



Original research

Consistency in grading clinical skills

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ARTICLE INFO

Keywords:

Competence

Competency assessment

Interrater reliability

ABSTRACT

Prelicensure nursing students have historically had differing experiences in a health assessment course and have identified inconsistencies among faculty grading physical examinations. The purpose of this study was to examine interrater agreement among nurse educators grading summative physical examinations performed by nursing students. Six nurse educators with experience in teaching and evaluating students in a health assessment course observed and independently graded a physical examination performed by a simulated student actor on a simulated patient actor. The physical examination was simultaneously audio-visually recorded. Approximately one month later, study participants re-graded the recording of the physical examination. Following this, interrater agreement was determined for live versus recorded grading. Acceptable levels of interrater agreement with both methods of grading were found. However, a discrepancy in pass/fail determinations among evaluators existed with both methods of grading. Measurement of percent agreement on individual checklist items revealed items with unacceptable interrater agreement, as well as several challenges with checklist documentation, giving direction for further evaluator training and checklist refinement in order to promote interrater agreement.

1. Introduction

Student evaluation is an important role for nurse educators. Evaluation encompasses assessment of both knowledge and clinical skills. An emphasis has been placed on the clinical competence of health care professionals. In fact, the assessment of clinical competence has been identified to be crucial in health professional education (Mitchell et al., 2009; Snodgrass et al., 2014). Furthermore, it has been suggested that nurse educators are responsible for preparing students to become safe and competent practitioners (Hodson Carlton, 2012; Veltri and Warner, 2012).

As part of the faculty role, it is imperative for nurse educators to be concerned with objectivity, fairness, and equity with respect to student assessment, which will be evidenced in consistent grading practices carried out by educators. The aim of this paper is to report one part of a pilot study investigating consistency in the grading of clinical skills by nurse educators in a prelicensure, baccalaureate nursing course.

2. Background and review of the literature

In the United States (US), a number of entities impact the profession of nursing and the education of nursing students. An overwhelming drive by accrediting bodies exists for robust program evaluation by nursing programs. Evaluation of a program's processes and product is

vital to ensure desired outcomes (Lewallen, 2015). Program evaluation includes student feedback, for example through course evaluations, and is intended to provide objective data to guide decision making and planning for improvement (Lewallen, 2015).

Other organizations, such as the National Academy of Medicine (formerly called the Institute of Medicine) and the National Council of State Boards of Nursing (NCSBN) exert influence over nursing programs. The Institute of Medicine (2011) has called for improvement in the quality of health care and patient safety. Unsafe nursing practice may harm patients and negatively impact the quality of health care. Ensuring patient safety and improved quality of health care may be dependent upon the competence of health care providers, including nurses and nursing students. The NCSBN, comprised of state boards of nursing, is concerned with protecting the health and welfare of the public by ensuring the provision of safe and competent nursing care (National Council of State Boards of Nursing, 2018). According to the NCSBN (2018), nurse educators play a role in verifying that students are clinically competent and capable of safely practicing nursing.

2.1. Competence

The NCSBN (2004) defined competence as “the application of knowledge and the interpersonal, decision-making and psychomotor skills expected for the practice role ...” (p.174). The development of

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competence commences during prelicensure, undergraduate nursing education (Alexander, 2014; Vernon et al., 2011). As defined by the NCSBN, psychomotor clinical skills are a component of nursing competence, and are a vital part of undergraduate nursing education.

In order to ensure competent and safe practice of clinical skills, nursing students are provided educational opportunities to master clinical skills in learning resource centers or clinical skills laboratories (CSL) prior to the application of these skills on real patients. In a qualitative study examining the role of CSL, Houghton et al. (2012) found that CSL provided students with an authentic learning environment and simulation technology for learning that helped to link theory and practice, and prepared students for the realities of a clinical setting. In addition to providing students with learning opportunities, CSL serve the purpose of assessing student performance of clinical skills (Houghton et al., 2012). Clinical skills taught to prelicensure nursing students include those related to physical examination, the accurate performance of which may promote patient safety and outcomes in clinical settings.

2.2. Evaluation of clinical skills

An emphasis on quality and safety in health care has led to the need for accurate evaluation of performance in order to promote safe professional practice (Clark, 2015; Zasadny and Bull, 2015). Furthermore, Roberts (2011) advocated for the assessment of fitness to practice in nursing education. Clinical examinations may be utilized in nursing programs to assess the acquisition of knowledge and skills required for safe and accountable practice (Mårtensson and Löfmark, 2013). Moreover, Oermann et al. (2016) have promoted the determination of clinical competence in students through simulation-based assessments at the end of nursing courses or programs.

Nurse educators evaluate student learning and competence through a variety of methods, including written assignments, self-assessments, simulations, and direct observation of student performance of clinical skills (Bourke and Ihrke, 2012; Oermann et al., 2009). Several issues have been identified in the literature with regards to the evaluation and grading of clinical skills through observation, including observer bias (Calman et al., 2002; Roberts, 2011), lack of objectivity, inequality (Cant et al., 2013), grade inflation, unaccountability of assessors (Donaldson and Gray, 2012), and challenges with consistency in grading (Donaldson and Gray, 2012; Zasadny and Bull, 2015).

