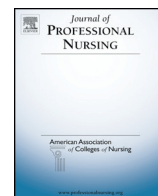




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The mediating effect of self-reflection and learning effectiveness on clinical nursing performance in nursing students: A follow-up study

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ABSTRACT

The effectiveness of simulation learning and the effects of anxiety in the simulated situation have been understudied. In addition, research on the association between learning effectiveness and students' clinical care performance in the hospital setting is very limited in Taiwan. The aim of this study is to examine the mediating effect of self-reflection and simulation learning effectiveness on the clinical nursing performance of nursing students. A Prospective, longitudinal, and correlational design was used. The study was conducted from December 2014 to July 2015. Participants were 293 nursing students in southern Taiwan. A structural model was specified and tested using partial least squares structural equation modeling to examine the relationships between the variables. The results revealed that the model was robust in terms of its measurement quality (reliability, validity, and goodness of fit), with the data's explaining 38.3% of variance in nursing competence. As self-reflection and learning effectiveness were added into the structural model, the effect of anxiety on nursing competence was still significant, but the regression coefficient (β) estimate of -0.41 ($p < 0.05$) changed to $\beta = -0.15$ ($p < 0.050$), indicating that self-reflection and learning effectiveness mediated the relationship between anxiety and nursing competence. Nursing competence was negatively affected by anxiety and positively affected by self-reflection ($\beta = 0.49$, $p < 0.05$) and simulation learning effectiveness ($\beta = 0.10$, $p < 0.05$). The teacher's encouraging learning can have a positive influence on students' self-reflection and learning effectiveness, which then decreases the effect of anxiety on nursing competence and further promotes students' clinical care ability.

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The aim of nursing education is to facilitate students to develop into professional nurses through a connection to both theoretical knowledge and clinical practice. As health care and technology continue to advance, there has been increasing concern about patient safety. To respond to this concern, nursing programs in Taiwan have begun to incorporate simulation courses. Educators have found, however, that the creation of a simulated clinical environment may lead to students' experiencing stress and anxiety, which, in turn, may influence students' learning outcomes (Goff, 2011; Roh, Kim, & Kim, 2014). Although an appropriate amount of stress not only improves learning motivation but also helps learning effectiveness, too much stress can have a negative influence and can result in severe anxiety and a sense of failure.

Nursing students' facing stress and anxiety in clinical experience or laboratory practice is not a new phenomenon. The literature contains many studies about nursing students' anxiety in clinical practice and how it affects students' abilities to think, learn, and perform in simulation clinical practice (Cook, 2005). Research also has indicated that

clinical instructors' teaching behaviors affect students' anxiety (Cook, 2005; Ganzer & Zauderer, 2013; Moscaritolo, 2009). No study, however, has specifically explored the effect of the effectiveness of simulation learning and self-reflection on the relationship between anxiety and clinical nursing performance in the hospital setting. Therefore, the aim of the present study was to examine the relationship among perceived teacher's competence in encouraging learning, self-reflection and insight, learning effectiveness, state anxiety, and holistic nursing competence as well as to investigate the hypothesis that both simulation learning effectiveness and self-reflection mediate the association between state anxiety and nursing performance.

Background and literature review

Simulation activities and anxiety

To ensure patient safety, before nursing students participate in a hospital clinical practicum, the use of simulation as a clinical learning activity is helpful and has been a growing practice in nursing education in Western countries. Recently, nursing programs in Taiwan also have

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started using simulation. It has been found, however, that a simulated clinical experience can cause anxiety in learners and may interfere with their learning effectiveness. In regard to anxiety, Spielberger's (2013) state-trait anxiety theory posits that state anxiety is a feeling of tension and apprehension that results when a person perceives a threatening circumstance. In addition, Cheung and Au (2011) noted that managing clinical anxiety among nursing students may improve their learning and clinical performance.

Factors related to clinical nursing competence

Previous studies have indicated that teaching strategies were significantly associated with students' self-reflection and learning effectiveness in the simulation experience (Khalaila, 2014). As such, teacher behavior influences students' learning outcomes. Invitational education theory provides a similar concept, positing that students are able and valuable and should be treated accordingly by the educator (Novak & Purkey, 2001). The implication is that educators need to focus on creating a positive climate and adopting an "inviting stance" that includes optimism, respect, trust, and care, as they invite others to share their opinions or experiences (Novak & Purkey, 2001). In keeping with Purkey and Novak (2008) stated that educators need to create positive learning experiences that do not lead to stress and anxiety. Cook (2005) found that nursing students' perceptions of clinical faculty's inviting behaviors influence students' state anxiety level. Specifically, educators' showing respect and acting trustful of students lowers their state anxiety level. Educators' fostering a supportive learning environment decreases students' anxiety and enhances learning outcomes (Moscaritolo, 2009).

