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Featured Article

Examining Nursing Students' Stress in an End-of-Life Care Simulation

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high-fidelity manikin;
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stress;
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nursing education;
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Abstract

Background: This research investigated undergraduate nursing student stress in an end-of-life care simulation in psychological and physiological measures and examines the impact of simulator and learner type on stress.

Method: A quasi-experimental study was conducted examining psychological and physiological stress. Psychological stress was measured by using the State Trait Anxiety Inventory Scale, form Y-1. Physiological stress was measured by heart rate and blood pressure.

Results: Statistically significant levels of psychological stress were noted when care was being given to the high-fidelity manikin when compared with the standardized patient ($p = .003$). Active learners experienced statistically significant psychological stress than observing learners ($p = .001$).

Conclusions: Undergraduate nursing students experienced more psychological stress than physiological stress when involved in an end-of-life care simulation and when serving as active learners.

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Providing end-of-life care to patients and their family members is stressful on nurses. The care encompasses physical, psychological, and spiritual needs (Chow, Wong, Chan, & Chung, 2014). A lack of exposure to end-of-life care in nursing school has been a contributing factor to nurses experiencing stress (Kwekkeboom, Vahl, & Eland, 2005). Nursing students are well aware of this lack of exposure as well; many nursing students report feeling anxious about caring for patients at the end-of-life (Gillan, Parameter, Van der Riet, & Jeog, 2013; Kopp & Hanson, 2012; Kwekkeboom et al., 2005).

Many clinical sites are unable to guarantee an opportunity for nursing students to be involved in the care of an acutely ill patient, including the actively dying patient; thus, many schools opt to use simulation as a substitute for clinical experience (Baxter, Akhtar-Danesh, Valaitis, Stanyon, & Sproul, 2009; Yuan, Williams, Fang, & Ye, 2012). The National Council of State Boards of Nursing conducted a study, from 2011 to 2013, examining the longitudinal effects of substituting up to 50% of clinical time with simulation on participants' knowledge, competency, and ability to transfer learning from simulation to clinical. The findings noted that substituting clinical with high-quality simulation up to 50% of the time did not change the new graduate nurses' abilities (Hayden, Smiley, Alexander,

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Kardong-Edgren, & Jeffries, 2014). Simulation offers nursing students the ability to develop their clinical and communication skills in a safe environment (Berragan, 2011; Jeffries, 2005; Texas Nurses Association, 2007). In addition, simulation guarantees learners the exposure to acutely ill, including end-of-life care patients, as this has not been the case with the clinical experience for undergraduate nursing students.

Key Points

- Simulation offers nursing education a method to teach undergraduate nursing students about end-of-life care.
- The actual simulator in an end-of-life care simulation impacts undergraduate nursing students' psychological stress.
- Active learners experience greater psychological stress than observing learners in an end-of-life care simulation.

Literature Review

National Cultural Shift in End-of-Life Care Education

Traditionally, end-of-life care has not been incorporated in nursing education curricula, despite nurses being at the forefront of caring for the dying patient (Dickson, Clark, & Sque, 2008). However, a cultural shift has begun in health care education: incorporating end-of-life care in nursing education has become a priority. In 2010, the National Council of State Boards of Nursing added end-of-life care on the National Council Licensure Examination—Registered Nurse (Kopp & Hanson, 2012). Furthermore, the Robert Wood Johnson Foundation has funded the End-of-Life Nursing Education Consortium (ELNEC), which promotes training of nursing educators on incorporating end-of-life care in nursing education (Ferrell & Virani, 2012). Since January 2017, the ELNEC curriculum has been available online for nursing educators and nursing students with the goal of disseminating end-of-life care knowledge (American Association of Colleges of Nursing, 2017).

Stress in Simulation

Stress has been increasingly examined in simulation laboratories; however, the population has varied. For instance, both Chiffer McKay, Buen, Bohan, and Maye (2010) and Jones et al. (2011) examined physiological anxiety and stress in student nurse anesthetists using either the State-Trait Anxiety Inventory, forms Y-1 and Y-2, heart rate, or through salivary alpha amylase or cortisol levels. Lee, Park, Kim, and Han (2016) used cortisol levels to examine nursing students' stress during a birthing simulation. The three research studies on either undergraduate or graduate nursing student stress identified statistically significant increases from baseline stress levels ($p \leq .05$). Although the literature provides a limited picture on examining stress in simulation, an even greater gap in the literature exists when examining the effects of the simulated patient type on undergraduate nursing students' psychological and physiological stress.

Active Versus Observing Learner

VARK Learn Limited (2015) identified that active learners prefer kinesthetic learning, whereas observing learners prefer to learn through what they see. Active learning supports self-assurance, clinical reasoning, and skill in nursing students (Onda, 2012). Focused observation of peers encourages learning, engagement, and dialog of the learners (State of Victoria Office of School Education, 2005).

Active learning has been examined in the use of low- and high-fidelity simulators. For instance, Butler and Veltre (2009) conducted research on 31 associate degree nursing students undergoing pediatric nursing simulations. The study found that students in an active learning role preferred the high-fidelity simulators because of increased collaboration, ability to problem solve, and to be more proactive. Kirkman (2013) conducted a study on 42 active learners' potential to transfer learning respiratory assessment on a high-fidelity manikin into traditional clinical over time. The findings were statistically significant ($p = .000$) for the active learners' ability to transfer their respiratory assessment skills from the simulation laboratory into traditional clinical (Kirkman, 2013).

Botma (2014) conducted two focus groups of eight undergraduate nursing students' perceptions of their ability to transfer learning as observers in simulation using the high-fidelity manikin and standardized patient. Trustworthiness of the data as conducted by triangulation, an independent co-coder, and literature support of the data occurred. Four participants described learning as much as an active learner while serving as an observing learner; open coding identified the following themes: confidence, deliberate practice, motivation, teamwork, and theory—practice integration (Botma, 2014). Supporting the findings of Botma (2014), Hober and Bonnel (2014) conducted research at two universities and found that observing learners were able to learn from peers who served as active learners in simulation, particularly when observing missteps in providing care.

In the literature, simulation has incorporated singling out both learner types. However, limited research compares the two learning types during a simulation. Currently, the literature is more robust in the examination of the various effects of active learners than observing learners.