In an effort to assess clinical skills in a realistic and objective fashion, the objective structured clinical examination (OSCE) was developed in Scotland in 1975 for evaluation of medical students (Walsh et al., 2009). Since its development, the use of the OSCE has been widely instituted by multiple health care disciplines (Alinier, 2003; Alinier et al., 2006), including nursing, for the assessment of clinical competence (Bagnasco et al., 2016; Jones et al., 2010; Rushforth, 2007; Smith et al., 2012) and the ability to apply theoretical knowledge to practice (Henderson et al., 2013). Traditionally, the OSCE has been set up as a variety of stations that students rotate through individually for a specified length of time (Alinier et al., 2006; Walsh et al., 2009). Stations may be set up to assess the performance of clinical skills, such as history taking or physical assessment on real or standardized patients, while at other stations students may be asked to provide written answers to questions or scenarios (Alinier et al., 2006; Rushforth, 2007; Walsh et al., 2009). Examiners remain at the same station for the duration of the session (Rushforth, 2007) and assess students' performance against specified pre-determined criteria (Alinier et al., 2006; Walsh et al., 2009). It is noteworthy, however, that in nursing education, a variety of approaches that differ from the traditional OSCE have been made, including scenario based assessment, student performance of a full physical examination, and simulated assessment with random allocation of students to a small number of OSCE stations (Rushforth, 2007).

In medical education, the OSCE has been regarded as a valid and

reliable method for assessment of clinical competence (Rushforth, 2007; Walsh et al., 2009). In a review of literature on the use of OSCEs in nursing education, Walsh et al. (2009) found that reliability and validity were inconsistently reported, and called for the establishment of psychometric properties of this method of student evaluation in nursing. Similar concerns over reliability and validity of the OSCE have been identified by others (Barry et al., 2013; Jones et al., 2010; McWilliam and Botwinski, 2012; Smith et al., 2012). Further research has been conducted on the use of OSCEs in nursing education, with literature providing evidence that the OSCE is a valid and reliable method for assessing the clinical competence of nursing students (Bagnasco et al., 2016; McWilliam and Botwinski, 2012; Selim et al., 2012; Smith et al., 2012). Several factors have been identified as contributing to the objectivity of the OSCE, including preparation of examiners and standardized patients, and the use of appropriate marking sheets (Alinier et al., 2006; Jones et al., 2010; McWilliam and Botwinski, 2012).

Objective structured clinical examinations have been utilized in nursing education to assess nurse practitioner students performing physical examinations on standardized patients or student volunteers (Clark, 2015; Khattab and Rawlings, 2001; Kurz et al., 2009). Clark (2015) performed a pilot study to investigate the feasibility for a nurse practitioner program to use the OSCE and a checklist developed for assessing medical students. Kurz et al. (2009) evaluated students performing physical examinations based on a competency checklist that included history taking, physical examination, and communication skills. Khattab and Rawlings (2001) used a systems-based checklist in an exploratory study, since their focus was on the evaluation of physical examination techniques and skills possessed by students. Similarly, student evaluations in prelicensure health assessment courses commonly focus on the correct techniques for performing physical examinations. However, there is a paucity of literature on the use of OSCEs for the evaluation of physical examination skills at the undergraduate level.

2.3. Consistency in grading

Irrespective of methods and tools used to evaluate student performance, consistency in grading is essential. In fact, O'Flynn-Magee and Clauson (2013) have posited that fair and consistent grading is a professional responsibility of nurse educators. Consistency in grading among faculty members may result in improved equity in the evaluation process. Additionally, consistency may help to ensure that a pre-established level of clinical competency is similarly met by all nursing students in a cohort. In contrast, inconsistent grading practices among educators may lead to inequity in the evaluation of student performance, dissatisfaction among students, and varying levels of clinical competency.

When multiple faculty members are used to assess clinical skills, it has been recognized that maintaining consistency across assessors is challenging (Donaldson and Gray, 2012). However, ensuring interrater reliability when more than one individual is collecting evaluation data is imperative (Bourke and Ihrke, 2012; Oermann et al., 2016; O'Leary, 2015). Consistency among multiple evaluators may be measured by percent agreement (Clark, 2015; McHugh, 2012; Ryan-Wenger, 2010) or the establishment of interrater reliability (McHugh, 2012; Waltz et al., 2010). Clark (2015) used percent agreement as a measure of faculty agreement for scoring student performance in a pilot study evaluating the use of a checklist for assessing nurse practitioner student competence in history taking and physical examination skills. Results indicated overall agreement among faculty members evaluating student performance (Clark, 2015). According to Walsh et al. (2009), researchers have examined and reported interrater reliability during OSCEs. Unfortunately, in the nursing literature related to the evaluation of clinical skills, the establishment of interrater reliability is inconsistently addressed. In two studies related to the assessment of nurse

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