The role of learning effectiveness and self-reflection and insight for nursing clinical competence

Bandura (1986, 1997) stated that incorporating teaching and learning strategies that enhance learner self-efficacy would improve clinical competence. Specifically, self-efficacy has a mediating effect between teaching strategies and clinical competence. Moscaritolo (2009) recommended that future empirical study examine the relationship of teaching strategies to students' perceived anxiety and clinical performance.

Also relevant is the Newman system model (Fawcett & Desanto-Madeya, 2012), which emphasizes the wellness of individual systems in relationship to environmental stressors and an individual's reactions to these stressors. When an individual experiences stress and responds with anxiety, his or her normal lines of defense are broken. According to this model, protective factors can help return an individual to his or her normal line of defense. The protective factors, as applied to the clinical learning environment in this study, are learning effectiveness and self-reflection.

Previous research has shown that a sense of self-efficacy is positively related to academic achievement and skill performance (Pintrich & de Groot, 1990; Stajkovic & Luthans, 1998; Zimmerman, 1990). Similarly, Murray, Grant, Howarth, and Leigh (2008) stated that learning efficiency in the simulation experience enhances students' clinical practice competence. Asselin and Fain (2013) indicated that self-reflection can improve an individual's critical thinking, which subsequently leads to insight and change in a student's approach to patient care (Lew & Schmidt, 2011) and the student's nursing competence (Ambrose & Ker, 2014; Eng & Pai, 2015). Several studies have reported that the self-reflective process can lead to behavior change through professional awareness, which enhances patient care ability (Gardner, 2013; Harris, 2005; Parekh & Thorpe, 2012; Strandbygaard et al., 2013). Thus, research on the relationships among learning effectiveness, self-reflection, and students' clinical case performance in a hospital setting is recommended.

Aims

The aims of the present paper are based on invitational education theory and the Newman system model. In this paper, we contribute to the literature by investigating the relationship among perceived teacher's competence in encouraging learning, self-reflection and insight, learning effectiveness, and holistic nursing competence. Three major hypotheses were proposed. As shown in Fig. 1, the higher the perceived teacher's competence in encouraging learning, the more positive the learning environment, which will lead to lower state anxiety level and increased learning effectiveness and self-reflection among students. Second, a decrease in students' perceived state anxiety should lead to greater self-reflection and learning effectiveness as well as further improvements in nursing competence. Third, self-reflection and learning effectiveness mediate the presumed association between anxiety and nursing ability in the hospital setting.

Methods

Design and participants

The study used a prospective, longitudinal and correlational design. A sample of 320 of the fourth-year nursing students from a college in southern Taiwan was enrolled in the study. The study was conducted from December 2014 to July 2015. All participants experienced simulation programs and anonymously completed four questionnaires: Teacher's Competence in Encouraging Learning in small Group (STERLinG), Self-Reflection and Insight Scale (SRIS), Simulation Learning Effectiveness Scale (SLES), and State-Trait Anxiety Inventory (STAI). We also assessed their clinical care performance after they completed the first two months of the clinical practicum at the hospital setting, using the Holistic Nursing Competence Scale (HNCS). They survey questionnaire return rate was 91.56% (293/320), and data from all 293 survey questionnaires were entered into statistical analysis.

Measures

Five instruments were used to conduct the study: STERLinG, SRIS, SLES, STAI, and HNCS. We invited four nursing experts to review these instruments, and we calculated the content validity indices (CVIs). All CVI levels were above 0.95. The research instruments are described below.

Teacher's Competence in Encouraging Learning in a Small Group (STERLinG)

Students' perceptions of teacher competence in encouraging learning were measured by the 36-item STERLinG scale, developed by Schaub-de Jong, Schönrock-Adema, Dekker, Verkerk, and Cohen-Schotanus (2011). This scale provides a measure of students' perceptions of their teachers' competencies in encouraging reflective learning and includes three subscales: supporting self-insight, creating a safe environment, and encouraging self-regulation. Each item is rated on a 4-point Likert scale (1 = not at all applicable, 4 = highly applicable),

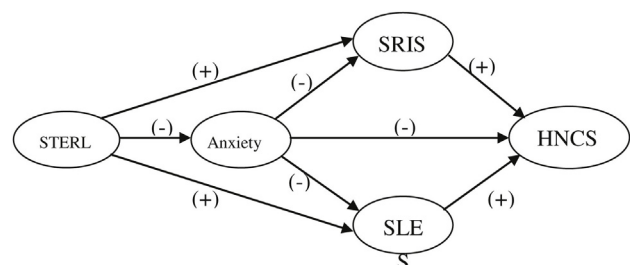


Fig. 1. Research concept model and hypotheses.

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