. Previously, Soemantri et al. (2010)

performed a systematic literature review, aimed at identifying the tools used to measure the quality of educational environments and understand their practical suitability. Different types of environments were included, e.g. medical schools, college and university classrooms, surgical theaters, and clinical learning environments. Moreover, authors reviewed the available instruments for all health-care students by summarising content validity, criterion validity, construct validity and reliability.

Therefore, no systematic review has been performed to date that specifically focuses on instruments evaluating the quality of nursing clinical learning environments, and no study has assessed and compared the psychometric properties estimated for the instruments available. Thus, the general purpose of this study was to summarise and critically evaluate the instruments that assess the quality of clinical learning environments in nursing education.

2. Aims

In the field of clinical learning environment quality assessment, the aims of the study were: 1) to identify the instruments undergoing validation processes; 2) to evaluate critically the quality of the methods used in ascertaining psychometric properties; and 3) to compare the estimated psychometric properties of the instruments available.

3. Study design and process

A systematic review of the literature was performed in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) guidelines (Moher et al., 2009). The included studies were evaluated with respect to their methodological quality using the Consensus-based Standards for the selection of health Measurement INstruments (COSMIN, Mokkink et al., 2010), an instrument aimed at evaluating the methodological quality of a validation study by assessing the properties estimated against established standards. Finally, different clinical learning environment instruments were compared, considering both the goodness of the psychometric properties estimated and the quality of the methods used when assessing these properties.

3.1. Search strategy

The search strategy was applied to Medline and CINAHL databases by combining the following MeSH terms: "Clinical Learning Environment" AND "Perception" OR: "Education, Nursing, Baccalaureate", "Students", "Students, Nursing", "Personal Satisfaction", "Survey and Questionnaires", "Psychometrics", "Factor Analysis, Statistical". For Medline, "Clinical Learning Environment" was replaced with two keywords: "Learning Environment" AND "Educational Environment" in accordance with the MeSH database dictionary definitions.

Eligible studies were those that satisfied the following criteria: a) validation studies of instruments evaluating the quality of clinical learning environments; b) pertaining to nursing education; c) published in English or Italian; d) before April 2016. No limitation for time was introduced while studies were excluded if they a) did not provide instrument data on validation processes (e.g., investigating students' perceptions), b) involved students enrolled in healthcare programmes other than nursing (e.g., medical students) without differentiating data on nursing students, and/or c) measured different educational settings (e.g., classrooms).

One researcher (IM) conducted the literature search and two researchers (IM, AP) worked independently to evaluate study eligibility on the basis of the title and contents of each abstract

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